

## A001–A193

### Sepsis, Infection, Immunity\_2 A001

#### The dose related effect of systemic antibiotics in prevention of postoperative adhesion formation in experimental animals

Abbas Mohamed<sup>1</sup>, Nafeh Ayman<sup>2</sup>, Elsebae Magdy M A<sup>3</sup> and Farouk Youssef<sup>4</sup>

<sup>1</sup>Department of General Surgery-Theodor Bilharz Research Institute, Cairo, Egypt, <sup>2</sup>Department of General Surgery-Theodor Bilharz Research Institute, <sup>3</sup>Department of General Surgery -Theodor Bilharz Research Institute, <sup>4</sup>Department of General Surgery-Theodor Bilharz Research Institute (magdyelsebae@hotmail.com)

Sixty Wistar-Albino rats weighing 200–250 g were assigned to 2 main groups, of 30 rats each. Animals in the first main group (GI,  $n = 30$ ) were injected intramuscularly with 1 ml saline, half an hour preoperatively (the main control group). In the second main group (GII,  $n = 30$ ) animals were injected with 50 mg/kg cefepime HC (Maxipime, BM, Egypt) and 7.5 mg/kg metronidazole (Flagyl, Aventis, Egypt) in a volume of 1/2 ml for each (The main antibiotic group). After a midline laparotomy was performed, abdominal adhesions were induced in all animals. After operation, animals in the main control group were submitted according to the numbers of postoperative intramuscular saline injections into 2 subgroups; GIa ( $n = 15$ ) in which animals were injected every 8 hours for 2 doses and GIb ( $n = 15$ ) where animals were injected every 2 hours for 5 days. Similarly, the main antibiotic group was subdivided into GIIa ( $n = 15$ ) and GIIb ( $n = 15$ ). On the 14th day, the rats were killed and the adhesion score was determined.

**Results:** Short course of antibiotic significantly decreased the extent of postoperative peritoneal adhesions ( $P < 0.05$ ), while the severity of adhesions did not show significant changes. The 5 day course of antibiotics revealed significant reduction in both the extent ( $P < 0.001$ ) and the severity ( $P < 0.01$ ) of postoperative peritoneal adhesions. To conclude, short course antibiotics, which have been the standard regimen for prophylaxis against surgical infection, did not show significant reduction of postoperative intra-abdominal adhesions in experimental animals. A 5 day course of antibiotics significantly decreased the incidence, extent and severity of postoperative intra-abdominal adhesions. However this 5 day course should not be described routinely in abdominal surgical practice. It may be indicated in prolonged abdominal operations, surgery on the bowels, history of recurrent adhesive intestinal obstruction or relaparotomy operations.

### Cardiovascular, Thoracic\_1 A002

#### Concentration and activity of matrix metalloproteinases and tissue inhibitors of metalloproteinases in the wall of abdominal aortic aneurysm at different wall stress

Abdul Rahman M N A<sup>1</sup>, Heng M S T<sup>2</sup>, Fagan M<sup>3</sup>, Greenman J<sup>4</sup>, McCollum P T<sup>5</sup>, Chetter I C<sup>6</sup>

<sup>1</sup>Academic Vascular Surgical Unit, Hull Royal Infirmary, <sup>2</sup>Academic Vascular Surgical Unit, Hull Royal Infirmary, <sup>3</sup>Medical Engineering Department, University of Hull, <sup>4</sup>Biosciences Department, University of Hull, <sup>5</sup>Academic Vascular Surgical Unit, Hull Royal Infirmary, <sup>6</sup>Academic Vascular Surgical Unit, Hull Royal Infirmary (bishami.abdulrahman@bey.nhs.uk)

**Background:** AAA formation and development occur due to excessive extracellular matrix degradation which is closely regulated by matrix metalloproteinases (MMPs) and their inhibitors (TIMPs). It is suggested that variation in wall stresses may be influential in this regulation. We aimed to assess the impact of high and low wall stress on MMPs and TIMPs and to compare this with controls.

**Method:** We recruited 22 patients undergoing elective AAA repair and 8 patients undergoing (CABG) as controls. A 3D CT reconstruction of AAA was performed and analysed using FEA for wall stress calculation, where samples were taken. Ascending thoracic aorta samples obtained during CABG were used as controls. All samples were snap frozen and analysed for MMP 2, 8 and 9 and TIMP 1 and 2 using ELISA. Statistical analysis was performed using SPSS v14.

**Results:** All results are in median and IQ range High wall stress Low wall stress Control MMP 8 active 5.8 (2.6–9.9) 6.3 (3.8–10.8) 3.5 (2.6–5.0) MMP 8 total 14.2 (8.9–43.6)\* 13.3 (9.2–31.0)\* 6.3 (3.2–13.4) MMP 9 active 0.4 (0.29–1.39)\* 0.6 (0.29–0.86)\* 14.8 (7.2–18.1) MMP 9 total 8.1 (3.6–16.1)\* 8.3 (5.0–11.6)\* 25 (19.0–61.0) TIMP 1 296 (164–522)\* 176 (82–321) 130 (83–221) TIMP 2 25 (11–45)\* 18 (10–33)\* 174 (134–232)\* =  $p < 0.05$  compare to control.

**Conclusion:** Concentration and activity of MMPs and TIMPs in the wall of AAA may be influence by variation in wall stress.

### Oncology\_2 A003

#### Androgen receptors and reaction for hormonotherapy in lymph node-positive and lymph node-negative women with breast cancer.

Agrawal Anil Kumar<sup>1</sup>, Zukrowski Piotr<sup>2</sup>, Grzebień Zigmunt<sup>3</sup>, Jelen Michał<sup>4</sup>, Slonina Joanna<sup>5</sup>

<sup>1</sup>2nd Department of General and Oncological Surgery Wrocław Medical University, Poland, <sup>2</sup>2nd Department of General and Oncological Surgery Wrocław Medical University, Poland, <sup>3</sup>2nd Department of General and Oncological Surgery Wrocław Medical University, Poland, <sup>4</sup>Department of Pathology Wrocław Medical University, Poland, <sup>5</sup>Department of Radiology Wrocław Medical University, Poland (zubez@gazeta.pl)

**Introduction:** Hormonotherapy in women with locoregional breast cancer improve prognosis when estrogen receptors or/and progesterone receptors are positive. The role of the androgen receptors (AR), that are also one of the family steroid receptors, is discussed. It is important because of 10% women have only androgen receptors on cancer cells. So the question is: should they get hormonotherapy?

**Purpose of the study:** We'd like to find any correlations between AR, metastases to the regional lymph node and with answer for hormonotherapy (HT) in women with breast cancer.

**Material and methods:** 723 women with locoregional breast cancer operated in 2nd Department of General Surgery Wrocław Medical University in period 2000–2002. All women were divided in 8 groups: –AR+/LN+/HT+, –AR+/LN+/HT–, –AR+/LN–/HT+, –AR+/LN–/HT–, –AR–/LN+/HT+, –AR–/LN+/HT–, –AR–/LN–/HT+, –AR–/LN–/HT–. We analyzed the patient documentation in pre- and postoperative period. The answer for hormonotherapy we evaluated based on 5-year survival after operation and local recurrence.

**Results:** Androgen receptors were positive in 329 women (45,5%). The most of them didn't have metastases to regional lymph node – 170 (51,7%). Whereas many patients AR(+) has breast cancer with N2 or N3. In group with AR(+) and LN(+), that got hormonotherapy 5-years survival was 16% higher and the local recurrence was twice less than women with AR(+) and LN(+), that didn't get hormonotherapy.

**Conclusions:** Androgen receptors are the most common steroid receptors on breast cancer cells. They were found often in women with stage N2 and N3. The prognosis was better in women with AR(+) and LN(+) who get hormonotherapy. We need more study to recommended hormonotherapy in every women with AR(+) as routine postoperative treatment in women with breast cancer.

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## BJS A004

**Comparison of "Read-Rives" and 'Lichtenstein' repair for treatment of unilateral inguinal hernia: Prospective randomized controlled clinical trial.**Akhavan Moghaddam Jamal<sup>1</sup>, Mehrvarz Shaban<sup>2</sup><sup>1</sup>Dept. of Surgery, Baqiyatallah University of Medical Sciences, Tebran, Iran,<sup>2</sup>Associate Professor of Surgery, Baqiyatallah University of Medical Sciences, Tebran, Iran (mehrvarz@bmsu.ac.ir)

Lichtenstein' tension-free mesh repair is the most common surgical techniques used for inguinal hernia repair. In this technique the mesh is placed on the floor of inguinal canal, so an attenuated fascia remains under the mesh, it is a potentially weak point for recurrence. "Read-Rives" method is tension-free, mesh hernioplasty too, but here prosthesis is placed under the transversalis fascia just over the peritoneum, and there is not weak area. The aim of this study was to compare the results of "Read-Rives" and Lichtenstein method in the inguinal hernioplasty.

**Methods and Material:** In this prospective randomized clinical trial 126 patients who had unilateral inguinal hernia were included: 64 patients operated with Lichtenstein and 62 patients operated with Rives method. They evaluated for early post-operative complications (i.e. infection, hematoma, unusual pain), duration of surgery and hospital stay, return to normal activity, and then they followed for recurrence of hernia.

**Statistical analysis used:** Statistical analysis was performed using the T test and fisher exact analysis. 95% confidence intervals were maintained and standard deviation, risk ratio, odds ratio and P probability were calculated.

**Results:** Early and late postoperative pain was significantly lower and the return to normal activity was shorter in Rives group (9.6 versus 12.1 days). Duration of surgery and hospital stay and recurrence rate was equal, lower postoperative wound infection was found within Rives method (3 vs.1, P value NS).

**Conclusions:** Although the 'Read-Rives' method is not technically as simple as 'Lichtenstein' method, but this procedure is easy to learn, so is recommended because of its better final outcome in compare with Lichtenstein repair without increasing in operative time and cost.

## Hepatobiliary.1 A005

**Effects of the p53 inhibition (Pifithrin- $\alpha$ ) on the necrotizing pancreatitis in rats**Alhan Etem<sup>1</sup>, Cinel Aki<sup>2</sup>, Erçin Cengiz<sup>3</sup>, Kural Birgül<sup>4</sup>, Türkyılmaz Serdar<sup>5</sup>, Flinte Deniz<sup>6</sup>

<sup>1</sup>KTU University, department of Surgery, Trabzon-Turkey, <sup>2</sup>KTU University, department of Surgery, Trabzon-Turkey, <sup>3</sup>Kocaeli University, department of pathology, Kocaeli-Turkey, <sup>4</sup>KTU University, department of biochemistry, Trabzon-Turkey, <sup>5</sup>KTU University, department of Surgery, Trabzon-Turkey, <sup>6</sup>Kocaeli University, department of pathology, Kocaeli-Turkey (alhan@meds.ktu.edu.tr)

The aim of this study was to investigate the influence of p53 inhibition (Pifithrin- $\alpha$ , PFT) on acute necrotizing pancreatitis (ANP). ANP was induced by an intravenous infusion of cerulein 5  $\mu$ g/kg/hour over six hours superimposed on a standard infusion of 1.2ml/kg glycodeoxycholic acid 10 mmol/L into the biliary-pancreatic duct for 10 minutes at 30 mm Hg. The rats were divided four groups as Sham + saline, ANP + saline and ANP + PFT, ANP + DMSO. Research parameters are mortality rate, blood pressure, urine output, pancreatic functional capillary density (FCD) with orthogonal polarization spectral imaging system, blood gas, serum amylase, urea, alanine transferase (ALT), lactate dehydrogenase (LDH) in broncho alveolar lavage (BAL) fluid, pancreatic histology and tissue activity of myeloperoxidase (MPO) and malondialdehyde (MDA) in the pancreas and lung. The induction of ANP resulted in significant increase in mortality rate, pancreatic necrosis and serum activity of amylase ALT, LDH in bronchoalveolar lavage (BAL) fluid, serum concentration of urea, tissue activity of MPO and MDA in the pancreas and lung, and significant decrease of concentrations of calcium, blood pressure, urine output and pO<sub>2</sub>. The use of PFT did not improve mortality rate, pancreatic necrosis, macrohemodynamic parameters, lung and renal function, tissue activity of MPO and MDA in pancreas and lungs, except FCD. The use of PFT has a

limited effect on the course of ANP in rats. Therefore, it can not be used in the treatment of the acute pancreatitis.

## Cardiovascular, Thoracic.1 A006

**Development of a Vascular Bypass Graft With Polyhedral Oligomeric Silsesquioxane Nanocomposite**Aobaid Nasser<sup>1</sup>, deMel Achala<sup>2</sup>, Seifalian Alexander<sup>3</sup>, Hamilton George<sup>4</sup>

<sup>1</sup>Academic Department of Surgery, The Royal Free and University College Medical School, London, UK, <sup>2</sup>Academic Department of Surgery, The Royal Free and University College Medical School, London, UK, <sup>3</sup>Academic Department of Surgery, The Royal Free and University College Medical School, London, UK, <sup>4</sup>Academic Department of Surgery, The Royal Free and University College Medical School, London, UK (n.alobaid@gmail.com)

**Background:** The absence of a functional endothelial layer and compliance mismatch between the graft and the native blood vessel have been implicated in the aetiology of graft failure. It is desirable to have a compliant and spontaneously endothelialising bypass graft. The aim was to fabricate a graft made from a novel nanocomposite- containing biomaterial, modify its luminal surface with peptides and quantify its elastic properties and its ability to endothelialise by circulating endothelial progenitor cells in a physiological flow circuit.

**Methods:** A new generation of nanocomposite based on silsesquioxane in the form of polyhedral oligomeric silsesquioxane nanocages which incorporate the bioactive peptides arginine-glycine-aspartic acid was extruded into grafts. The grafts were then subjected to flow in a physiological circuit. Wall distension was recorded by ultrasound and the compliance calculated. Human mobilized peripheral blood CD34 cells were injected into the flow circuit. Quantification of cells adhered to graft was done by Alamar Blue assay. Cells were characterised by immunostaining and Reverse transcription polymerase chain reaction (RT-PCR).

**Results:** The compliance of the graft was similar to the artery and higher than control (PTFE and Dacron). After 48 hours, there were more CD34 cells attached to the graft than control. Immunostaining and RT-PCR confirmed the differentiation of CD34 cells to endothelial cell-like cells by pulsatile flow.

**Conclusion:** A novel small-diameter vascular bypass graft demonstrated to be compliant and has the potential to endothelialise from circulating mobilized stem/progenitor cells.

## BRENDLE A007

**Function of platelets in sepsis-induced lung injury**Asaduzzaman Muhammad<sup>1</sup>, Rahman Milladur<sup>2</sup>, Lavasani Shahram<sup>3</sup>, Zhang Su<sup>4</sup>, Jeppson Bengt<sup>5</sup>, Thorlacius Henrik<sup>6</sup>

<sup>1</sup>Department of surgery, Lund University, Malmö University Hospital, Malmö, Sweden, <sup>2</sup>Department of surgery, Lund University, Malmö University Hospital, Malmö, Sweden, <sup>3</sup>Department of surgery, Lund University, Malmö University Hospital, Malmö, Sweden, <sup>4</sup>Department of surgery, Lund University, Malmö University Hospital, Malmö, Sweden, <sup>5</sup>Department of surgery, Lund University, Malmö University Hospital, Malmö, Sweden, <sup>6</sup>Department of surgery, Lund University, Malmö University Hospital, Malmö, Sweden (milladur.rabman@med.lu.se)

**Background:** Accumulating data suggest that platelets may exert pro-inflammatory effects. Herein, we hypothesized that platelets may play a significant role in pulmonary recruitment of leukocytes in abdominal sepsis.

**Method:** Polymicrobial sepsis were induced by cecal ligation and puncture (CLP) in C57BL/6 mice. Administration of an anti-GPIIb/IIIa reduced platelets counts by more than 90%. Leukocyte recruitment, CXC chemokine and edema formation were quantified in lung tissue and bronchoalveolar fluid at different time point after CLP. Expression and function of membrane activated complex-1 (Mac-1) were analyzed by flow cytometry.

**Results:** We found that platelet depletion reduced CLP-induced leukocyte recruitment and edema formation by more than 60% as well as protected the tissue structure in septic lung injury. Moreover, depletion of platelets markedly decreased CLP-induced Mac-1 expression on circulating neutrophils and immunoneutralization of Mac-1 abolished CLP-provoked neutrophil accumulation in the lung. Notably, inhibition of PSGL-1, which blocked neutrophil-platelet aggregate formation had no effect of Mac-1 up-regulation on neutrophils. In addition, Mac-1 expression on neutrophils was independent of the number of bound platelets. Neutrophil-platelet complexes exhibited no preferential accumulation in septic lung injury.

**Conclusion:** Our novel findings demonstrate an important role of platelets in mediating pulmonary infiltration of neutrophils and edema formation in abdominal sepsis. Moreover, platelets mediate Mac-1 expression on neutrophil, which was critical for neutrophil accumulation in the lung and independent of neutrophil-platelet aggregation. Thus, platelet function may be a useful target in strategies to protect lung damage in abdominal sepsis.

## Sepsis, Infection, Immunity\_1 A008

### Evaluation of urinary neopterin and biopterin excretion in intensive care unit patients

Baydar Terken<sup>1</sup>, Yüksel Osman<sup>2</sup>, Şahin Tolga<sup>3</sup>, Dikmen Kürşat<sup>4</sup>, Kurukahvecioğlu Osman<sup>5</sup>, Şare Mustafa<sup>6</sup>

<sup>1</sup>Department of Toxicology, Faculty of Pharmacy, Hacettepe University, Ankara, Turkey, <sup>2</sup>Department of Surgery, Medical Faculty, Gazi University, Ankara, Turkey, <sup>3</sup>Department of Surgery, Medical Faculty, Gazi University, Ankara, Turkey, <sup>4</sup>Department of Surgery, Medical Faculty, Gazi University, Ankara, Turkey, <sup>5</sup>Department of Surgery, Medical Faculty, Gazi University, Ankara, Turkey, <sup>6</sup>Department of Surgery, Medical Faculty, Gazi University, Ankara, Turkey (osmanyuksel1971@yahoo.com.tr)

**Aim:** Monitoring monocyte specific mediators may provide useful information about the patient's immunological situation, to predict complications, and to adapt and control therapeutic strategies. The aim of the study was to evaluate urinary neopterin and biopterin levels in intensive care unit patients.

**Materials and Methods:** 32 patients were able included for mean urinary neopterin and biopterin evaluation. 10 of the patients were in systemic inflammatory response syndrome (SIRS), 8 of them were in sepsis, 9 of them had septic shock while 5 of them had multiple organ dysfunction syndromes (MODS). The control group was consisted of 30 healthy subjects. Urine samples were collected coincidentally. These parameters were compared in terms of mortality and APACHE II scores.

**Results:** Neopterin and biopterin levels were significantly different between control group and the patients ( $p < 0.05$ ). Neopterin levels were significantly higher in the sepsis and the septic shock group than the SIRS group ( $p < 0.05$ ). There were no significant difference in the neopterin levels between MODS and other groups. Neopterin levels in septic shock group were higher than sepsis group ( $p > 0.05$ ). Biopterin levels were higher in the sepsis and the MODS group than the SIRS group ( $p < 0.05$ ) and septic shock group than the SIRS group ( $p > 0.05$ ). Biopterin levels were higher in the MODS group than the sepsis and the septic shock groups and the sepsis group than the septic shock group ( $p > 0.05$ ). A similar difference existed between the biopterin levels of the MODS and the septic shock group ( $p > 0.05$ ). Neopterin levels of the patients with mortality were higher than the otherwise ( $p < 0.05$ ). Biopterin level of the patients with mortality were higher than the otherwise ( $p < 0.05$ ).

**Conclusion:** This study showed that urinary neopterin and also biopterin profile can be used in intensive care units in order to show degree and prognosis of the disease.

## Unusual observations, strange ideas A009

### Long – term outcomes in women undergoing transvaginal synthetic mesh

Beta Jaroslaw<sup>1,4</sup>, Borucki Wojciech<sup>2</sup>, Jakimiuk Artur<sup>3</sup>

<sup>1</sup>Department of Obstetrics, Women's Diseases and Oncological Gynecology; Central Clinical Hospital of Ministry of Interior and Administration, Warsaw, Poland, <sup>2</sup>Department of Obstetrics, Women's Diseases and Oncological Gynecology; Central Clinical Hospital of Ministry of Interior and Administration, Warsaw, Poland, <sup>3</sup>Department of Obstetrics, Women's Diseases and Oncological Gynecology; Central Clinical Hospital of Ministry of Interior and Administration, Warsaw, Poland; <sup>4</sup>Polish Academy of Sciences Medical Research Center, Warsaw, Poland (jbeta@wp.pl)

The study was undertaken to assess the long-term anatomical and functional outcomes of the transvaginal surgery performed because of pelvic organ prolapse.

**Study design:** Forty women with vaginal prolapse evaluated preoperatively, after 6 months and after 1 year follow – up using the POPQ classification and HRQOL specific questionnaires (PFDI-20 and PFIQ-7). All of them underwent the transvaginal synthetic mesh implantation.

**Results:** Significant improvement in the prolapse measured by the POPQ classification ( $p < 0.001$ ) was observed at 6-month and 1 year follow – up visits. No life – threatening complications were noted. One patient suffered from transient postoperative urinary retention and one from the postoperative lumbar pain. No single case of mesh erosion was observed during follow – up period. At 1 year follow – up, only in three cases the recurrence of the prolapse (all in POPQ I) was observed. Significant improvement in the quality of life in PFDI-20 and PFIQ-7 questionnaires was observed ( $p < 0.001$ ). All three scales of the PFDI-20 and PFIQ-7 demonstrated excellent postoperative responsiveness (SRM: 1.42–1.80, ES: 0.71–1.57 and SRM: 0.78–1.66, ES: 1.0–2.1 respectively,  $p < 0.001$ ).

**Conclusions:** Transvaginal mesh implantation is very effective and safe method of pelvic organ prolapse treatment. Women undergoing such surgery appreciate final effects and confirm quality of life improvement.

## Orthopedic\_1 A010

### Cancellation of elective orthopaedic operations within 24 hours of the intended

Bhattacharjee Atanu, Heal J, Budnar Mr V, Learmouth Prof I D

Bristol Royal Infirmary, Bristol, UK (bhattacharjee.santanu@btmail.com)

**Objective:** Identifying the rate and causes of cancellations of elective orthopaedic operations within last 24 hours of the intended surgery.

**Method:** We undertook a retrospective study of 2828 patients being planned for elective orthopaedic operation in a tertiary orthopaedic referral centre from a period of January to June 2007. Operations being cancelled within last 24 hours of intended surgery were obtained from the daily operating theatre list with specific addendum of reasons for such cancellations.

**Result:** A total of 2828 patients were scheduled for elective orthopaedic operation by 30 surgeons in the study period; 136 patients were cancelled within 24 hours of the intended operation. Main reasons for cancellation were medical (31 percent), non medical (65 percent) and other causes (4 percent). Medical causes of cancellations were: co morbidities (36 patients), anticoagulation not stopped (2 patients), abnormal blood results (2 patients), others (3 patients). Non medical causes of cancellations were: no theatre time (28 patients), patient did not intend to have the operation (24 patients), surgeon not available (13 patients), problems with instruments (8 patients), failed communication (4 patients), shortage of staff (1 patient) and others (10 patients).

**Conclusion:** There were four major causes of cancellation of similar magnitude for cancellation of operations within last 24 hours of the surgery. More than 80 percent of cancellations for the elective orthopaedic operations are potentially avoidable. A combined anaesthetic and orthopaedic surgeon led preoperative assessment clinic will minimise patient cancellation due to identification and



management of medical issues. Detailed discussion of the operative procedure during pre operative assessment will prevent cancellation due to failed patient expectations. Identifying issues of potential cancellation and operating room efficiency while designing daily operating theatre list will also avoid cancellation due to lack of operating time.

## Cardiovascular, Thoracic\_1 A011

### Intensity of the inflammatory response to carotid artery endarterectomy or stent implantation

Bialek Pawel<sup>1</sup>, Gromadzka Grażyna<sup>2</sup>, Kobayashi Adam<sup>3</sup>, Proczka Robert<sup>4</sup>, Biejat Zbigniew<sup>5</sup>, Polanski Jerzy<sup>6</sup>

<sup>1</sup>2nd Department of General, Oncological and Vascular Surgery Medical University of Warsaw, Poland, <sup>2</sup>2nd Department of Neurology Institute of Psychiatry and Neurology, <sup>3</sup>2nd Department of Neurology Institute of Psychiatry and Neurology, <sup>4</sup>2nd Department of General, Oncological and Vascular Surgery Medical University of Warsaw, <sup>5</sup>2nd Department of General, Oncological and Vascular Surgery Medical University of Warsaw, <sup>6</sup>2nd Department of General, Oncological and Vascular Surgery Medical University of Warsaw (pbialek@mp.pl)

The interventional, secondary prophylactics of acute ischemic incidents in patients with symptomatic carotid artery atherosclerosis is used and contains two different methods: endarterectomy (E) and angioplasty with stenting (AS). Experimental and clinical studies have indicated that vascular interventions are accompanied by the inflammatory process. The extent of inflammatory response might contribute to restenosis. We aimed to compare serum levels of C-reactive protein (CRP): a well-known marker of systemic inflammation, between patients who underwent angioplasty and stenting and these after endarterectomy.

**Material and methods:** 21 E patients and 33 AS patients were analyzed. Blood samples were collected one day before the procedure and 24 hours, 72 hours, 1 month and 6 months afterwards. CRP was measured with a high-sensitivity assay.

**Results:** Preprocedural CRP was not correlated with the grade of stenosis nor with intima-media thickness of the treated carotid artery. Significant increase of CRP was noticed at the first day after procedure (median: 11.5 mg/dL, compared to baseline : 2.5 mg/dL). More extensive increase was detected at the 3rd day (median: 20.6 mg/dL). CRP measurements after 1 month and 6 months did not differ from baseline values. E was associated with a similar time course of postinterventional CRP compared with the course of these values after AS. However, at the 3rd day a more pronounced increase in CRP level was noted after AS (22.5 mg/dL *versus* 15.2 mg/dL); relatively to baseline values: 10-fold increase in the AS group and 5-fold in the E group were detected. Low number of patients with restenosis did not allow us to perform reliable statistical analysis aimed to evaluate association between serum CRP and risk of restenosis.

**Conclusions:** The intensity of the inflammatory response to stent implantation in terms of CRP increase seems be higher than the response to E. Thus possibly, patients after AS demand more aggressive anti-inflammatory treatment than these after E.

## Wound healing A012

### Nanocellulose mesh as a new implant for the ventral hernia repair – an animal study

Bigda Justyna<sup>1</sup>, Śmietaniński Maciej<sup>2</sup>, Jerzy Jankau<sup>3</sup>, Izyczna-Świeszeńska Ewa<sup>4</sup>, Śledziński Zbigniew<sup>5</sup>, Bielecki Stanisław<sup>6</sup>

<sup>1</sup>Dept. of General Endocrine and Transplantation Surgery, Medical University of Gdansk, Poland, <sup>2</sup>Dept. of General Endocrine and Transplantation Surgery, Medical University of Gdansk, Poland, <sup>3</sup>Dept. of Plastic Surgery and Burns, Medical University of Gdansk, Poland, <sup>4</sup>Dept. Pathomorphology Medical University of Gdansk, Poland, <sup>5</sup>Dept. of General Endocrine and Transplantation Surgery, Medical University of Gdansk, Poland, <sup>6</sup>Institute of Technical Biochemistry Institute, Technical University of Łódź (jbigda@amg.gda.pl)

**Introduction:** Although there are many implants available on the market, until now there is no ideal one which could be universal for hernia indication. Numerous publications appeared documenting shrinkage of the implants, seroma formation, adhesions with surrounding tissues, appearance of intestine fistulas, and migration of the implanted material. Aim of the study was to assess the value of new cellulose nanomesh of the bacterial origin for ventral hernia repair in animal model.

**Material and method:** Microbiological cellulose nanomesh was implanted in 32 rats intraperitoneally, while in the control group polypropylene mesh was used. Following 21 days (I group) and 90 days (II group) after evaluation of adhesions according to the Hooker scale, all the meshes were explanted for histopathological examinations, microbiological culturing as well as the bursting strength tests (INTSRON 1112). The ingrowths of the mesh into the tissue and its biocompatibility was evaluated.

**Results:** Macroscopic observations and microscopic tests shown the proper integrity of the implanted material. Neither seroma nor fistula formation were observed. No hydrolysis, fragmentation or calcification were present in the specimen. The mechanical test confirmed also that strength and resilience of nanocellulose did not decrease during the period of implantation.

**Conclusions:** In authors opinion microbiological cellulose is a very promising material to be used in the abdominal wall surgery. Its remarkable biocompatibility together with good physical parameters makes it a good choice out of the synthetic and biological implants available, hopefully reinforcing patient outcome.

## Transplantation, Organ preservation\_2 A013

### Distal hand ischemia triggered by forearm arterio-venous fistula creation can be predicted by preoperative ultrasonography of radial and brachial arteries

Bojakowski K<sup>1</sup>, Mazurkiewicz A<sup>2</sup>, Styczyński G<sup>3</sup>, Szmigielski C<sup>4</sup>, Sybilski M<sup>5</sup>, Andziak P<sup>6</sup>

<sup>1</sup>Department of General and Vascular Surgery, CSK MSWiA, <sup>2</sup>Department of General and Vascular Surgery, CSK MSWiA, <sup>3</sup>Department of Internal Medicine, Hypertension and Angiology, Warsaw Medical University, <sup>4</sup>Department of Internal Medicine, Hypertension and Angiology, Warsaw Medical University, <sup>5</sup>Department of General and Vascular Surgery, CSK MSWiA, <sup>6</sup>Department of General and Vascular Surgery, CSK MSWiA (wlo@cmdik.pan.pl)

**Background:** Hand ischemia is a complication of angioaccess surgery for hemodialysis. Severity of ischemia varies from period numbness to necrosis.

**Material and methods:** AVFs between radial artery and cephalic vein were created in 58 patients (38 males, 20 females). Ultrasonography of radial, brachial arteries and functional tests – flow and nitroglycerin mediated dilatations of brachial artery were performed during patient qualification to operation. Morphology and function of arteries were compared between patients with ischemia and non-ischemic.

**Results:** Symptoms of hand ischemia – intermittent claudication, numbness during dialysis were observed in 17 patients, only 1 patient required surgical revision. Patients with hand ischemia had smaller radial artery lumen in comparison to non-ischemic patients (1.66 ± 0.39 *versus* 2.04 ± 0.41 mm, respectively, p = 0.02), radial/brachial artery diameter ratio (0.42 ± 0.09 *versus* 0.51 ± 0.06, respectively, p = 0.001). We observed also significant difference in nitroglycerin mediated dilatation (10.85 ± 8.56 *versus* 15.96 ± 8.81 respectively in ischemic and non-ischemic group, p = 0.047), but only tendency in flow mediated dilatation of brachial artery (4.15 ± 2.75 *versus* 6.27 ± 4.26, p = 0.06).

**Conclusions:** Distal hand ischemia is underdiagnosed complication of AVF, which can be observed even in AVF situated on forearm. Severity of ischemic symptoms triggered by distal AVF rarely requires surgical intervention. Preoperative ultrasonography can predict patient at risk of distal hand ischemia. Smaller diameter of radial artery, radial/brachial artery ratio and impairment of nitroglycerin mediated flow in brachial artery are risk factors of distal hand ischemia.

## Hepatobiliary\_1 A014

**The effects of candesartan on microcirculatory disorders of pancreas in a rat model of acute necrotizing pancreatitis**

Bostancı Hasan<sup>1</sup>, Yüksel Osman<sup>2</sup>, Şahin Tolga<sup>3</sup>, Gülbahar Özlem<sup>4</sup>, Poyraz Aylar<sup>5</sup>, Tekin Ercüment<sup>6</sup>

<sup>1</sup>Gazi University Medical School Department of Surgery, Beşevler, Ankara, Turkey,

<sup>2</sup>Gazi University Medical School Department of Surgery, Beşevler, Ankara, Turkey,

<sup>3</sup>Gazi University Medical School Department of Surgery, Beşevler, Ankara, Turkey,

<sup>4</sup>Gazi University Medical School Department of Biochemistry, Beşevler, Ankara, Turkey, <sup>5</sup>Gazi University Medical School Department of Pathology, Beşevler, Ankara, Turkey, <sup>6</sup>Gazi University Medical School Department of Surgery, Beşevler, Ankara, Turkey (osmanyuksel1971@yahoo.com.tr)

**Aim:** Acute necrotizing pancreatitis is a severe form of the disease with a high mortality and morbidity rate which results from microcirculatory disorders that are important in the initial stages of the disease. Angiotensin II induces cellular proliferation; extracellular matrix production and has effects on endothelial permeability. In the present study it is aimed to detect the effects of candesartan –an angiotensin II antagonist- on pancreatic microcirculation in an animal model of acute necrotizing pancreatitis.

**Materials and Methods:** The rats were grouped into 5; each group consisting of 10 animals. Pancreatitis was induced by cerulein intravenous infusion concomitant with glycodeoxycholate infusion to biliopancreatic duct. Treatment groups received candesartan at 6th and 18th hours; on the other hand the sham group received saline at 6th and 18th hours. The rats were sacrificed at 24th and 48th hours respectively. Pancreatic perfusion was assessed via laser doppler flowmeter, blood was collected for amylase, myeloperoxidase, IL-6 and tumor necrosis factor alpha. Tissue samples were collected for histopathologic analysis, evaluation of endothelial cell apoptosis and matrix metalloproteinase-9 evaluation.

**Results:** Pancreatic tissue microcirculation was enhanced in candesartan treated group when compared to control groups ( $p < 0.05$ ). Myeloperoxidase, IL-6 and TNF- $\alpha$  levels significantly lower in candesartan treated group ( $p < 0.05$ ). The pancreatic edema and inflammation was significantly reduced in candesartan treated group when compared to control group at 48th hour s ( $p < 0.05$ ). Endothelial cell apoptosis was reduced in candesartan but did not reach statistical significance ( $p > 0.05$ ). Candesartan treatment reduced matrix metalloproteinase-9 levels in the pancreatic tissue ( $p < 0.05$ ).

**Conclusion:** Candesartan treatment in the early phase of necrotizing pancreatitis has beneficial effects on pancreatic microcirculation and therefore progression of the disease to more irreversible phases of inflammation may be prevented.

## Transplantation, Organ preservation\_1 A015

**Evaluation of Alternative Sites for Islet Transplantation in the Minipig: Interest and Limits of the Gastric Submucosa**

Caiazzo Robert<sup>1</sup>, Hubert Thomas<sup>2</sup>, GMYR Valery<sup>3</sup>, Sterkers Adrien<sup>4</sup>, Kerr-Conte Julie<sup>5</sup>, Pattou François<sup>6</sup>

<sup>1</sup>Department of endocrine surgery, Claude Huriez Hospital, Lille, France, <sup>2</sup>Diabetes Cell Therapy, Faculty of medicine, Lille 2 University, Lille, France, <sup>3</sup>Diabetes Cell Therapy, Faculty of medicine, Lille 2 University, Lille, France, <sup>4</sup>Diabetes Cell Therapy, Faculty of medicine, Lille 2 University, Lille, France, <sup>5</sup>Diabetes Cell Therapy, Faculty of medicine, Lille 2 University, Lille, France, <sup>6</sup>Department of endocrine surgery, Claude Huriez Hospital, Lille, France (robert.caiazzo@gmail.com)

Since the introduction of glucocorticoid-free immunosuppressive regimens, islet transplantation offers a less invasive alternative to pancreas transplantation. However, complications associated with intraportal islet injection and the progressive functional decline of intrahepatic islets encourage the exploration of alternative sites. Herein we evaluated, in the minipig, the use of the gastric submucosa (GS; group 1,  $n = 5$ ) for islet transplantation compared with the kidney capsule (KC; group 2,  $n = 5$ ). Subsequently we attempted to improve the vascularization of the submucosal graft (group 3,  $n = 5$ ) by the addition of an extracellular matrix rich in growth factors (Matrigel®). One month after grafting, we evaluated transplanted islet function in vivo and in vitro. Our study

showed better function of islets engrafted in the GS than in the KC ( $P < .05$ ). Despite the growth factors, Matrigel® did not offer a more suitable environment to further improve engraftment (group 3,  $P < .05$ ). Thus, even if the liver remains the gold standard, the GS represents a potential islet engraftment site, confirming the data obtained in vitro and in the rodent. Offering easy access by endoscopy, this site could constitute an interesting alternative for experimental studies in large mammals and, eventually, for clinical application.

## Orthopedic\_1 A016

**Outcomes following aggressive skeletal and soft tissue reconstruction for lower limb osteomyelitis**

Campbell Raewyn<sup>1</sup>, Berry Miles<sup>2</sup>, Deva Anand<sup>3</sup>, O'Carrigan Timothy<sup>4</sup>

<sup>1</sup>Department of Plastic and Reconstructive Surgery and Department of Orthopaedic Surgery, Liverpool Hospital, Liverpool, Sydney, Australia, <sup>2</sup>Department of Plastic and Reconstructive Surgery and Department of Orthopaedic Surgery, Liverpool Hospital, Liverpool, Sydney, Australia, <sup>3</sup>Department of Plastic and Reconstructive Surgery and Department of Orthopaedic Surgery, Liverpool Hospital, Liverpool, Sydney, Australia, <sup>4</sup>Department of Plastic and Reconstructive Surgery and Department of Orthopaedic Surgery, Liverpool Hospital, Liverpool, Sydney, Australia (raewyn.campbell@gmail.com)

**Background:** Severe open tibial fractures can be successfully treated acutely with a combined orthopaedic and plastic surgery approach, but a small proportion will go on to develop chronic osteomyelitis (OM). Once established, post-traumatic OM is difficult to treat with reported failure rates of up to 30%. For the past 6 years an aggressive approach of bone and soft tissue debridement followed by skeletal reconstruction and vascularised tissue transfer has been pursued by the orthopaedic and plastic surgery teams at Liverpool Hospital (LPH), a new service to Australia at that time. To date, there have been few reports of the long term outcomes and quality of life following this approach. We present a detailed follow-up analysis of our series and the first functional assessment of such patients.

**Patients and Methods:** Hospital and consultant audit databases were searched between January 2000 and July 2006. Comprehensive clinical record review was combined with patient interviews and questionnaires. Outcome measures included operative success (bony union and stable soft tissue cover), freedom from infection, mobility, return to work/sport and pain.

**Results:** 12 patients were identified over a mean follow-up period of 4-23 years. Patients underwent a mean of 11.4 procedures to operative success. Notably, a significant difference was found between the number of procedures prior to treatment at LPH and after (8.4 versus 2.5,  $p = 0.003$ ,  $t = 3.86$ ). All patients are walking and 80% have returned to work. All but one patient involved in sport at the time of injury have returned to sport. Two patients complain of mild pain when walking long distances only. No patient has expressed either regret at pursuing a reconstructive path or a desire for amputation.

**Conclusions:** Such interventions to yield freedom from infection are costly and intensive for both patients and healthcare providers, but are worthwhile given the alternative of long-term antibiotic usage, chronic discharging wounds, the inability to pursue work or leisure activities and amputation.

## Extremities A017

**Lymphatic microsurgery—state of art 2008**

Campisi C

Department of Surgery, Unit of Lymphatic Surgery and Microsurgery, San Martino Hospital, University of Genoa, Italy (campisicorrado@tin.it)

— no abstract available —

## Brendel A018

**Randomized double-blind clinical trial comparing plug-and-patch with lichtenstein method for primary inguinal hernia repair**

Can Mehmet Fatih<sup>1</sup>, Piskin Turgut<sup>2</sup>, Sevinc Mert Mahsuni<sup>3</sup>,  
Can Bulent<sup>4</sup>, Yilmaz Mehmet<sup>5</sup>, Yagci Gokhan<sup>6</sup>

<sup>1</sup>Ardaban Army Community Hospital, Department of Surgery, <sup>2</sup>Gulbane School of Medicine, Department of Surgery, <sup>3</sup>Ardaban Army Community Hospital, Department of Surgery, <sup>4</sup>Ardaban Army Community Hospital, Department of Surgery, <sup>5</sup>Ardaban Army Community Hospital, Department of Surgery, <sup>6</sup>Gulbane School of Medicine, Department of Surgery (mfcan@superonline.com)

**Aim:** To compare the usefulness of plug-and-patch method and Lichtenstein operation, both of which have gained wide acceptance in inguinal hernia repair.

**Methods:** Patients with primary inguinal hernia, who were admitted for surgical treatment from October 2006 through May 2007, were randomly assigned to undergo either mesh plug and patch repair (Group-I) or Lichtenstein operation (Group-II). Except the day and following day of surgery, patients were allowed to self-manage their pain medication (amount of paracetamol to be consumed). Patient characteristics, anaesthetic technique, duration of operation, intra- and early postoperative complications, time to first mobilization, time to discharge, postoperative pain VAS scores, chronic pain and recurrence rates at postop 3, 6 and 12 months, and the degree of patient satisfaction were recorded.

**Results:** There were forty patients in group-I, and forty-two patients in group-II. No significant differences were found between the groups with respect to the patient characteristics, hernia types and anaesthesia techniques used. Mean operation time was  $63.9 \pm 4.0$  (min, Mean $\pm$ SEM) for group-I and  $59.1 \pm 2.4$  for group-II ( $p = 0.303$ ). There were no intraoperative complications. Early postoperative complications (infection, seroma-haematoma, or urinary retention) occurred in 26% and 24.8% of patients in group-I and II, respectively ( $p = 0.896$ ), but none required re-exploration. Time to first mobilization and discharge were similar in both groups ( $p = 0.111$  and  $0.338$ , respectively). While VAS scores recorded at bed rest were slightly higher in group-II initially, they were seen to be similar in both groups between third and seventh postop days. Furthermore, patients in group-I reported higher VAS scores related to the walking periods, despite the amount of analgesics consumed were not different. One recurrence was detected in group-I. No significant differences were found in terms of chronic pain and patient satisfaction.

**Conclusion:** The results of the study suggest that inserting an additional plug into hernia defect provides no meaningful benefit over on-lay patch repair of inguinal hernia.

## Sepsis, Infection, Immunity\_1 A019

**Practices of handwashing and glove use in surgical intensive care unit: analysis of factors associated with noncompliance with hand hygiene**

Can Mehmet Fatih<sup>1</sup>, Goceri Rukiye<sup>2</sup>, Cetin Serpil<sup>3</sup>, Menten Oner<sup>4</sup>,  
Yagci Gokhan<sup>5</sup>, Tufan Turgut<sup>6</sup>

<sup>1</sup>Gulbane School of Medicine, Department of Surgery, Ankara, Turkey, <sup>2</sup>Gulbane School of Medicine, Dept of Surgery, <sup>3</sup>Gulbane School of Medicine, Dept of Surgery, <sup>4</sup>Gulbane School of Medicine, Dept of Surgery, <sup>5</sup>Gulbane School of Medicine, Dept of Surgery, <sup>6</sup>Gulbane School of Medicine, Dept of Surgery (mfcan@superonline.com)

**Background/Aim:** Compliance with hand hygiene is leading way to prevent cross infections in surgical intensive care units (sICUs). The aim of this observational study was to investigate the factors affecting adherence to hand hygiene in sICUs.

**Methods:** The study was conducted over a three-month period. Interactions between health care workers and patients were monitored. Number of encounters, opportunities for hand hygiene, and practices of handwashing/glove use were recorded. Each record also included the category of health care worker, total number of patients in sICU, type of contact, single/multiple opportunities at the same encounter, and the presence of isolation precautions. Chi-square

and logistic regression tests were used to analyze the factors associated with noncompliance.

**Results:** During a total of 3440 minutes of observation performed, there were 3317 opportunities for handwashing. Overall adherence to recommendations for hand hygiene was poor (34.2%). In multivariate analysis, physicians, nurse's aides, environmental services staff and other health care staff were found to have a higher noncompliance rate (Odds Ratios (95%CI): 1.93; 1.95; 2.02; 1.98, respectively) than that of registered nurses. Increasing number of patients taking care (1–5 to 6–10 to 11–16) reduced the compliance with handwashing ( $p = 0.006$ ), but did not affect the frequency of glove change between contacts to different body sites or different patients ( $p = 0.802$ ). Performing a low-risk procedure, presence of multiple opportunities at the same encounter, and wearing glove were associated with higher rate of noncompliance with handwashing (Odds Ratios (95%CI): 1.85; 3.82; and 3.20, respectively). Presence of isolation precautions did not improve the compliance.

**Conclusions:** Adoption of published recommendations on hand hygiene by sICU staff remains inadequate. Increased workload appears to be associated with higher noncompliance rate. Improperly gloving the hands decreases the adherence to handwashing rules. Establishment of a continuing education program and a regular audit by authority, as well as improvement of staff-to-patient ratio seem mandatory to improve hand hygiene compliance.

## Extremities A020

**Endovenous Laser Therapy with Concomitant or Sequential Phlebectomy: A Randomised Controlled Trial**

Carradice Daniel<sup>1</sup>, Mekako Anthony<sup>2</sup>, Hatfield Josie<sup>3</sup>,  
McCollum Peter<sup>4</sup>, Chetter Ian<sup>5</sup>

<sup>1</sup>Academic Vascular Surgical Unit, Hull, UK, <sup>2</sup>Academic Vascular Surgical Unit, Hull, UK, <sup>3</sup>Academic Vascular Surgical Unit, Hull, UK, <sup>4</sup>Academic Vascular Surgical Unit, Hull, UK, <sup>5</sup>Academic Vascular Surgical Unit, Hull, UK (dan1@doctors.org.uk)

**Introduction:** An exciting new development in the management of varicose veins is the use of minimally invasive endovenous techniques such as Endovenous Laser Therapy (EVL). The technical results appear better than surgery and EVLT has also been demonstrated to result in an increased quality of life in compared with conventional surgery. Significant complications are known to be rare and are absent from most larger studies. This modality of treatment offers cost saving treatment and an almost immediate return to work. This said, many operators treat truncal incompetence with the laser fibre, leaving surface varicosities to regress untouched. Whilst this does minimise procedural time, it results in many patients requesting secondary interventions, increasing cost, repeated appointments, patient inconvenience and time off work. Some surgeons argue that alongside increasing procedure time multiple avulsions would require a general anaesthetic or be unacceptable to the patient. Concomitant treatment (EVL+TAP) however has been described and is in use. This is the first randomised trial comparing EVLT with and without concomitant phlebectomy.

**Method:** All patients listed for EVLT were recruited and consented. They were randomised to either the control group (no phlebectomies) or the EVLT+TAP group, by sealed envelopes. All procedures were performed in an out patient procedure room under tumescent analgesia and duplex imaging. 14W continuous laser energy of 810nm was delivered to the vein via a 600microm fibre. Aiming for 80–100J/cm. Ambulatory Phlebectomy was then performed in the EVLT+TAP group. All patients were then put in compression for 6 weeks. Follow up was at 1, 6 and 12 weeks. Outcomes were: Duration of procedure, pain scale diaries, complication rates, reintervention rates, disease specific quality of life scoring via the Aberdeen Varicose Vein Questionnaire, patient satisfaction scale and change in venous severity (via Venous Clinical Severity Score).

**Results:** 16 patients were recruited to each group. There were no significant differences between the groups in terms of age, venous severity at baseline or quality of life and there was no significant difference in terms of the laser energy used. EVLT+TAP was a significantly longer procedure taking on average 20 minutes longer than EVLT alone. However, there was no significant difference in complication rates, pain scores, time to return to normal activities or time off work. The robustness of EVLT+TAP was demonstrated by the venous severity of all patients being brought down to 0 at 12 weeks, this translated into a significant



quality of life benefit at 6 and 12 weeks on the AVVQ score ( $p = 0.001$  and  $0.009$  respectively). No patients required further reintervention *versus* around a third in the EVLT alone group.

**Conclusion:** Endovenous laser treatment with concomitant ambulatory phlebectomy is a well tolerated procedure, which can and should be performed under local anaesthesia in an outpatient setting. It results in both significantly better objective clinical improvement and better patient quality of life than if performed without ambulatory phlebectomy and it obviates the need for short term intervention.

## Oncology\_2 A021

### Luminal versus nodal response to chemoradiation in esophageal cancer: implications for organ preservation

Ceelen Wim<sup>1</sup>, Van Huysse Jacques<sup>2</sup>, Van De Putte Dirk<sup>3</sup>, Boterberg Tom<sup>4</sup>, Peeters Marc<sup>5</sup>, Pattyn Piet<sup>6</sup>

<sup>1</sup>UZ Gent, Department of Surgery, Gent, Belgium, <sup>2</sup>UZ Gent, Department of Pathology, <sup>3</sup>UZ Gent, Department of Surgery, <sup>4</sup>UZ Gent, Department of Radiotherapy, <sup>5</sup>UZ Gent, Department of Gastroenterology, <sup>6</sup>UZ Gent, Department of Surgery (wim.ceelen@ugent.be)

**Introduction:** Neoadjuvant chemoradiation (CRT) is increasingly used in advanced esophageal cancer. Since a pathological complete response (pCR) has been shown to result in improved survival, nonoperative management could be considered in clinical complete responders. It is unclear, however, whether complete response of the luminal tumor parallels nodal response. We aimed to correlate tumor regression in the esophageal wall to lymph node status in patients undergoing CRT followed by surgery.

**Methods:** Locally advanced (N+ or T4) esophageal cancer patients underwent radiotherapy (36 Gray) with concomitant 5-fluorouracil and cisplatin followed by Ivor Lewis esophagectomy. The tumor was staged according to the TNM system (6th ed) and response was quantified using the Mandard tumor regression grade (TRG) ranging from 1 to 5 with 1 representing complete absence of viable tumor. Clinical and pathological data were correlated to survival using multivariate regression.

**Results:** 86 patients were followed for  $31 \pm 6$  months. Median hospital stay was 18 days; mortality was 4.6% and anastomotic leak rate 5.8%. pCR (ypT0N0) was observed in 24% while complete luminal response (ypT0Nx) occurred in 32.6%. Downstaging was observed of both the T stage (100% cT3 or cT4 to 32% ypT3 or ypT4) and the N stage (92% cN1 to 45% ypN1). TRG 1 or 2 was observed in 57% of patients. The incidence of positive lymph nodes ranged from 28% in TRG 1 patients to 67% in TRG 5 patients. Median survival was 67 months in pCR patients and 42 months in partial responders ( $p = 0.01$ , log rank test). In multivariate analysis, only the ypN status was independently associated with improved survival but not ypT status, TRG, age, gender, or tumor histology.

**Conclusions:** pCR to neoadjuvant CRT translates in a significant survival benefit. Achievement of a node negative status is, however, the main determinant of outcome. There is no correlation between luminal response and locoregional node status, and therefore organ preservation cannot be recommended on the basis complete clinical response of the esophageal wall.

## Oncology\_2 A022

### Safety and efficacy of hyperthermic intraperitoneal chemoperfusion with high dose oxaliplatin in patients with peritoneal carcinomatosis

Ceelen Wim<sup>1</sup>, De Somer Filip<sup>2</sup>, Pattyn Piet<sup>3</sup>

<sup>1</sup>Department of Surgery, Ghent University Hospital, Ghent, Belgium, <sup>2</sup>Department of Surgery, Ghent University Hospital, <sup>3</sup>Department of Surgery, Ghent University Hospital (wim.ceelen@ugent.be)

**Background:** Cytoreduction with hyperthermic intraperitoneal chemoperfusion (HIPEC) has an established role in selected patients with peritoneal

carcinomatosis (PC). We analyzed the safety and efficacy of HIPEC using high dose oxaliplatin, a cytotoxic agent commonly used in metastatic colorectal cancer and showing promising activity in ovarian cancer and mesothelioma.

**Methods:** Following complete cytoreduction, HIPEC was performed using 460 mg/m<sup>2</sup> oxaliplatin in dextrose 5% during 30 minutes at a temperature of 41°C–42°C. Open perfusion (coliseum technique) was performed in all patients. Metabolic, electrolyte, and hemodynamic changes were recorded during chemoperfusion as well as postoperative morbidity, mortality, late toxicity, and survival.

**Results:** Fifty-two patients were treated from 7/2005–1/2007. Chemoperfusion with dextrose 5% resulted in temporary significant hyperglycemia, hyponatremia, and metabolic acidosis. Major morbidity developed in 24% of patients, while 30 day mortality did not occur. One patient developed unexplained repeated episodes of hemoperitoneum. Chemoperfusion with oxaliplatin resulted in mild hepatic toxicity evidenced by persistent elevation of glutamyl transferase and alkaline phosphatase one month after surgery. After a mean follow up time of 14.5 months, nine patients have died from disease progression. In colorectal cancer patients, actuarial overall survival was 80% at one year.

**Conclusion:** Cytoreduction with HIPEC using high dose oxaliplatin leads to manageable metabolic and electrolyte disturbances and frequent mild hepatic toxicity without discernible impact on postoperative morbidity. Longer follow up in a larger patient cohort will be required to assess the real risk of unexplained hemoperitoneum observed in one patient, and to establish the long term effect on local relapse and survival.

## Plastic\_2 A023

### Patient perspective of long-term outcome of toe to hand transfer to bilateral Metacarpal Hand—long-term follow-up

Chan FC<sup>1</sup>, Chang CC<sup>2</sup>, Wei FC<sup>3</sup>

<sup>1</sup>Department of Plastic and Reconstructive Surgery, Cork University Hospital, Ireland, <sup>2</sup>Department of Plastic and Reconstructive Surgery, Chang Gung Memorial Hospital, Chang Gung University, Taipei, Taiwan, <sup>3</sup>Department of Plastic and Reconstructive Surgery, Chang Gung Memorial Hospital, Chang Gung University, Taipei, Taiwan (fchan@rcsi.ie)

**Introduction:** Although toe transfer has been performed for over 30 years, long term outcome data including foot donor site problems are still lacking. The aim of this study was to assess patient perspective regarding the long-term viability of toe transfer, quality of life and satisfaction rate of these complicated procedures.

**Methods:** Using a standardized questionnaire, we evaluated long-term viability of the toe-transfer to bilateral metacarpal hand, quality of life and satisfaction rate of these complicated procedures. The results are presented, along with the details of long-term post-operative bilateral hand functions including daily activities, surgical approaches, and complications.

**Results:** Long term follow up demonstrated high degree of patient satisfaction rate with long term viability of the toe-transfer and good quality of life with minimal disability of the foot donor site.

**Conclusion:** Individually planned and carefully executed bilateral metacarpal hand reconstruction using toe transfer can achieved excellent long term result with minimal disability in the donor foot. This study give strong evidence that attests to the value of these

## Transplantation, Organ preservation.1 A024

### One center experience in assessing the lower urinary tract (lut) disturbances in potential kidney recipients

Chmura A<sup>1</sup>, Radziszewski P<sup>2</sup>, Borkowski A<sup>3</sup>, Rowinski W<sup>4</sup>

<sup>1</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>2</sup>Department of Urology, The Medical University of Warsaw, Poland, <sup>3</sup>Department of Urology, The Medical University of Warsaw, Poland, <sup>4</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland (wojciech.lisik@am.edu.pl)

A number of potential kidney transplant recipients suffer from (LUT) anatomical and functional pathology. A complex LUT assessment is required prior to transplantation to avoid risk of graft loss. Aim of the study was to assess the incidence of LUT pathology in potential kidney recipients and to establish a unified and comprehensive system of LUT assessment for qualifying patients to transplantation.

**Patients and method:** The first screening examination in most cases consisted of urethrocytography and urethrocytoscopy. In patients with urethral or bladder neck stricture a urethral dilatation or bladder neck incision was performed before the patients were listed for transplantation. In 98 patients, urodynamic studies were required for the assessment of LUT disturbances.

**Results:** Out of 4170 analyzed patients on dialysis 535 were selected for investigation. 265 of them were listed for kidney transplantation following urethrocytography or urethrocytoscopy. 145 patients were selected for nephroureterectomy due to v-u reflux nephrolithiasis polycystic renal disease or hydronephrosis. 136 of them were then listed further for transplantation. 98 patients required 119 urodynamic studies. 10 potential recipients with acceptable URD study results were listed for kidney transplant directly. 41 with an anatomical stricture were listed after successful surgical treatment while these with functional pathology underwent pharmacological therapy and after improvement were listed for transplantation. 47 patients with serious LUT disturbances were listed for transplantation with atypical urinary diversion. Eventually, out of 535 patients, 447 (83,6%) were listed for routine transplantation without treatment or following pharmacological or surgical interventions while 75 (14%) were listed for transplantation with atypical urinary diversion. Altogether 98% of investigated patients were eventually listed for kidney transplantation.

**Conclusions:** All potential kidney recipients with LUT pathology require a voiding cystography and if abnormal a complex LUT examination for assessment of anatomical or functional status for effective surgical and/or pharmacological treatment.

## Transplantation, Organ preservation\_1 A025

### One center experience of the treatment of urinary complications after kidney transplantation

Chmura A<sup>1</sup>, Rowiński W<sup>2</sup>, Wałaszewski<sup>3</sup>, Czaplicki M<sup>4</sup>, Kwiatkowski A<sup>5</sup>, Trzebiecki J<sup>6</sup>

<sup>1</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>2</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>3</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>4</sup>Department of Urology, The Medical University of Warsaw, Poland, <sup>5</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>6</sup>Department of Anesthesiology and Intensive Care, The Medical University of Warsaw, Poland (wojciech.lisik@am.edu.pl)

**Introduction:** Urinary complications after kidney transplantation can lead to graft loss. We present various methods of treatment in varying clinical situations.

**Patients and method:** Since 1982 we have transplanted 1500 kidneys in our department, including 70 living-related (5%). During this period 94 patients with post-transplant urinary complications were treated (64 patients transplanted in our department and 30 referred from other centers. In 60 patients complications occurred within 30 days after transplantation-in 30 others complications developed later. The following were observed: 1. Early: • Urinary fistula 29 • Urethral necrosis • Anastomotic stricture 10 • Urinary anastomosis to the peritoneum 2 • Thrombus in kidney pelvis and the ureter 1 2. Late: • Stricture of the urinary anastomosis 34.

**Method:** The following treatments were performed • Uretero-vesical reanastomosis • Resection of the necrotic ureter and secondary anastomosis • Resection of the ureter at the level of renal pelvis and anastomosis to own ureter • Boari flap reconstruction • Ligation of the ureter and the permanent nephrostomy • Transcutaneous pyelostomy.

**Results:** In all but one case satisfactory early and late results were obtained with preserved function of the transplanted kidney. In one fatal case the small

arterial branch thrombosis resulted in kidney lower pole necrosis and massive ureter and renal pelvis necrosis with eventually graft loss.

**Conclusions:** Treatment of urinary complications after renal transplantation, requires surgical and urological experience of the operating team. Surgical treatment should be aimed at definitive reconstruction, since consecutive operations lead to a higher risk of a graft failure.

## Unusual observations, strange ideas A026

### Psychical problems of patients treated for perianal fistulae

Chrzan Barbara-Renata

Department of general and Orthopedic Surgery, Hammerfest Hospital, Norway (warienka@rambler.ru)

Perianal fistulae is a recurrent disease which is difficult to treat for the patient as well as the doctor. It adversely affects the patient's psyche, resulting mainly in depression and phobias. In recent years, depression and phobias accompanying surgical illnesses is a frequent problem faced by surgeons. The purpose of this work is the assessment of the frequency of depression and phobias and determination of the degree of depression and phobias in patients treated for perianal fistulae.

**Material@methods:** 55 patients treated in the 2-nd Department of General and Oncologic Surgery Medical Academy in Wrocław/Polen in the period from 1991 to 2005 were examined. They filled anonymously the Beck Depression Inventory questionnaire. Participation in the examination was voluntary.

**Results:** From among 55 subjects examined by means of BDI 68% demonstrated depression disturbances with phobia. Most patients were not aware of their additional ailment. Mild intensity depression occurred in 55% patients and medium intensity depression occurred 45% subjects. No relationship between the age, gender and depression was found.

**Conclusion:** Perianal fistula contributes to various degrees of depression which remains undiagnosed in most cases. Informations obtained from the survey can contribute significantly to understanding the problems tormenting the patients and working out a complex therapeutic procedure, including psychotherapy.

## Cardiovascular, Thoracic\_1 A027

### Dynamic, In-situ, warm human cadaver model for testing the Feasibility of new aortic stented grafts

Cikirikcioglu Mustafa<sup>1</sup>, Pektok Erman<sup>2</sup>, Arbatli Harun<sup>3</sup>, Fasel Jean<sup>4</sup>, Walpoth Beat<sup>5</sup>, Kalangos Afksendiyos<sup>6</sup>

<sup>1</sup>University Hospital of Geneva, Switzerland, <sup>2</sup>University Hospital of Geneva, Switzerland, <sup>3</sup>Memorial Hospital, Istanbul, Turkey, <sup>4</sup>University of Geneva, School of Medicine, Switzerland, <sup>5</sup>University Hospital of Geneva, Switzerland, <sup>6</sup>University Hospital of Geneva, Switzerland (cikirik3@etu.unige.ch)

**Objective:** Although mock circuits are helpful, cadaver models are also necessary for the feasibility testing of new endovascular techniques and equipments. We describe a new, dynamic, in-situ, warm human cadaveric model in order to mimic physiologic and anatomic conditions for testing the novel techniques and stent grafts.

**Methods:** Two fresh human cadavers were used for the experiments. Both common carotid and left subclavian arteries were exposed. Ascending and suprarenal abdominal aorta were cannulated via median sternotomy and laparotomy, and were connected to a roller pump. A 10 mm Dacron vascular prosthesis was anastomosed to the suprarenal aorta in end-to-side fashion for stent graft implantation. The thoracic aorta was isolated between two vascular clamps which were put above the aortic valve on the ascending and below the Dacron graft on the abdominal aorta, in order to obtain pressure and prevent



fluid leakage during the circuit. Post-mortem clots were removed from the lumens of carotid and left subclavian arteriotomies, and through the distal aortic cannula after initialization of the pump. Once the clots were removed, the circuit was closed, and a pulsatile (70 mmHg, mean pressure), warm (37°C) circulation had been started. Nitinol stent grafts were implanted through the Dacron graft on the abdominal aorta. Retrograde fenestration and branching were performed on the stent graft to achieve total endovascular aortic arch replacement.

**Results:** Our perfusion system was effective in both cadavers. The tissue was easily treatable after re-warming. Tissue oedema and volume loss from the extracorporeal circuit was minimal with the help of limited circulation on the thoracic aorta. Stent grafts were deployed into the aortic arch under fluoroscopy, successfully. Morphologic examination confirmed good fixation and sealing of warmed (37°C) nitinol stent grafts in both cadavers.

**Conclusions:** Creating a dynamic human cadaveric model mimicking the temperature and pressure characteristics as well as the anatomy of an alive individual is feasible. Limited circulation on the thoracic aorta with proximal and distal clamping prevents excess volume loss from the circuit, which may eventually shorten the duration of experiment because of tissue oedema. Using a warm-perfused model helps to get optimal expansion of the nitinol stent graft.

## Oncology\_1 A028

### Portal branch ligation reduces initial outgrowth of colorectal metastasis followed by a late compensatory angiogenic and proliferative response

Corsten Marcus<sup>1</sup>, Kollmar Otto<sup>2</sup>, Scheuer Claudia<sup>3</sup>, Vollmar Brigitte<sup>4</sup>, Schilling Martin K<sup>5</sup>, Menger Michael D<sup>6</sup>

<sup>1</sup>Institute for Clinical & Experimental Surgery, University of Saarland, Homburg-Saar, Germany, <sup>2</sup>Department of General, Visceral, Vascular and Pediatric Surgery, University of Saarland, D-66421 Homburg-Saar, Germany, <sup>3</sup>Experimental Surgery, University of Saarland, D-66421 Homburg-Saar, Germany, <sup>4</sup>Department of Experimental Surgery, University of Rostock, D-18055 Rostock, Germany, <sup>5</sup>Department of General, Visceral, Vascular and Pediatric Surgery, University of Saarland, D-66421 Homburg-Saar, Germany, <sup>6</sup>Institute for Clinical & Experimental Surgery, University of Saarland, D-66421 Homburg-Saar, Germany (marcus.corsten@gmx.de)

**Background:** Whereas portal branch ligation (PBL) prior to resection may prevent liver failure after extended hepatic resection, clinical studies indicate that tumors within the ligated lobe develop accelerated growth. Therefore, we studied in a mouse model the time-dependent effect of PBL on angiogenesis and tumor growth of colorectal metastasis.

**Methods:** According to an established liver metastasis model CT-26 colon cancer cells were implanted in the left liver lobe of syngeneic BALB/c mice. Animals were randomized to PBL of the left liver lobe or control group. Microcirculatory responses and microvascular remodeling of the normal liver as well as angiogenesis, tumor cell proliferation, apoptosis and growth were studied 3d, 7d, 14d and 21d after PBL ( $n = 8$  each) using intravital multifuorescence microscopy, laser Doppler fluxmetry, immunohistochemistry and biochemical techniques.

**Results:** After 14 days tumor volume was significantly reduced by PBL (<20% of controls) when compared to controls. During the first 14d PBL induced a reduction of left hilar blood flow by ~50%, resulting in a delayed development of an angiogenic front of the tumors, a reduced density of draining tumor venules and reduced functional sinusoidal density in the normal liver. Sinusoidal dilation at the tumor border was associated by a significant increase of VEGF expression. PBL was associated with a higher leukocyte response in the tumor and normal liver. Immunohistological analyses demonstrated that PBL significantly induced tumor cell and hepato-cyte proliferation after 14 days as well as apoptosis over the 14 days observation period. According to these findings, there was no significant difference on tumor volume after 21d.

**Conclusion:** Microvascular remodeling within the ligated lobe and hepatocellular proliferation may explain the late accelerated tumor progression observed in patients after PBL.

## Hepatobiliary\_1 A029

### Prophylaxis with ketotifen in rats with Portal Hypertension: Involvement of Mast Cell and Eicosanoids

Cruz A<sup>1</sup>, Losada M<sup>2</sup>, Aller MA<sup>3</sup>, Vergara P<sup>4</sup>, Saavedra Y<sup>5</sup>, Arias J<sup>6</sup>

<sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>3</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>4</sup>Physiology Department. Veterinary School. Autónoma University of Barcelona, Spain, <sup>5</sup>Physiology Department. Veterinary School. Autónoma University of Barcelona, Spain, <sup>6</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain (manuellosadaruz@botmail.com)

**Background and aims:** Since we have previously shown an increase of mast cells in the small bowel and in the mesenteric lymph nodes in rats with prehepatic portal hypertension, it can be hypothesized that this essential inflammatory cell would be involved in the pathogenic of splanchnic changes related to portal hypertension.

**Methods:** To verify this hypothesis, we first studied mast cell infiltration in the ileum and in the mesenteric lymph nodes in sham-operated male Wistar rats ( $n = 12$ ) and in short-term prehepatic portal hypertensive rats ( $n = 12$ ), and serum levels of rat mast cell protease II (RMCP-II) by ELISA. In a second set of experiments Ketotifen, a mast cell stabilizer drug, was administered to sham-operated ( $n = 10$ ) and portal-hypertensive ( $n = 12$ ) rats 24 hours before intervention and prostanoids (PGE 2, PGI 2, TxB 2) and leukotrienes (LTC 4, LTB 4) were assayed by RIA, mast cell infiltration in ileum and in mesenteric lymph nodes and serum levels of rat mast cell Protease II (RMCP-II) were also studied, to show its effectiveness to prevent mesenteric alterations produced by inflammatory mediator released by mast cell.

**Results:** 48 hours after intervention RMCP-II ( $p < 0.005$ ), PGE 2 ( $p < 0.001$ ) and LTC 4 serum levels decreased and mast cell number and RMCP-II levels increased in mesenteric lymph nodes in portal hypertensive rats. Prophylactic administration of Ketotifen reduced portal pressure ( $p < 0.001$ ), serum levels of PGE 2 ( $p < 0.001$ ) and RMCP-II ( $p < 0.001$ ) in mesenteric lymph nodes.

**Conclusion:** In acute portal hypertension in rat, mast cell translocation from intestinal mucosa to mesenteric lymph nodes, where they are activated and degranulate, would represent a defence mechanisms to avoid activation of an acute and massive inflammatory response in this location. Prophylactic administration of Ketotifen was able of reducing splanchnic inflammatory changes related to acute portal hypertension in rat.

## Hepatobiliary\_1 A030

### Cirrhosis and portal hypertension by thioacetamide induces astrocytic changes in the hypothalamic mammillary bodies of rats

Cruz A<sup>1</sup>, Losada M<sup>2</sup>, Aller M A<sup>3</sup>, Mendez M<sup>4</sup>, Arias J<sup>5</sup>, Arias J L<sup>6</sup>

<sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>3</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>4</sup>Psychobiology Lab. Psychology School. University of Oviedo. Asturias, Spain, <sup>5</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>6</sup>Psychobiology Lab. Psychology School. University of Oviedo. Asturias. (manuellosadaruz@botmail.com)

**Background and aims:** Production of cirrhosis and portal hypertension by oral Thioacetamide (TAA) administration in rats is a useful model to

study Hepatic Encephalopathy (HE). We develop a stereologic study of the hypothalamic mammillary bodies, which are involved in memory processes, in TAA-cirrhotic rats.

**Methods:** Male Wistar rats, controls ( $n = 12$ ) and treated with TAA (0.03% as initial concentration, that was adapted weekly according to body weight, for 12 weeks) ( $n = 12$ ) were used. The volume of the medial mammillary nucleus (medial part, MMm and lateral part, MMI) and of the lateral mammillary nucleus (LM), the number of cells (neurons, glial cells and GFAP-IR astrocytes) and the volume of the neuronal and astrocytic nucleus in the mammillary nuclei were measured by means of stereology methods.

**Results:** At 12 weeks TAA rats showed cirrhosis and portal hypertension. Cirrhotic rats showed a larger volume of the MMm nucleus ( $p = 0.018$ ). Total number of neurons and glial cells were unaltered. In the medial mammillary nuclei (MMm,  $p = 0.02$ ; MMI,  $p = 0.018$ ), GFAP-IR astrocytes decreased in the cirrhotic group while the lateral was unaffected. Neuronal nucleus were larger in MMm ( $p = 0.001$ ), MMI ( $p = 0.007$ ) and LM ( $p < 0.001$ ) nucleus. Astrocytes nucleus volume were increased in MMm ( $p = 0.018$ ), MMI ( $p = 0.013$ ) and LM ( $p = 0.008$ ).

**Conclusion:** Cirrhotic rats by TAA administration showed GFAP-IR astrocytes decrease as well as astrocytic and neuronal nucleus structural alterations. These cellular morphometric impairments in the hypothalamic mammillary bodies could be involved in the spatial memory deficit present in subclinic hepatic encephalopathy.

## Hepatobiliary.1 A031

**Plasma redox status is impaired in the portacaval shunted rat: the risk of the reduced antioxidant ability**

Cruz A<sup>1</sup>, Losada M<sup>2</sup>, Aller M A<sup>3</sup>, Garcá-Fernández M I<sup>4</sup>, Sánchez-Patán F<sup>5</sup>, Arias J<sup>6</sup>

<sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>3</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>4</sup>Human Physiology Department. School of Medicine. University of Málaga, Spain, <sup>5</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>6</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain (manuellosadaruiz@hotmail.com)

Autores: 1, 1, 2, 2, L. Santín3, J. Rioja3, R. Anchuelo2, 2 1- 2- 3-

**Background and Aims:** Portacaval shunting in rats produces a reduction of hepatic oxidant scavenging ability. Since this imbalance in hepatic oxidant/antioxidant homeostasis could coexist with systemic changes of oxidant stress/antioxidant status, plasma oxidants and antioxidant redox status in plasma of portacaval shunted-rats were determined.

**Methods:** Male Wistar male: Control ( $n = 11$ ) and with portacaval shunt (PCS;  $n = 11$ ) were used. Plasma levels of the oxidant serum advanced oxidation protein products (AOPP), lipid hydroperoxides (LOOH), the antioxidant total thiol (GSH) and total antioxidant status (TAX) were measured. Albumin, ammonia, Aspartate-aminotransferase (AST), Alanine-aminotransferase (ALT), thiostatin and alpha-1-acid glycoprotein (1 AGP) were also assayed 4 weeks after the operation.

**Results:** AOPPs were significantly higher ( $50.51 \pm 17.87$  versus  $36.25 \pm 7.21$   $\mu\text{M}$ ;  $p = 0.02$ ) and TAX was significantly lower ( $0.65 \pm 0.03$  versus  $0.73 \pm 0.06$   $\text{mM}$ ;  $p = 0.007$ ) in PCS compared to control rats. Also, there was hypoalbuminemia ( $2.54 \pm 0.08$  versus  $2.89 \pm 0.18$   $\text{g/dl}$ ;  $p = 0.0001$ ) and hyperammonemia ( $274.00 \pm 92.25$  versus  $104.00 \pm 48.05$   $\mu\text{M}$ ;  $p = 0.0001$ ) and an increase of thiostatin ( $0.23 \pm 0.04$  versus  $0.09 \pm 0.01$   $\text{mg/ml}$ ;  $p = 0.001$ ) in rats with a portacaval shunt. The serum concentration of ammonia is correlated with albumin levels ( $r = 0.624$ ;  $p = 0.04$ ) and TAX correlates with liver weight ( $r = 0.729$ ;  $p = 0.017$ ) and albumin levels ( $r = 0.79$ ;  $p = 0.007$ ).

**Conclusion:** These findings suggest that in rats with a portacaval shunt a systemic reduction of oxidant scavenging ability, correlated with hyperammonemia, is principally produced. It could be hypothesized, therefore, that the reduced antioxidant defences would mediate a systemic inflammation.

## Sepsis, Infection, Immunity.2 A032

**Bacterial translocation to mesenteric lymph nodes increases in chronic portal hypertensive rats**

Cruz A<sup>1</sup>, Losada M<sup>2</sup>, LLamas M A<sup>3</sup>, Marquina D<sup>4</sup>, Aller M A<sup>5</sup>, Arias J<sup>6</sup>

<sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>3</sup>Microbiology Department. Biological Sciences School. Complutense University of Madrid, Spain, <sup>4</sup>Microbiology Department. Biological Sciences School. Complutense University of Madrid, Spain, <sup>5</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>6</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain (manuellosadaruiz@hotmail.com)

Bacterial translocation (BT) to the mesenteric lymph nodes (MLNs) is not produced in chronic portal vein ligated rats if no precipitating factor exists. It has been considered, however, that if the length of the stenosed portal tract is increased, and therefore the resistance to the portal blood flow is augmented, the complications would worsen and particularly BT to MLNs would increase. In a modified technique of partial portal vein ligation by triple partial portal vein ligation, using male Wistar rats, BT to MLNs is shown at 48 hours (50%;  $p = 0.004$ ), 1 month (100%;  $p < 0.001$ ) and 1 year (16.7%) of postoperative evolution. BT is associated to an ileal anaerobic bacterial increased ( $p < 0.01$ ) count at 48 hours and to a lesser colony-forming unit (CFU) count of Enterococci ( $p < 0.01$ ), Streptococcus sp. ( $p < 0.001$ ) and Lactobacillus ( $p < 0.05$ ). At 1 month Lactobacillus also decreases ( $p < 0.05$ ) but Enterobacteriaceae ( $p < 0.001$ ) and Enterococci ( $p < 0.001$ ) increase. Finally, at 1 year, in chronic portal hypertensive-rats colonic Lactobacillus is decreased ( $p < 0.01$ ). In conclusion, the enlargement of the stenosed portal tract, since it increases the resistance to the portal blood flow, may be the ethiological factor involved in one of the pathological consequences of portal hypertension, like is bacterial translocation to the mesenteric lymph nodes.

## Wound healing A033

**The MEPIDOR minipig model: a step forward in oral surgical research**

Dard Michel<sup>1</sup>, Carlsson UB<sup>2</sup>, Obrecht B<sup>3</sup>

<sup>1</sup>Institut Straumann AG, Basel, Switzerland, <sup>2</sup>Institut Straumann AG, Basel, Switzerland, <sup>3</sup>Institut Straumann AG, Basel, Switzerland (michel.dard@straumann.com)

**Introduction:** Fundamental aspects of the development, treatment and prevention of periodontal diseases are frequently studied in dog mandible models. This constitutes historically the state of the art in periodontal research but appears incomplete when it comes to large bone regeneration and challenging dental implantation. The extensive knowledge and reliable documentation on minipigs in surgical research constitutes the fundament of the present work. The aim was to develop and test under different clinical requirements an anaesthesia procedure and an intra-oral surgical approach in the minipig mandible (MEPIDOR model).

**Materials and Methods:** The Göttingen minipigs (Sus Scrofa) are premedicated with an intra-muscular injection of atropine. They are anesthetized with intra-muscular injection of ketamine mixed with midazolam without intubation. During the surgery ketamine is re-injected when needed. The surgery starts with a local intra-oral injection of lidocaine. Tooth extraction is performed after carefully elevating a full thickness flap and extracting bilaterally the lower premolars and the first molar. After tooth removal and osteotomy, the surgical area is rinsed with saline solution and the flaps are secured with absorbable sutures. After a healing period of 3 months, full thickness flaps are elevated in edentulous area of each hemi-mandible. A grinding of the alveolar crest is gently conducted and results in a flat surface at the top of the ridge. Acute defects creation and/or implantation are performed bilaterally. The surgical area is carefully sutured with absorbable material. The post-surgical

analysis includes observations and measurements by help of Xrays, Computed Tomography, Micro-Computed Tomography, histology-histomorphometry.

**Results:** This mandibular minipig model was successfully applied in surgical research studies on: dental implant design, testing of metal alloys, bone regeneration with absorbable scaffolds.

**Conclusion:** The MEPIDOR (MEdeon Science Park, Malmö, Implant Dentistry Oral Regeneration) minipig model demonstrated its usefulness and reliability in oral surgical research.

## Sepsis, Infection, Immunity\_1 A034

### The role of gram stain in the diagnosis of acute septic arthritis

Davidson Jerome Andrew<sup>1</sup>, Bidwai Amit Sharad Chandra<sup>2</sup>, Webber Jane<sup>3</sup>

<sup>1</sup>Milton Keynes General Hospital, UK, <sup>2</sup>milton keynes general, <sup>3</sup>milton keynes general. (bidwai2000@yahoo.co.uk)

**Background:** Early diagnosis and management of septic arthritis is required in order to prevent long term damage to the articular surface and subsequent morbidity. Traditional orthopaedic teaching indicates the mainstay of diagnosis of septic arthritis is urgent joint aspiration and Gram stain. Objective We wished to review the effectiveness of Gram stain from joint aspiration for the diagnosis of septic arthritis of the knee in our institution.

**Patients and Methods:** Retrospective review of patients who underwent joint aspiration for suspected septic arthritis in the emergency department. Patients were identified through the microbiology database. For each patient data was collected to determine the result of Gram staining and subsequent culture result.  $n = 140$ .

**Results:** +ve culture = 25 of which 5 cases organisms seen on Gram stain

**Conclusions:** In our series only 10% of patients with subsequent positive microbiological culture had an initial positive finding on urgent Gram stain. This is of concern given when organisms are identified on Gram stain this is often the basis to commence treatment for septic arthritis. We therefore submit that Gram stain alone cannot not be relied upon in the acute setting in order to diagnose and start treatment for septic arthritis and may not be necessarily be undertaken on an urgent basis.

## Orthopedic\_2 A035

### Debridement for isolated patellar chondral lesions with radiofrequency ablation

Davies benjamin<sup>1</sup>, Kothari Alpesh<sup>2</sup>, Bidwai Amit Sharad Chandra<sup>3</sup>, flynn julian robert<sup>4</sup>

<sup>1</sup>Milton Keynes General Hospital, UK, <sup>2</sup>milton keynes general hospital, <sup>3</sup>milton keynes general hospital, <sup>4</sup>milton keynes general hospital (bidwai2000@yahoo.co.uk)

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**Background:** Isolated Patellofemoral chondral lesions can cause significant symptoms such as pain and decreased mobility. Owens *et al* (Prospective Analysis of Radiofrequency Versus Mechanical Debridement of Isolated Patellar Chondral Lesions. Arthroscopy, Vol 18, No 2, 2002: 151–155) demonstrated superior improvement in symptoms utilising the VAPR wand (Johnson & Johnson) in comparison with mechanical debridement. Objective To determine the improvement, or otherwise, in symptoms of patients presenting with anterior knee pain with patellar chondral lesions on arthroscopy and receiving treatment of debridement using an arthroscopic radiofrequency ablation wand.

**Methods and Results:** The first 10 patients who had been treated by radiofrequency ablation utilising the Paragon T2 wand (Arthrocare) were identified by using theatre procedure codes. Case notes and imaging were obtained for these patients. Patients were then excluded if they had prior trauma, additional knee pathology, or evidence of maltracking. Patients were followed up retrospectively. Patients were interviewed by telephone and outcomes were measured before and after surgery by using the Fulkerson-Shea Patellofemoral Joint Evaluation Score.  $n = 10$  M:F 1:9 Age Range 30–61 Mean follow-up 2 years Provisional results: Mean pre-op score 36.78 Mean post-op score 66.33 Mean improvement in Fulkerson-Shea Patellofemoral Joint Evaluation Score was statistically significant at 29.56 ( $p = 0.0046$ , Paired t-test)

**Conclusion:** In the first tranche of patients receiving Paragon wand RF treatment we were able to demonstrate a similar improvement in symptoms compared to the historical results of VAPR.

## Orthopedic\_1 A036

### Inpatient versus outpatient prevention of osteoporotic fragility fractures

Davies John<sup>1</sup>, Jain Maneesh<sup>2</sup>, South Alison<sup>3</sup>, Grogan Richard<sup>4</sup>

<sup>1</sup>Bradford Teaching Hospitals NHS Trust, UK, <sup>2</sup>Bradford Teaching Hospitals NHS Trust Bradford Teaching Hospitals NHS Trust, <sup>3</sup>Bradford Teaching Hospitals NHS Trust, <sup>4</sup>Bradford Teaching Hospitals NHS Trust (johnfdavies@hotmail.com)

**Introduction:** Calcium supplementation and bisphosphonate therapy are standard treatments for secondary prevention of osteoporotic fragility fractures. These fractures represent a major proportion of the trauma workload with an estimated 50,000 cases of proximal femur fractures per year in women in the UK. The UK National Institute for Clinical Excellence (NICE) guidelines recommend therapy for postmenopausal women over the age of 75 with a proven osteoporotic fracture.

**Methods:** Retrospective analysis of inpatient neck of femur (NOF) and outpatient wrist fractures sustained from a fall from standing height over a 3 month period from August to October 2007. Inclusion criteria were: age over 75, female gender and successful hospital discharge after inpatient stay or discharge from outpatient follow-up. Twenty seven patients were identified: 16 sustained a NOF and 11 had a wrist fracture. The overall mean age was 83 years.

**Results:** There was a significant difference in secondary prevention between inpatient and outpatient groups (Fisher's exact test,  $p = 0.033$ ). Of the 16 patients with NOF fractures 8 had therapy whilst 8 were deemed unsuitable either due to intolerance or pre-existing gastrointestinal disease. Ten of the 11 patients with wrist fractures had no therapy despite there being no contraindications to therapy.

**Conclusion:** Patients with wrist fractures represent a more active independent group than NOF patients despite this they were less likely to have secondary prevention for their fragility fracture. All inpatient NOF fractures were reviewed by a consultant ortho-geriatrician during admission. Targeting therapy at



patients in the wrist fracture group may be of more benefit in terms of preventative medicine.

**Discussion:** Patients with wrist fractures are more active and independent than patients discharged after treatment for a NOF fracture, despite this they were less likely to have secondary prevention for osteoporotic fragility fractures. Targeting therapy at patients in the wrist fracture group may be more beneficial in terms of prevention.

## Plastic\_1 A037

### Immediate breast reconstruction in breast cancer: oncoplastic general surgery and plastic surgery—a qualitative assessment

Dayal Sanjeev<sup>1</sup>, Murray Juliette<sup>2</sup>, Murphy Dermot<sup>3</sup>, Mckay Ian<sup>4</sup>, Lannigan Alison<sup>5</sup>

<sup>1</sup>NHS Lanarkshire, UK, <sup>2</sup>NHS Lanarkshire, UK, <sup>3</sup>NHS Lanarkshire, UK, <sup>4</sup>NHS Lanarkshire, UK, <sup>5</sup>NHS Lanarkshire, UK (sanjeevdayal@hotmail.com)

**Introduction:** Breast reconstruction in the UK is performed both by plastic surgeons and oncoplastic general surgeons. Few general surgeons however perform enough free flap work to offer transverse rectus abdominis myocutaneous (TRAM) or deep inferior epigastric perforator (DIEP) flaps as a choice for immediate breast reconstruction. This study was designed to assess, from a patient's perspective, the different practices for immediate breast reconstruction in breast cancer.

**Methods:** Questionnaires were sent to 58 patients from one hospital and 50 patients from the other who underwent mastectomy, axillary surgery and immediate breast reconstruction for breast cancer between January 2000 and January 2007. In the first hospital patients had to travel to a plastics unit to have their breast reconstruction performed where a general surgeon performed the mastectomy and axillary surgery and the plastic surgeon performed the reconstruction. In the second hospital all patients having reconstruction were operated on by the oncoplastic general surgeon. The questionnaires sent to both groups of patients asked them questions about the options for surgery which were discussed, the type of surgery performed and any complications. Further assessment of body image and satisfaction with final cosmetic result was also done using validated body image questionnaires.

**Results:** 72 replies were received (67%). Half of the patients who had to travel to the plastics unit found the journey inconvenient and over 80% would have preferred to have all of their surgery in their local unit. Patients who were operated on by the plastic surgeon felt that they had been offered a wider range of different types of reconstruction (93% versus 67%). Patients also felt that the plastic surgeon was less likely than the general surgeon to recommend one particular type of reconstruction. Table 1 shows the percentage and type of reconstructions performed in both groups and we found that the plastic surgeon performed more DIEP reconstructions than any other type in comparison to LD based reconstructions performed by the oncoplastic general surgeon. The satisfaction scores in the oncoplastic general surgery group and plastic surgery group were 73.3% and 70% respectively. Similarly 46.6% and 42.5% patients in the respective groups felt that their breasts looked similar. More than three quarters of patients (76.6% and 80% in the respective groups) said that they would be happy to have the same reconstruction again. Complications in both units are enumerated in table 2.

**Conclusions:** Despite considerable variation in the type of breast reconstruction that was performed in the two units, patients had similar levels of satisfaction with the results of surgery. Patients would prefer to have surgery locally but did get more choice about the type of reconstruction being performed by having their surgery in a plastics unit. Further work is being carried out to assess the reconstructions by photographic analysis by independent observers. Table 1 Type of Reconstruction Hospital 1 Hospital 2 Implant 17.5% 17% TRAM 5% none LD 27.5% 33% LD with Implant 5% 50% DIEP 45% none Table 2 Complication Hospital 1 Hospital 2 Wound Infection 20% 30% Seroma 30% 33% Hematoma 2.5% 10% Partial Flap Loss 5% 3.3% Flap Failure 2.5% Nil Dog ears 17.5% 3.3% Hernia 2.5% nil Hardening/distortion of implant 2.5% 20% Leakage from implant nil 6.6% Wrong size of implant with weight gain/loss 10% 10%.

## Transplantation, Organ preservation\_2 A038

### Quantitative assessment of liver function during experimental liver regeneration

de Graaf Wilmar<sup>1</sup>, Bennink Roelof J<sup>2</sup>, Maas Adrie<sup>3</sup>, de Bruin Kora<sup>4</sup>, van Gulik Thomas M<sup>5</sup>

<sup>1</sup>Department of Surgery/Surgical Laboratory, Academic Medical Center, University of Amsterdam, The Netherlands, <sup>2</sup>Department of Nuclear Medicine, Academic Medical Center, University of Amsterdam, The Netherlands, <sup>3</sup>Department of Surgery/Surgical Laboratory, Academic Medical Center, University of Amsterdam, The Netherlands, <sup>4</sup>Department of Nuclear Medicine, Academic Medical Center, University of Amsterdam, The Netherlands, <sup>5</sup>Department of Surgery/Surgical Laboratory, Academic Medical Center, University of Amsterdam, The Netherlands. (wilmar.degraaf@amc.uva.nl)

**Background:** Reliable assessment of liver function (LF) in donor and recipient during regeneration is crucial after living-donor-liver transplantation. Indocyanine green (ICG) clearance and galactose elimination capacity (GEC) have been employed as quantitative LF tests. 99mTc-mebrofenin hepatobiliary scintigraphy (HBS) and 99mTc-GSA scintigraphy with SPECT are 2 nuclear imaging techniques introduced for quantitative assessment of LF. 99mTc-GSA can be combined with SPECT, enabling simultaneous assessment of LF and functional liver volume (FLV).

**Aim:** To compare 99mTc-GSA, 99mTc-mebrofenin HBS, ICG-clearance and GEC for assessment of LF in regenerating rat livers.

**Methods:** In protocol 1, LF was determined by 99mTc-GSA with SPECT followed by ICG-clearance on day 1 ( $n = 6$ ), 3 ( $n = 6$ ), 5 ( $n = 6$ ) and 7 ( $n = 6$ ) after 70% partial hepatectomy (PHX). In Protocol 2, 99mTc-mebrofenin HBS was followed by GEC on the same days ( $n = 6$  each timepoint). A control group ( $n = 6$ ) underwent no resection. Conventional liver volume (CLV), functional liver volume (FLV), 99mTc-GSA uptake, 99mTc-mebrofenin uptake, GEC and ICG-clearance were expressed as percentage of baseline values (control group).

**Results:** One day after 70% PHX, CLV was 60.3% of baseline and further regenerated from 71.4% at day 3 to 76.7% and 76.4% at day 5 and 7, respectively. There was no difference between CLV and FLV. 99mTc-mebrofenin uptake (46.1% from baseline), 99mTc-GSA uptake (44.5%) and ICG-clearance were significantly lower than CLV. At day 5 and 7, there were no differences between 99mTc-mebrofenin uptake, ICG-clearance and CLV. 99mTc-GSA uptake however was still significantly impaired compared to CLV and 99mTc-mebrofenin uptake. GEC was preserved during the entire liver regeneration process.

**Conclusion:** Functional regeneration is impaired compared to volumetric regeneration in the early phase of regeneration. Hepatic 99mTc-GSA uptake as LF test underestimates hepatic regeneration in comparison to liver volume and 99mTc-mebrofenin uptake in the final phase of liver regeneration. GEC is preserved during liver regeneration.

## Hepatobiliary\_1 A039

### Systemic administration of lidocaine does not improve liver function after hepatic ischemia-reperfusion injury combined with liver partial resection

de Graaf Wilmar<sup>1</sup>, Diepenhorst Gwen<sup>2</sup>, Erdogan Deha<sup>3</sup>, Hollmann Markus<sup>4</sup>, van Gulik Thomas<sup>5</sup>

<sup>1</sup>Department of Surgery, Academic Medical Center, Amsterdam, The Netherlands, <sup>2</sup>Department of Surgery, Academic Medical Center, Amsterdam, The Netherlands, <sup>3</sup>Department of Surgery, Academic Medical Center, Amsterdam, The Netherlands, <sup>4</sup>Department of Anaesthesiology, Academic Medical Center, Amsterdam, The Netherlands, <sup>5</sup>Department of Surgery, Academic Medical Center, Amsterdam, The Netherlands. (wilmar.degraaf@amc.uva.nl)

**Background:** A rat model of hepatic ischemia combined with 30% partial hepatectomy (PHX) is a clinically relevant model to examine new therapeutic strategies to reduce ischemia reperfusion (I/R) injury and improve postoperative liver function. Lidocaine is a local anaesthetic and anti-arrhythmic agent.

Lidocaine can modulate inflammatory responses by inhibiting the priming of polymorphonuclear leucocytes, thereby reducing the release of toxic oxygen metabolites. Systemic lidocaine infusion has been reported to attenuate I/R injury in heart, lung and brain.

**Aim:** To investigate the effect of systemic lidocaine on postoperative liver function after hepatic I/R combined with PHX.

**Methods:** In the resection groups a 30% PHX was performed with saline ( $n = 6$ ) or lidocaine ( $n = 6$ ). In the ischemic groups, 30% PHX (non-ischemic lobes) was combined with 45 min ischemia using lidocaine ( $n = 7$ ) or saline ( $n = 7$ ) infusion. A group undergoing no resection or ischemia served as a control group ( $n = 4$ ). Lidocaine was administered i.v. as a bolus (5.0 mg/kg) 30 min prior to ischemia, followed by continuous infusion (5.0 mg/kg/hr) until PHX. Lidocaine infusion after PHX was reduced to 2.0 mg/kg/hr and continued until 20 min reperfusion. At 24 hour reperfusion, hepatic damage (ALT/AST), inflammation (tissue myeloperoxidase) and liver function (prothrombin time, indocyanine green (ICG) clearance and bilirubin) were measured.

**Results:** PHX alone resulted in significantly elevated plasma ALT/AST levels with no significant differences between saline and lidocaine groups. Plasma ALT/AST levels increased significantly in the ischemic group with no differences between the saline and lidocaine groups. Liver function was significantly impaired in the ischemic groups with increased ICG T1/2, bilirubin and prothrombin time. Tissue myeloperoxidase was significantly increased in the ischemic groups. There were no significant differences in bilirubin levels, ICG t1/2, and myeloperoxidase between lidocaine and saline ischemic groups.

**Conclusion:** Systemic lidocaine did not improve liver function in this rat model of hepatic I/R injury combined with PHX.

## BRENDEL A040

### Molecular Imaging of Tumor Associated Angiogenesis using P1227, a novel MRI contrast agent targeting $\alpha v \beta 3$ Integrin

Debergh Isabelle<sup>1</sup>, Van Damme Nancy<sup>2</sup>, Smeets Peter<sup>3</sup>, Peeters Marc<sup>4</sup>, Pattyn Piet<sup>5</sup>, Ceelen Wim<sup>6</sup>

<sup>1</sup>Department of Surgery, Ghent University Hospital, Ghent, Belgium, <sup>2</sup>Department of Gastroenterology, Ghent University Hospital, <sup>3</sup>Department of Radiology, Ghent University Hospital, <sup>4</sup>Department of Gastroenterology, Ghent University Hospital, <sup>5</sup>Department of Surgery, Ghent University Hospital, <sup>6</sup>Department of Surgery, Ghent University Hospital (wim.ceelen@ugent.be)

**Background:** The recent introduction of biological anticancer therapy has renewed the interest in functional imaging of tumor associated angiogenesis as a tool to monitor therapy response. The present study evaluated imaging of tumor associated angiogenesis using a molecular MRI probe targeting  $\alpha v \beta 3$  Integrin, a signal transduction molecule expressed by neoplastic endothelium.

**Materials and methods:** HT29 human colorectal cancers were grown in athymic mice. MRI imaging was performed using a 3D VIBE sequence (voxel dimension  $0.5 \times 0.5 \times 24$  mm, TR/TE 6.78/2.78 ms, flip angle  $12^\circ$ ). Images were obtained at baseline and 5, 20, 35, 50, 65, 80, 95, and 110 minutes after injection of P1227 at a dose of 50  $\mu$ mol Gd/kg. Signal intensity was evaluated in regions of interest encompassing the entire tumor, the tumor rim, and normal paravertebral muscle.

**Results:** Administration of P1227 was well tolerated by the animals. Following injection, non specific enhancement resulted in a similar enhancement pattern of paravertebral muscle, the tumor rim and the entire tumor. However, starting from 20 minutes post injection specific enhancement of the tumor rim was observed resulting in a rim/muscle ratio larger than 1 ( $1.16 \pm 0.34$ ). Subsequent imaging resulted in a steadily increasing contrast enhancement in the tumor rim, with at 110 minutes a rim/muscle ratio of  $1.23 \pm 0.35$  indicating specific binding of the  $\alpha v \beta 3$  integrin moiety.

**Conclusions:** Molecular imaging using P1227 allows visualization of activated tumor associated endothelium by targeting  $\alpha v \beta 3$  integrin. P1227 holds considerable promise for imaging angiogenesis in human solid cancers.

## Oncology\_1 A041

### Differential gene expression between metastatic colorectal tumours in liver and peritoneum

Debergh Isabelle<sup>1</sup>, Van Damme Nancy<sup>2</sup>, Peeters Marc<sup>3</sup>, Van Hummelen Peter<sup>4</sup>, Pattyn Piet<sup>5</sup>, Ceelen Wim<sup>6</sup>

<sup>1</sup>Department of Surgery, Ghent University Hospital, Ghent, Belgium, <sup>2</sup>University Hospital, Department of Gastroenterology, <sup>3</sup>University Hospital, Department of Gastroenterology, <sup>4</sup>Flemish Institute of Biotechnology, Microarray Facility, <sup>5</sup>Department of Surgery, Ghent University Hospital, <sup>6</sup>Department of Surgery, Ghent University Hospital (wim.ceelen@ugent.be)

**Objectives:** Metastatic spread is the leading cause of colorectal cancer deaths. In a minority of patients, peritoneal carcinomatosis (PC) develops in the absence of distant metastasis. It is unknown, whether differences in gene expression underlie this specific behaviour of PC. The aim of the current study was to compare global gene expression between liver metastases (LM) and isolated PC resection specimens.

**Methods:** Gene expression profiles were determined from 10 LM and 7 isolated PC patients. From each patient RNA was extracted from fresh frozen tumour and adjacent normal tissue, taken at resection. Microarray analysis was conducted on Affymetrix U133 2.0 full genome arrays. Statistical comparison was performed by a linear model t-test with Benjamini-Hochberg correction for multiple testing using GeneMaths XT (Applied Maths).

**Results:** Statistical analysis between the 2 normal tissues and between the 2 tumour tissues yielded 16,824 and 1,479 differentially expressed probes, respectively. Principal Component Analysis and cluster analysis showed that normal tissues were vastly different while tumour tissues were more comparable. After correction for this apparent normal tissue signature the true number of genes differentially expressed between the 2 types of secondary tumours was 179. The majority of those genes are involved in immune response, cellular differentiation, epithelial to mesenchymal transition (EMT), and cell growth. The most significant gene pathways were the IL6 and TGF- $\beta$  signalling, Wnt and Notch pathways that were generally higher expressed in PC specimens.

**Conclusions:** Gene expression profiles differentiate LM from isolated PC in colorectal cancer patients. At present, it is unclear whether the observed difference in gene expression is responsible for tissue selection during invasion or represents a re-differentiation signature induced by the target organ.

## Cardiovascular, Thoracic\_1 A042

### Pre operative annular abscess evaluation by CT Scan during acute infective

Demaria Roland<sup>1</sup>, Gahide G  rald<sup>2</sup>, Rouvi  re Philippe<sup>3</sup>, Frapier Jean Marc<sup>4</sup>, Vernhet Kovacsik H  l  ne<sup>5</sup>, Albat Bernard<sup>6</sup>

<sup>1</sup>Thoracic and Cardiovascular Surgery Unit Arnaud de Villeneuve Hospital, Montpellier Teaching Hospital, Montpellier, France, <sup>2</sup>Thoracic and Cardiovascular Surgery Unit Arnaud de Villeneuve Hospital, Montpellier Teaching Hospital, 371, avenue du Doyen G. Giraud 34295 Montpellier Cedex 5, France, <sup>3</sup>Thoracic and Cardiovascular Surgery Unit Arnaud de Villeneuve Hospital, Montpellier Teaching Hospital, 371, avenue du Doyen G. Giraud 34295 Montpellier Cedex 5, France, <sup>4</sup>Thoracic and Cardiovascular Surgery Unit Arnaud de Villeneuve Hospital, Montpellier Teaching Hospital, 371, avenue du Doyen G. Giraud 34295 Montpellier Cedex 5, France, <sup>5</sup>Thoracic and Cardiovascular Surgery Unit Arnaud de Villeneuve Hospital, Montpellier Teaching Hospital, 371, avenue du Doyen G. Giraud 34295 Montpellier Cedex 5, France, <sup>6</sup>Thoracic and Cardiovascular Surgery Unit Arnaud de Villeneuve Hospital, Montpellier Teaching Hospital, 371, avenue du Doyen G. Giraud 34295 Montpellier Cedex 5, France. (r-demaria@chu-montpellier.fr)

**Introduction:** Patients with acute infective endocarditis present sometimes annular abscess with important consequences in term of surgical strategy and technique. However, annular abscesses are sometimes difficult to assess and precisely locate with echocardiography, especially at the beginning of the process. The aim of this study was to assess the role of computed tomography (CT Scan) for annular abscess evaluation.

**Methods:** Twenty-three consecutive patients ( $55 \pm 13$  years) presenting with acute endocarditis necessitating valve replacement were prospectively enrolled in this study (2004/01 to 2007/01). CT Scan was performed 1 to 3 days before cardiac surgery, using a 16-slices CT (Lightspeed 16, General Electric). No  $\beta$ -receptor blocker medication was used to slow the heart rate.

**Results:** CT Scan could not be performed in one patient because of sustained tachycardia (160 BPM). Nine patients (34.6%) presented an annular abscess: on the aortic valve: ( $n = 8$ ) and on the mitral valve: ( $n = 1$ ). For the abscesses of the aortic valve, 5 were located on left coronary sinus of Valsalva, 1 on junction of both coronary sinuses, 1 on non-coronary sinus, 1 associated with double coronary desinsertion. They ranged in size from 6 to 60 mm (mean  $23 \pm 14$  mm). Peroperatively, all these 9 valvular abscesses were confirmed, and 2 others annular aortic abscesses were found, which were very small necrotic lesions in progress.

**Conclusion:** CT Scan performed before surgical management for acute endocarditis is useful to participate in the assessment of the annular abscesses and may help surgeon to decide, with echocardiogram, of an adapted surgical strategy to repair the annulus.

## Orthopedic\_2 A043

### The Dynastab K – an innovative type of external knee fixator

Deszczynski Jarosław<sup>1</sup>, Kołodziejewski Paweł<sup>2</sup>, Stolarczyk Paweł<sup>3</sup>, Szczepny Grzegorz<sup>4</sup>, Deszczyńska Helena<sup>5</sup>

<sup>1</sup>Dept. Orthop. & Rehab. Medical University, Warsaw, Poland, <sup>2</sup>Department of Orthopedics and Rehabilitation, Warsaw Medical University, Poland, <sup>3</sup>Department of Clinical Rehabilitation, Warsaw Medical University, Poland, <sup>4</sup>Dept. Orthop. & Traumatol., Med. Univ., Warsaw, Poland, <sup>5</sup>Dep. Surg. Res., Pol. Acad. Sci., Warsaw, Poland, <sup>6</sup>Department Of Anatomy, Medical University, Warsaw, Poland (jdeszcz@o2.pl)

The kinetics of the knee is a complicated combination of rolling, sliding and external rotational movements. As a result, it is difficult to construct an external stabilizing device that will accommodate all of these aspects.

Postoperatively expanding range of motion is essential to avoid joint stiffness, muscle contraction and remodelling of articular surfaces.

The Dynastab K is, according to the authors' knowledge, the world's first external knee fixator that allows for the rolling and sliding components of knee movement.

We implanted this fixator on 25 artificial knee models and on 5 cadaver knees. In every case we managed to accurately fit the fixator to the kinetics of the knees – there were no visible movements of the reversed pin over the tibia. The average time of implantation was 21.2 min (bone models) and 66.4 min (cadavers).

This study confirms the potential utility of the Dynastab K (knee) in the early stages of knee rehabilitation following

## Plastic\_2 A044

### Versatility of the anterolateral thigh free flap in soft tissue reconstruction: the Cambridge experience

di Candia Michele<sup>1</sup>, lie kwok<sup>2</sup>, malata charles<sup>3</sup>, simcock jeremy<sup>4</sup>, kumiponjera devor<sup>5</sup>, cormack george<sup>6</sup>

<sup>1</sup>Dipartimento Chirurgia Plastica E Ricostruttiva Università Degli Studi Di Bari, Italy, <sup>2</sup>Clinical school of medicine Cambridge University (U.K), <sup>3</sup>department of Plastic Surgery Addenbrooke's University Hospital Cambridge (U.K), <sup>4</sup>department of Plastic Surgery Addenbrooke's University Hospital Cambridge (U.K), <sup>5</sup>department of Plastic Surgery Addenbrooke's University Hospital Cambridge (U.K), <sup>6</sup>department of Plastic Surgery Addenbrooke's University Hospital Cambridge (U.K) (micheledicandia@yahoo.it)

**Introduction:** The anterolateral thigh (ALT) free flap has found many applications for soft tissue reconstruction following its description by Song *et al.* in 1984 and the elucidation of its vascular anatomy by Cormack and Lamberty in the same year. Although popular world wide its adoption in the "Western World" has been relatively slow. With an increase and diversification of free tissue transfers (FTTs) in our Unit, it was decided to review our overall experience with the ALT free flap. Patients and methods An 8-year retrospective case note study of patients undergoing soft tissue reconstruction using the Anterolateral thigh flap was undertaken. A total of 55 patients were identified. The data was analysed in terms of indications, site of reconstruction, size and anatomy of flap, donor site closure and outcomes.

**Results:** Between January 1999 and October 2007, 55 anterolateral thigh free flaps were performed in 55 patients (39 male, 16 female), with a mean age of 52.3 years (r, 13–73). The soft tissue defects reconstructed were located in the upper and lower extremities (21), skull base (15), head and neck region (15) and trunk (4). The indications for surgery were trauma, cancer and infections. 32 flaps (59%) had septocutaneous perforators while 23 (41%) were musculocutaneous. The flap size ranged from  $11 \times 6$  cm to  $22 \times 13$  cm. 15 ALT fasciocutaneous (27%) flaps were harvested with a small cuff of the vastus lateralis muscle in order to protect the perforating vessels or increase the bulk of the flap. A variety of recipient vessels were used. The mean ischemic time was 82 minutes. The thigh donor sites were closed directly in 42 patients (78.9%) while in 13 patients (21.1%) split skin grafting was required. Donor site problems included two cases of partial skin graft take and three seromas requiring aspiration; there were no long term donor site problems. The mean follow-up time was 17.5 months (range, 2 to 48).

**Discussion and Conclusion:** The ALT free flap is highly versatile with a variety of indications. It constitutes an ideal soft tissue replacement at various locations of the body. In our study it was used for head and neck, lower limb defects and to a lesser extent trunk defects. The ALT flap in our study had an excellent success rate (100%), thanks to its favourable pedicle, ease of harvest, reliable skin paddle, and variable thickness with minimal donor site morbidity. In our practice this flap has become the flap of choice in many soft tissue reconstructions.

## Gastrointestinal\_1 A045

### The role of C-reactive protein in a murine intestinal ischemia/reperfusion model

Diepenhorst Gwen<sup>1</sup>, van Vliet Arlene PhD<sup>2</sup>, Niessen Hans MD, PhD<sup>3</sup>, Aalberse Rob PhD<sup>4</sup>, van Gulik Thomas MD, PhD<sup>5</sup>, Hack Erik MD, PhD<sup>6</sup>

<sup>1</sup>Department of Surgery, Surgical Laboratory, Academic Medical Centre, University of Amsterdam, The Netherlands. (G.M.Diepenhorst@amc.uva.nl)

**Introduction:** Activation of the complement system contributes to the pathogenesis of ischaemia/reperfusion (I/R) injury. This activation occurs via binding of specific proteins such as natural antibodies and C-reactive protein (CRP) to neoantigens exposed on ischemic tissue membranes. As CRP is only synthesized in trace amounts in the mouse, this animal model may serve as a 'natural knock-down' system to explore the role of CRP in intestinal I/R injury.

**Aim:** To assess whether human C-reactive protein can enhance complement activation in a murine model of intestinal I/R.

**Method:** Male C57BL/6 WT mice ( $n = 22$ ) were used in a mechanically ventilated intestinal I/R model. After pre-ischemic administration of human CRP (1.5 and 15  $\mu$ g/g bodyweight i.v.) or saline for control groups (each  $n = 5$ ), mice underwent 10 minutes of intestinal ischemia by superior mesenteric artery occlusion followed by two hours of reperfusion. As controls, sham laparotomy groups with corresponding reperfusion times were included ( $n = 4$ ). Intestinal histopathological damage was assessed according to the Park-Chiu classification. To assess complement activation, immunohistochemical staining of complement factor C3 was performed on intestinal tissue sections. At sacrifice, blood gasses and circulating CRP concentrations were measured. Intestinal edema was determined using the wet/dry ratio. To ensure haemodynamic stability, mean arterial pressures were monitored.



**Results:** Administration of human CRP yielded no significant differences in intestinal histopathological damage as compared to saline-treated groups. Compared to sham groups, saline or CRP-treated ischemic groups demonstrated significantly higher histological damage scores ( $p < 0.05$ ). Edema and blood gas values were also similar in saline and CRP-treated animals. Circulating CRP levels at sacrifice ranged within human acute phase levels. Immunohistochemical staining of intestinal tissue demonstrated activated C3 depositions in ischemic groups which were absent in sham controls.

**Conclusion:** Human CRP does not enhance complement activation in this murine intestinal I/R model.

## Transplantation, Organ preservation\_2 A046

### Expression of markers characteristic for human keratinocyte stem cells under the influence of human lymph and serum

Domaszewska Anna<sup>1</sup>, Zaleska Marzanna<sup>2</sup>, Olszewski Waldemar L<sup>3</sup>

<sup>1</sup>Department of Surgical Research & Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research & Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Dept Surg Res & Transplantol, Med Res Center, Po Acad Sci, Warsaw, Poland, Dept. of Transpl Surg, Central Clin Hosp, Min Int Aff, Warsaw, Poland, The Norwegian Radiumhospital-Rikshospitalet, Oslo, Norway (wlo@cmdik.pan.pl)

Previous study performed in our department, using ELISA method, revealed a large number of growth factors, cytokines and chemokines in the human lymph fluid. Moreover, we found that leg skin expressed more cells with stem cells antigens in comparison to other regions. Progenitor/stem cell populations of epithelium are known to reside in the small-sized cell population. Small-sized cells demonstrated the highest colony-forming efficiency, and a highest long-term proliferative potential. This observations prompted us to study the effect of lymph on proliferation potential of human epidermal cells in vitro.

**Aim:** To study the effect of human peripheral lymph and serum on the number of keratinocyte stem cells detected in the in vitro culture. The expression of markers characteristic for human keratinocyte stem cells, colony-forming efficiency, and long-term proliferative potential allow us to determine the differences between observed cells populations.

**Methods:** Skin sections were stained using monoclonal antibodies against: p63, CD29 ( $\beta$ -integrin) as well as CD34 and were analyzed using confocal microscopy and compared with healthy control. Keratinocytes were isolated from three parts of human extremity of different proliferative potential: sole, foot and groin. Cells were cultured in various concentrations of lymph and serum (100%, 50%, 20% of lymph and the same dilutions of serum). Lymph contained IL -1, IL- 6 TNF- $\alpha$ , KGF, EGF, VEGF, TIMP -1, TIMP-2 at levels significantly higher levels than serum. Control cells culture were conducted in medium RPMI with 5% fetal bovine serum. To identify cytokines responsible for KC proliferation IL- 6, TNF - $\alpha$ , KGF and VEGF were blocked with neutralizing antibodies. After 1 and 7 days of culture the phenotypes were studied using monoclonal antibodies against CD34, p63 (stem cells), CD29 (transient daughter cells) using confocal microscopy. Furthermore, the colony-forming cells were observed and proliferative potential was measured by detection of the markers of differentiation Ki67 and PCNA in confocal microscopy. Additionally BrdU incorporation rate was estimated after 7 days of culture using flow cytometry analysis.

**Results:** Seven day lymph culture revealed increased number of p63 and CD29 positive cells compared with cells cultured in RPMI with 5% FCS. There were no differences in expression of CD34 marker. Moreover, there was increased number of dividing cells in cultures supplemented with lymph. Colony-forming efficiency was the highest in cultures with 20% lymph concentration.

**Conclusion:** Cells cultured in lymph expressed increased number of stem cells markers and the proliferating rate was also increased. Lymph cytokines and growth factors are participating in keratinocyte proliferation and are probably responsible for high number of presumptive keratinocyte stem cells.

## Plastic\_2 A047

### The Patient Scar Assessment Questionnaire (PSAQ) – A Valid & Reliable Measure of Patients' Perception of Scarring

Durani Piyush<sup>1</sup>, McGrouther Duncan<sup>2</sup>, Ferguson Mark<sup>3</sup>

<sup>1</sup>University of Manchester & Renovo Plc, UK, <sup>2</sup>University of Manchester, <sup>3</sup>University of Manchester & Renovo Plc (p.durani@yaboo.co.uk)

**Introduction & Aims:** Scarring can be a significant burden for patients. Patient-reported outcome measures of scarring are limited in scope and few are fully validated using the principles of psychometric theory. The aim was to design and validate a patient-reported outcomes measure of scarring.

**Method:** Patient interviews were used to construct the Patient Scar Assessment Questionnaire (PSAQ) with 5 subscales (Appearance, Symptoms, Consciousness, Satisfaction with Appearance, Satisfaction with Symptoms), composed of categorical-response items. The PSAQ was applied to various surgical populations (total scar assessments  $n = 667$ ) at months 3/6/12 post-surgery and tested for internal consistency, test-retest reliability, convergent validity, known group differences and sensitivity.

**Results:** Subscales showed high internal consistency (Cronbach's alpha = 0.73–0.94), except the Symptoms subscale. Test-retest reliability was acceptable across all subscales (ICC = 0.61–0.97). Change in PSAQ scores was significant across month 3 and 6 post-op ( $p < 0.001$ ) and App/Consc subscale scores exhibited known-group differences ( $p < 0.001$ ). Convergent validity was demonstrated by significant moderate-high correlations with various measures of similar constructs ( $R = 0.40$ – $0.60$ ,  $p < 0.001$ ).

**Conclusion:** The PSAQ is a reliable and valid measure of patients' perception of scarring, although the Symptoms subscale requires further refinement. Subscales can be used independently of each other to allow assessment of scar change in specific domains.(previously accepted and presented at Winter BAPRAS London, Dec 2007).

## Oncology\_2 A048

### Immune reposnse of spleen monocytes to CC531 tumor

Durowicz Sergiusz<sup>1</sup>, Gewartowska Magdalena<sup>2</sup>, Olszewski Waldemar L<sup>3</sup>

<sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland (wlo@cmdik.pan.pl)

The role of spleen in up- or downregulating of growth of colon cancer liver metastases remains unknown. Numerous clinical and experimental reports provide controversial data. Spleen sends cohort of migrating cells, among them dendritic cells (DC), with splenic blood to the liver upon the so far unknown signals. Moreover, spleen is a site of recognition and elimination of various antigens, presumably also of cancer cells. This assumption is based on rarely occurring cancer metastases of cancer to the spleen and very infrequent primary spleen tumors. The question arises whether splenic DC may play a protective role in the response to tumor antigens and can be used as attackers in anti-cancer vaccines in cooperation with CD8 cells.

**Aim:** To isolate splenic enriched DC population, activate with LPS, and investigate their adherence and cytotoxicity to CC531 cancer cells.

**Methods:** Rat DC-enriched population was isolated according to NIH method and stimulated in vitro with E.coli LPS. Adherence to CC531 was studied in suspension, on culture monolayer and frozen sections of liver metastases.

**Results:** DC-enriched population contained mostly OX62, MHC class II and ED1 – positive cells. Incubation with LPS brought about increase in percentage of cells expressing MHC class II antigens, TLR4 and HSP 60 and 90. Rosette-forming test of DC-CC531 showed only sporadic formation of clusters. Cytotoxicity level of DC-enriched population was around 25% and was similar to that of LAL (liver associated lymphocytes) washed out from liver sinusoids but higher than of blood mononuclear cells. Cytotoxicity test performed on CC531 monolayer did not show areas deprived of neoplastic

cells. Adherence of DC-enriched population was higher to tumor stromal than cancer cells. Immunization of rats with CC531 did not increase the adherence and cytotoxicity level of the splenic DC population.

**Conclusions:** Splenic DC- enriched population was cytotoxic to CC531 at a similar level as that of normal LALs. Stimulation by LPS and immunization with CC531 did not increase the adherence and cytotoxicity level of splenic DCs to CC531. Using splenic DC as effectors in anticancer vaccines doesn't seem to be justified, at least in the studied model.

## Plastic.2 A049

### Foot defects in diabetics

El Gawad Ahmed<sup>1</sup>, Defty Charlotte<sup>2</sup>, Gokaraju Kripa<sup>3</sup>, Salama Yehia<sup>4</sup>, Galal Ibrahim<sup>5</sup>

<sup>1</sup>Cairo University, Egypt, <sup>2</sup>Plastic Surgery Tainnee, UK, <sup>3</sup>General surgery tainnee, uk, <sup>4</sup>General Surgery Tainnee, UK, <sup>5</sup>Prof Plastic Surgery, Cairo University (aelfgawad@gmail.com)

Lower extremity defects represents a major concern for patient with diabetes and for those who treat them from both a quality of life and economic stand point. The magnitude of the clinical picture and morbidity mirrors the severity and complexity of the underlying pathobiology. The three pathogenetic mechanisms involved are ischaemia, neuropathy and immunopathy. Seldom do these mechanisms work in isolation, rather most foot defects result from a complex interplay among all three. However, the problem in diabetics is not only how to bridge foot defects, but also general systemic problems such as uraemia, anaemia and hypoalbuminaemia which all interplay against wound healing. Local orthopedic problems such as osteomyelitis, septic arthritis & charcot joint are also a stand point in coverage of foot defects. Foot defects in diabetics is thus a highly delicate and complicated problem which should be handled from the start with great care and should not be looked at lightly whatever the initial presenting.

## Minimally invasive A050

### Exploration of the retroperitoneum through natural orifices

Eleftheriadis Efthymios<sup>1</sup>, Kotzampassi Katerina<sup>2</sup>, Grosamanidis Vasilios<sup>3</sup>, Panidis Stavros<sup>4</sup>

<sup>1</sup>Department Of Surgery, Faculty Of Medicine, University Of Thessaloniki, Thessaloniki, Greece, <sup>2</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece, <sup>3</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece, <sup>4</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece (kakotbe@yahoo.com)

NOTES has been carried-out experimentally in various body compartments; the peritoneal cavity, the mediastinum, the thoracic cavity. This study was undertaken to assess the feasibility of endoscopic insertion into the retroperitoneum through a natural orifice and the performance of surgical manipulation therein. Thirteen pigs were subjected to a 15mmHgCO<sub>2</sub> pneumoperitoneum under general anaesthesia. Using NOTES-techniques, two endoscopes, one single and one double channel, were introduced into the peritoneal cavity via the transgastric and the transcolonic routes, respectively. Virtually all manipulations were performed with the one endoscope; the other being involved only if and when ergonomically applicable. The animal was positioned in a lateral decubitus site, the small-bowel loops being moved to leave the kidney exposed. The parietal peritoneum was punctured with an injection needle at the lower renal pole and air was insufflated manually into the retroperitoneum, up to its sufficient distention. A small incision was then made by a pre-cut-needle sphincterotome and the endoscope pushed and inserted into the retroperitoneum. The soft connective tissue was cut free by a biliary stone-extraction balloon, to expose the renal blood vessels, the ureter, the adrenal gland and part of the pancreas. After detailed preparation, the renal artery and vein were separately ligated with double clips and diathermically divided. Since no communication existed between right and left retroperitoneum, the same manipulations were then performed on the intact other side, thus permitting the

use of the same animal twice. The creation of retro-pneumo-peritoneum was not difficult and the space of the constructed cavity was sufficient for complete retroflexion of the endoscope. The freeing of the anatomical structure of interest was difficult and time consuming, but bleeding was avoided. Exploration of the retroperitoneum and surgical manipulations seems technically feasible, but its application in humans presupposes the resolution of the ethical and technological issues surrounding NOTES.

## Minimally invasive A051

### Notes: improving triangulation by triple access

Eleftheriadis Efthymios<sup>1</sup>, Kotzampassi Katerina<sup>2</sup>, Grosamanidis Vasilios<sup>3</sup>, Kapoutzis Konstantinos<sup>4</sup>, Douros Vasilios<sup>5</sup>

<sup>1</sup>Department Of Surgery, Faculty Of Medicine, University Of Thessaloniki, Thessaloniki, Greece, <sup>2</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece, <sup>3</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece, <sup>4</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece, <sup>5</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece (kakotbe@yahoo.com)

**Background-Aims:** In flexible endoscopy triangulation is very difficult to be performed due to the proximity and the parallel course of the endoscopic instruments to the optical axis. Since triangulation is critical for NOTES to be matured, we decided to investigate experimentally whether triangulation can be improved by using three endoscopes inserted through different natural orifices.

**Methods:** Twelve pigs weighing 25–30kg were subjected to laparotomy. Three endoscopes were introduced into the peritoneal cavity via the transgastric, transcolonic and transvaginal routes, respectively, under direct inspection through the open abdomen. Then laparotomy was tightly closed and pneumoperitoneum was created through a Verres needle. Using the one endoscope for vision [eyes] and the other two for manipulations [hands] all combinations were performed, in relation to the orifice of insertion and the role of each endoscope. Three basic manipulations were performed: clips closure of the peritoneal site of laparotomy, incision and closure of an enteric loop and stabilization-division of a long adhesion-cord using standard endoscopic instruments.

**Results:** Friction and mechanical resistance between the endoscopes were a frequent sense, during all the procedures. There were also problems in the co-ordination and co-operation in between the three operators. The endoscope “eyes” measured up for observation; but only through its monitor the two endoscopists -manipulating the endoscopes “hands”- were able to work ergonomically. The most sufficient and ergonomic combinations were: 1. for manipulations in the upper abdomen endoscope “eyes” and one endoscope “hand” transcolonically, the other “hand” transvaginally; 2. for manipulations in the lower abdomen both “hands” transgastrically, endoscope “eyes” transcolonically or transvaginally, in retroflex position.

**Conclusions:** In NOTES triangulation is feasible by using three endoscopes, but co-ordination and co-operation should be improved.

## Hepatobiliary.1 A052

### Effect of preoperative endoscopic biliary drainage and stenting on postoperative infection and the outcome of surgery for benign obstructive jaundice

Elsebae Magdy MA<sup>1</sup>, e Hussin<sup>2</sup>, Helmy Ahmed Hazem<sup>3</sup>, Fakhry Sameh<sup>4</sup>

<sup>1</sup>Academic Unit of Surgery Institute Egypt Academic Unit of Surgery, Theodore Bilharz Research, <sup>2</sup>Academic Unit of Surgery, Theodore Bilharz Research Institute Giza EGYPT, <sup>3</sup>Academic Unit of Surgery, Theodore Bilharz Research, <sup>4</sup>Hepatology-Gastroenterology-Tropical medicine Theodore Bilharz Research, \*\*Department, Theodore Bilharz Research Institute Giza EGYPT (magdyelsebae@botmail.com)

**Introduction:** Obstructive jaundice (OJ) patients come to the care of the endoscopist, before going to surgery. (ERCP) and stent insertion preoperatively became the routine in our institute. Preoperative biliary drainage in patients with malignant biliary obstruction was found to increase the risk of positive intraoperative bile cultures, postoperative infectious morbidity, and death. Avoiding routine drain placement, are strongly suggested in candidates for surgery. Review of literature from 1980 to 2005 no study was found that specifically identify the organisms present in bile in patients with benign obstructive Jaundice before endoscopic biliary stent insertion and after it at the beginning of surgical procedure.

**The aim of this study:** The objective of the present study was to evaluate the effect of preoperative endoscopic biliary drainage on the outcome of surgery for patients presenting with benign obstructive jaundice. A special emphasis is done on bacteriological study of bile samples from those patients before and after ERCP with biliary stenting and its possible association with postoperative septic complications.

**Materials and Methods:** The study involved 79 of patients with surgically corrected benign obstructive jaundice at TBRI. Preoperative endoscopic retrograde cholangiography (ERCP) was done for all of the patients and stent insertion was made in 60 of them. Bile specimens were obtained during endoscopic cholangiography by flushing technique and intra-operatively by puncture before incising the common bile duct. Bile samples were analyzed for their bacterial spectrum and sensitivity to antibiotics. Concomitant postoperative septic complications such as wound infection and cholangitis were also assessed.

**Results:** Bile culture of intra- operatively obtained specimens was positive in 39/60 (65.0%) of the patients in Group II (ERCP + biliary stent), a significantly higher incidence than that observed in group I (ERCP only), in which 7/19 (36.8%) of the patients presented positive cultures ( $p = 0.001$ ). There was no significant difference in general postoperative morbidity between groups. When infective complications (cholangitis, pneumonia, wound infection) were analyzed separately, a higher incidence, although without significance, was found in Group II than in Group I.

**Conclusion:** Preoperative biliary drainage using the endoscopic retrograde cholangiopancreatography (ERCP) and stent insertion in patients subjected to surgery for benign obstructive jaundice could provokes biliary bacterial colonization with a possible appearance of infective complications during the postoperative period.

## Hepatobiliary\_2 A053

### The effect of splenectomy on hepatic functional reserve and structural damage in patients with chronic hepatitis C virus infection

Elsebae Magdy M.A<sup>1</sup>, Abu-Zekri Nadia B<sup>2</sup>

<sup>1</sup>Department of General Surgery-Theodore Bilharz Research Institut, Cairo, Egypt, <sup>2</sup>Department of Clinical Chemistry-Theodore Bilharz Research Institute. (magdyelsebae@hotmail.com)

Splenectomy in cirrhotic patients with HCV infection was reported that it diminishes virus burden. Whether this is reflected on the hepatic functional reserve and structural liver damage remains speculative. Aim of the study is to assess the effect of splenectomy on hepatic functional reserve and structural damage in patients with chronic hepatitis C virus infection by Non-invasive serum markers.

**Methods:** The study involved 15 consecutive patients with chronic hepatitis C (CHC) infection who underwent elective splenectomy surgery for the treatment of associated hypersplenism, thrombocytopenia and/or esophageal varices. The hepatic functional reserve is assessed before and two and sixty days after splenectomy by serum hyaluronic acid (HA) assay. Structural liver damage is assessed by non-invasive serum markers type IV collagen (C-IV), tissue inhibitor of metalloproteinases-1 (TIMP-1), aspartate aminotransferase to alanine aminotransferase (AST/ALT) ratio, and AST to platelet ratio index (APRI).

**Results:** Preoperative mean serum HA level > 86ng/ml was found in all cases. This was < 40 ng/ml after splenectomy. Mean AST/ALT and APRI ratios decreased in all patients after surgery. Before splenectomy, both C-IV and TIMP-I serum levels were elevated in all patients. After splenectomy, the C-IV and TIMP-I showed a significant decrease in relation to the pre-splenectomy values both at early postoperative period and late follow-up.

**Conclusion:** Splenectomy in patients with chronic hepatitis C infection was associated with a decrease in serum markers of fibrosis levels, which persisted for at least 60 days. These results suggest that splenectomy improves hepatic functional reserve and diminishes structural liver damage in those patients.

## Gastrointestinal\_1 A054

### Glutamate receptor inhibition improves intestinal function in experimental colitis

Érces Dániel<sup>1</sup>, Varga Gabriella<sup>2</sup>, Kovács Tamás<sup>3</sup>, Kaszaki József<sup>4</sup>, Vécsei László<sup>5</sup>, Boros Mihály<sup>6</sup>

<sup>1</sup>Institute of Surgical Research, Szent-Györgyi Albert Medical and Pharmaceutical Center, University of Szeged, Hungary, <sup>2</sup>Institute of Surgical Research, Szent-Györgyi Albert Medical and Pharmaceutical Center, University of Szeged, Hungary, <sup>3</sup>Department of Paediatrics, Szent-Györgyi Albert Medical and Pharmaceutical Center, University of Szeged, Hungary, <sup>4</sup>Institute of Surgical Research, Szent-Györgyi Albert Medical and Pharmaceutical Center, University of Szeged, Hungary, <sup>5</sup>Department of Neurology, Szent-Györgyi Albert Medical and Pharmaceutical Center, University of Szeged, Hungary, <sup>6</sup>Institute of Surgical Research, Szent-Györgyi Albert Medical and Pharmaceutical Center, University of Szeged, Hungary (ercesdan@gmail.com)

**Background:** There are very few data available on the peripheral roles of the N-methyl-D-aspartate (NMDA)-sensitive glutamate receptors (NMDA-R), but NMDA-R antagonism proved to be neuroprotective in the central nervous system. The aim of our study was to characterize the effects of the endogenous NMDA-R antagonist kynurenic acid (KYNA) and SZR72 compound, a synthetic KYNA analogue, which is able to pass the blood-brain barrier, on the gastrointestinal function in experimental colitis in anesthetised male Wistar rats.

**Methods:** Acute colitis was induced by intracolonic administration of 2,4,6-trinitrobenzene sulfonic acid (TNBS). In the sham-operated ( $n = 6$ ) and non-treated control groups ( $n = 6$ ) enema was performed with the vehicle (25% ethanol) or TNBS, respectively, while in groups 3 and 4, KYNA (25 mg/kg i.v.,  $n = 6$ ) or SZR72 (10 mg/kg i.v.,  $n = 6$ ) treatments were started 18 hr after colitis induction. Macrohemodynamics were recorded, the large bowel motility was monitored with strain-gauge technique, while the serosal microcirculation of the colon was visualized by means of intravital videomicroscopy with orthogonal polarization spectral (OPS) imaging for 6 hr. Motility indices were determined by calculating the area under the motility curve as a function of time, the tone of the colon was given as the mean value of the minima in the motility curve. Tissue activities of inflammatory enzymes xanthine oxidoreductase (XOR), myeloperoxidase (MPO; a marker of leukocyte activation) and nitrogen monoxide synthase (NOS), were measured in colonic biopsies.

**Results:** The TNBS enema induced a systemic hyperdynamic circulatory reaction, augmented the intestinal motility and increased the serosal capillary blood flow. These changes were accompanied by significantly elevated mucosal XOR, MPO and NOS activities. Treatment with both NMDA-R antagonists significantly decreased the activities of XOR and MPO, increased the tone of the colonic smooth muscles and permanently decreased the motility index.

**Conclusions:** These results demonstrate a decisive modulatory role for glutamatergic receptors in intestinal motility alterations during the onset of experimental colitis. NMDA-R antagonism is anti-inflammatory in the colon—possibly due to XOR inhibition and prevention of the secondary activation of leukocytes. Grant support: NKTH-RET/08/2004.



## Extremities A055

### The efficacy of a phospholipid-enriched diet in the prevention of experimental rheumatoid arthritis

Eros Gabor<sup>1</sup>, Ibrahim Saleh<sup>2</sup>, Boros Mihaly<sup>3</sup>, Vollmar Brigitte<sup>4</sup>

<sup>1</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany; <sup>2</sup>Institute of Surgical Research, University of Szeged, Szeged, Hungary, <sup>3</sup>Immunogenetics Group, University of Rostock, Rostock, Germany, <sup>4</sup>Institute of Surgical Research, University of Szeged, Szeged, Hungary, <sup>5</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany (erosg@expsur.szote.u-szeged.hu)

**Introduction:** Our previous investigations have revealed that oral intake of phosphatidylcholine (PC) inhibits the inflammatory consequences in several experimental pathologies. Phosphatidylethanolamine (PE) and N-acetylphosphatidylethanolamines (NAPEs) are endogenous phospholipids (PLs) linked to the PC metabolism, and may contribute to its effects in many different ways. The objective of our study was to characterize the inflammatory changes and the effects of a complex, PL-enriched diet in a murine model of collagen-induced arthritis (CIA).

**Methods:** The experiments were performed on DBA1/J mice. In groups 1–3 CIA was induced by administration of bovine type II collagen. Group 1 was kept on normal food, while in group 2 the animals were fed with PL-enriched diet containing 1% PC, 0.4% PE and 0.1% NAPEs for 6 weeks as a pre-treatment. In group 3 this diet was given as therapy for 6 weeks beginning with the clinical onset of the disease. Groups 4 and 5 served as controls and received either normal, or PL-enriched chow. CIA was evaluated using a clinical scoring system, inflammatory hyperalgesia was detected with thermal stimulation. The knee joints were observed by means of in vivo fluorescence microscopy: rolling fraction and firm adherence of leukocytes were determined, and functional capillary density was measured as a marker of inflammation-associated angiogenesis. Furthermore, histological analysis was performed in order to determine the destructive process within the joints.

**Results:** PL-pretreatment did not decrease the clinical scores, but significantly diminished the inflammation-linked hyperalgesia, reduced the number of leukocyte-endothelial cell interactions, attenuated inflammation-driven angiogenesis and improved the structural damage. PL-intake initiated after the onset of the disease did not reduce the signs and symptoms of CIA-associated inflammation.

**Conclusion:** Dietary PL supplementation is effective as a pre-treatment and PL-enriched diet may be a preventive anti-inflammatory approach in preclinical stages of chronic arthritis.

## Neurosurgery A056

### Neuronavigation and fluoroscopy assisted subdural strip electrode positioning – a simple method to increase intraoperative accuracy of strip localization in epilepsy

Erőss Loránd<sup>1</sup>, Bagó Attila<sup>2</sup>, Entz László<sup>3</sup>, Halász Péter<sup>4</sup>, Fabó Dániel<sup>5</sup>, Fedorcsák Imre<sup>6</sup>

<sup>1</sup>Natl. Inst. of Neurosurgery, Budapest, Hungary, <sup>2</sup>Natl. Inst. of Neurosurgery, Budapest, Hungary, <sup>3</sup>Natl. Inst. of Neurosurgery, Budapest, Hungary, <sup>4</sup>3Natl. Inst. for Psychiatry and Neurology, Budapest, Hungary, <sup>5</sup>Natl. Inst. of Neurosurgery, Budapest, Hungary, <sup>6</sup>Natl. Inst. of Neurosurgery, Budapest, Hungary (entz@gmx.net)

For localizing the epileptogenic zone in cases of focal epilepsies detailed clinical investigations, imaging studies and electrophysiological methods are in use. If the non-invasive presurgical evaluation provides insufficient data, intracranial electrodes are necessary. CT and MRI techniques are gold standard to localize the postoperative position of the implanted intracranial electrode contacts. However if the electrodes (strips) are inserted through a burr hole, the exact localization of the electrode contacts on the patient's brain remains uncertain for the surgeon during insertion. Therefore we developed a simple method to visualize the electrodes during the procedure. We combine neuronavigation and intraoperative fluoroscopy for parallel visualization of the cortex, electrodes, and the navigation probe. We search our target region with neuronavigation, burr a hole over the optimal entry point and under real time fluoroscopy we slide the strip electrode to the tip of the navigation probe, which was kept over the area of

interest. At our institution we inserted 26 strips in 8 patients with this technique and none of them had to be repositioned. There were no complications with this procedure and the prolonged surgery time is acceptable. In compare to previously published electrode placement methods, this method guarantees precise electrode placement in all cerebral regions. In conclusion: intraoperative visualization of the electrodes with fluoroscopy during positioning through a burr hole with combination of neuronavigation gives the neurosurgeon the possibility to control the real position of the electrode over the gyri's during the procedure. Description of similar method has not been published earlier.

## Hepatobiliary.1 A057

### The role of mild hypothermia in protection against Ischemia/Reperfusion injury in Bilharzial livers: controlled experimental study

Ezzat Ezzat M<sup>1</sup>, HELMY Ahmed H<sup>2</sup>, Hammam Olfat M<sup>3</sup>, Mahmoud Soheir S<sup>4</sup>, Akl Maha M<sup>5</sup>

<sup>1</sup>Department of General Surgery, Pathology Thodore Bilharze Research Institute, Cairo, Egypt, <sup>2</sup>Department of General Surgery, Pathology Thodore Bilharze Research Institute, <sup>3</sup>Department of General Surgery, Pathology Thodore Bilharze Research Institute, <sup>4</sup>Department of Parasitology Thodore Bilharze Research Institute, <sup>5</sup>Department of General Surgery, Pathology Thodore Bilharze Research Institute (abihelmy@hotmail.com)

**Background:** Ischemia reperfusion injury (IRI) is an important cause of liver damage occurring during hepatic resection for liver tumors, surgery for liver trauma and liver transplantation. This study evaluates the protective effect of mild hypothermia against ischemia reperfusion injury in bilharzial and non bilharzial hamster livers.

**Methods:** Forty hamsters were divided into four equal groups' bilharzial normothermic (BN) (36.9 ± 0.3°C), bilharzial hypothermic (BH) (33.3 ± 0.1°C), normal normothermic (NN), normal hypothermic (NH) and two equal control groups of normal and bilharzial hamsters. The four main groups were exposed to 30 minutes of liver ischemia followed by four hours of reperfusion. All animals were sacrificed. Livers sent for histopathological studies, blood samples for aspartate aminotransferase (AST), alanine aminotransferase (ALT) measurements and blood sugar.

**Results:** Histopathological evaluation confirmed severe hepatic injury in normothermic bilharzial and normal hamsters, while hypothermic bilharzial and normal hamsters only experienced mild to moderate hepatic damage. Markers of hepatocellular injury (ALT and AST) and blood sugar were lower in the hypothermic groups than in the normothermic groups but it was statistically insignificant.

**Conclusion:** Mild hypothermia significantly reduces hepatic injury in both normal and bilharzial livers in animals subjected to ischemia reperfusion injury. The hepato- protective effects of mild hypothermia were confirmed by elevated levels of proliferating cell nuclear antigen (PCNA) and vascular endothelial growth factor (VEGF) in hypothermic groups than in normothermic groups.

## Cardiovascular, Thoracic.2 A058

### Unilateral thoracoscopic approach for mediastinal parathyroid glands excision. A case report

Fama Fausto<sup>1</sup>, Linard Cecile<sup>2</sup>, Gioffre'-Florio Maria Antonietta<sup>3</sup>, Piquard Arnaud<sup>4</sup>, Saint-Marc Olivier<sup>5</sup>, Metois David<sup>6</sup>

<sup>1</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans, France, <sup>2</sup>Service d'Anesthésie et Réanimation, Centre Hospitalier Régional d'Orléans (France), <sup>3</sup>Division of General Surgery, Department of Human Pathology, University of Messina (Italy), <sup>4</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France), <sup>5</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France), <sup>6</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France) (famafausto@yahoo.it)

**Introduction:** Mediastinal access is required in approximately 2% of patients with hyperparathyroidism. The traditional approach involves thoracotomy and median-sternotomy. Currently, there are few reports about video-assisted thoracoscopic surgery (VATS) were reported in the literature. Accurate preoperative radiological imaging is essential for surgical selection. We report a case of successful left thoracoscopic subtotal thymectomy with excision of two hyperplastic supernumerary parathyroid glands localised in the left and right lobes of thymus.

**Case report:** A 33-year-old female (dialysed for chronic renal failure since 2001) was admitted for persistent renal hyperparathyroidism with elevated serum parathormone (PTH) level at 1900 ng/l (range 13–54 ng/l). In 2003 she underwent to a subtotal (3 glands) parathyroidectomy for hyperplasia. Preoperative cervical ultrasound scan was negative. A 99mTcTechnetium-sestamibi scintigram, confirmed by a thoracic contrast-enhanced computed tomography (CT), showed a double anterior-superior mediastinal hyper-density compatible with two intrathymic parathyroid glands. A left thoracoscopy, using three 10mm ports, was established and left hemi-thymectomy with subtotal right hemi-thymectomy was performed. All specimens were sent for frozen section histological examination. Macroscopically, the left specimen included a parathyroid gland measuring 15 mm and weighting 1695 mg, the right included a second gland (measuring 25 mm and weighting 2700 mg). Both histological assessments showed ectopic hyperplasia. A severe hypocalcaemia occurred in the first postoperative day (serum calcium at 1.59 mmol/l). PTH level was normalised. Chest drainage was removed on the 2nd post-operative day. The patient was discharged on the 3rd postoperative day with a Vitamin D3-oral calcium treatment. By 6 months follow-up the patient was normocalcaemic with long-term treatment.

**Discussion:** VATS causes fewer complications compared with open thoracotomy and median-sternotomy approaches, and therefore a shorter hospitalisation and a better postoperative course. In this report, a unilateral access allowed the care of a bilateral pathology.

## Minimally invasive A059

### Laparoscopic major liver resections for benign disease

Fama Fausto<sup>1</sup>, Piquard Arnaud<sup>2</sup>, Linard Cecile<sup>3</sup>, Cogliandolo Andrea<sup>4</sup>, Gioffre'-Florio Maria Antonietta<sup>5</sup>, Saint-Marc Olivier

<sup>1</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans, France, <sup>2</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France), <sup>3</sup>Service d'Anesthésie et Réanimation, Centre Hospitalier Régional d'Orléans (France), <sup>4</sup>Division of General Surgery, Department of Human Pathology, University of Messina (Italy), <sup>5</sup>Division of General Surgery, Department of Human Pathology, University of Messina (Italy), <sup>6</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France) (famafausto@yahoo.it)

**Introduction:** Major liver resections are generally indicated for malignant diseases which usually involve more than 2 segments. Laparoscopic experience for these procedures is still limited, because liver surgery is technically demanding, associated with serious complications and required specialized centres and experienced surgeons. The aim of this study was to describe our surgical experience for right and left laparoscopic hepatectomy for benign disease and to evaluate its feasibility without hand-assistance.

**Patients and Methods:** From January 2005 to October 2006 we performed a total of 45 laparoscopic liver resections, including 6 laparoscopic major liver resections (4 right and 2 left hepatectomies). Our study group comprised 6 female patients with a mean age of 40.5 ± 5.0 years (range 33–46). Liver lesions were located in segments II-III-IV in 2 patients, in segments VI-VII-VIII in 2 patients and in segment V-VII-VIII in 2 patients and histological results were 3 adenomas, 2 angiomas, and 1 angiomatoid lipoma. Mean size of the lesion was 6.5 ± 3.2 cm (range 2–10.5). Five trocars were used for right laparoscopic hepatectomy and 4 in left hepatectomy.

**Results:** No operative mortality was observed. Only 1 patient (left hepatectomy) was readmitted 15 days later for a biliary fistula and treated by laparoscopic peritoneal lavage and triple clipping. The Pringle manoeuvre was necessary in 4 patients (right hepatectomies). No laparotomic conversion was required. Resection margins were clear in all cases.

**Discussion and Conclusion:** In our early experience, laparoscopic major liver resections could be performed without hand-assistance, at least for benign disease and by surgeons experienced in laparoscopy, with good results. Nevertheless, further studies with larger series are required in order to draw definitive conclusions, especially for malignant diseases and/or in cirrhotic patients that represent the most relevant group.

## Sepsis, Infection, Immunity\_2 A060

### Disorders of immunoregulatory activity in patients with abdominal aorta aneurysm

Feliga Marcin<sup>1</sup>, Stankiewicz Wanda<sup>2</sup>, Witkowski Wojciech<sup>3</sup>, Dąbrowski Marek<sup>4</sup>, Maruszyński Marek<sup>5</sup>

<sup>1</sup>Military Institute of the Health Services, Warsaw, Poland, <sup>2</sup>Military Institute of the Health Services and, <sup>3</sup>Military Institute of the Health Services, <sup>4</sup>Military Institute of the Health Services and, <sup>5</sup>Military Institute of the Health Services (infero@poczta.fm)

1 Military Institute of the Health Services and 2Military Institute of Hygiene and Epidemiology, Warsaw, Poland.

**Background:** Atherosclerosis is one of the most thoroughly investigated pathological processes. It is one of the reasons clinically manifested by dilation of artery, forming aneurysms. One of the proved causes of the progression of the process is local inflammation.

**Aim:** The main goal of our study was to find if systemic immunoregulatory disorders are present in patients with abdominal aorta aneurysm (AAA), what is their kind and range, and if surgical treatment may affect of the immunoregulatory function.

**Material and methods:** The study was performed in the group of 20 patients with AAA (7 women and 13 men) aged 69 to 82, hospitalized in order to undergo surgical treatment. Before and after the surgery the immunological tests comprising the parameters of T lymphocyte immune competence and monocyte immunogenic activity (value of LM index) were done in microcultures of mononuclear cell population isolated from the blood of patients. The levels of produced cytokines (IL-1β, IL-1ra, IL-6 and IL-10) were also estimated in the culture supernatants by ELISA technique. The results were compared between the group of patients with AAA, the group of 15 patients operated for inguinal hernia and the group of 15 healthy individuals.

**Results:** No deficiency in T lymphocyte response to mitogens (Con A and PHA), T-cell suppressive activity (SAT) and IL-10 production were observed in PBMC cultures of the patients before surgical treatment. In contrast to that, immunogenic activity of monocytes (LM value) and production of pro-inflammatory monokines (IL-1β, IL-6) were elevated. After the treatment the values of parameters of T-lymphocyte immune competence did not change but the monocyte immunogenic activity and production of pro-inflammatory monokines decreased significantly.

**Conclusions:** 1. In the patients with abdominal aorta aneurysm (AAA) the systemic immunological disorders relate to increased monocyte immunogenic activity (elevated value of LM index and production of IL-1β and IL-6). 2. Surgical treatment decreases pro-inflammatory activity of immune system in patients with AAA. 3. The results indicate for the need of introduction of an appropriate immunocorrective treatment in addition to the surgical therapy in patients with abdominal aorta aneurysm.

## Oncology\_1 A061

### Effect of hepatic growth factors on CC-531 adenocarcinoma cancer cells

Garcia-Alonso Ignacio<sup>1</sup>, Diaz-Sanz Iñaki<sup>2</sup>, Palomares Teodoro<sup>3</sup>, San Cristobal Juan<sup>4</sup>, Martinez-Astorquiza Txanton<sup>5</sup>, Marin Hector<sup>6</sup>

<sup>1</sup>Laboratory of Experimental Surgery. University of The Basque Country. Spain,

<sup>2</sup>Laboratory of Experimental Surgery. University of The Basque Country. Spain,

<sup>3</sup>Laboratory of Experimental Surgery. University of The Basque Country. Spain,

<sup>4</sup>Laboratory of Experimental Surgery. University of The Basque Country. Spain,

<sup>5</sup>Laboratory of Experimental Surgery. University of The Basque Country. Spain,

<sup>6</sup>Laboratory of Experimental Surgery. University of The Basque Country. Spain (ignacio.galonso@ehu.es)

In previous studies we demonstrated the protumoral stimulus derived from partial hepatectomy on rhabdomyosarcoma rat liver metastases. We have also established that the serum (HRS) obtained from partially hepatectomized rats as well as several growth factors (GF) significantly increase the proliferative rate of rhabdomyosarcoma cells. In the present study we analyse the effect of HRS and GF on the rat colon adenocarcinoma CC-531 cell line (CLS, Germany).

**Methods:** The cells were cultured in RPMI enriched with 10% fetal calf serum (FCS). To assess cell proliferation four 96 wells plates were seeded. After 24 h, the medium was removed and new medium with the different treatments was added. Every 24 h the number of cells in one of the plates was measured using a cell proliferation kit I (MTT, Roche). As a first stage, the effect of different concentrations of serum from control rats (CRS) and HRS was compared with standard FCS. Then, the effect of different concentrations of GF was assessed.

**Results:** CRS proved to be quite a more powerful stimulus for cell proliferation than FCS, as 5% CRS induced the same results as 10% FCS. When comparing 5% CRS with 5% HRS, no differences were observed. However, at lower concentrations of rat serum (2.5% and 1%) the effect of HRS was stronger ( $p < 0.05$ ). To analyse the effect of GF a culture with 0.5% of CRS was used. The GF studied significantly increased the proliferative rate of the culture, though at different concentrations. The greatest response was achieved by HGF (7.5 ng/ml) and VEGF (7.5 ng/ml), followed by PDGF (10 ng/ml), EGF (5 & 10 ng/ml) and FGFb (2.5 ng/ml).

**Conclusions:** CC-351 adenocarcinoma cells respond to the mitogenic stimulus of GF and their growth is also promoted by substances present in the serum obtained from partially hepatectomized rats.

## Transplantation, Organ preservation\_2 A062

### Successful transplantation of allogeneic and xenogeneic arterial grafts preserved in pulverized sodium chloride

Gewartowska Magdalena<sup>1</sup>, Maksymowicz Michał<sup>2</sup>, Doleżyczek Hubert<sup>3</sup>, Olszewski Waldemar L<sup>4</sup>

<sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>4</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Norwegian Radium Hospital, Oslo, Norway (wlo@cmdik.pan.pl)

Arterial graft patency is limited by a process of rejection at the site of implantation. In our previous methods dehydrated studies skin fragments preserved for 10 months and transplanted to SCID mice were taken by recipient.

**Aim:** To establish a method of successful aortic preservation for long time periods with unchanged morphological structures and low allogeneic and xenogeneic reactivity.

**Methods:** Freshly obtained fragments of rat aorta were fixed in anhydric sodium chloride and stored at 40C up to 3 months. Cryosections of desalinated aortic samples were evaluated on histology using H/E method, trichrome and Gomori staining and immunohistochemical staining for CD 31, factor VIII and actin. Group 1. Syngeneic and allogeneic transplantations of rat aorta were performed in a LEW to LEW or BN to LEW combination. Specimens were collected 1 year after transplantation. Histological evaluation was the same as before grafting. In group 2, fragments of small arteries of a diameter of 2–4 mm obtained from the amputated human legs were transplanted to LEW rats as in group 1. Histological evaluation was carried out with use of mAbs against rat and human endothelial cell, lymphocyte and macrophage antigens.

**Results:** Group 1. H/E staining showed preserved anatomical structure of aortae after storage in NaCl. No significant differences between NaCl fixed and non-fixed aortae in staining against CD 31, factor VIII, actin and trichrome were found. The orthotopically transplanted aortae did not evoke local recipients reaction and pulsated up to 1 year after transplantation. Moreover, we did not observe significant cellular infiltrates around the graft after subcutaneous implantation of fixed aorta. The tensile strength of harvested specimens did not differ from controls. Group 2. Grafts were remaining pulsating over a period of

3 months. Only minor peri-graft infiltrates composed of rat ED1 (macrophage) cells. Grafts retained their structure and human CD31 on endothelial cells.

**Conclusions:** Perfectly preserved anatomical and molecular structure of transplanted aortae stored at 40C for months, indicate that dehydration in anhydric NaCl may be considered as a novel method for preservation of arterial grafts. Moreover, limited allo- and xenogeneic reactivity of recipient to the graft may protect against mechanical weakening of the pulsating graft.

## Oncology\_1 A063

### Retrospective analysis of completeness of resection of primary colorectal cancer under the auspices of multidisciplinary care

Goralczyk Adam<sup>1</sup>, Bhatti Muhammad Iqbal<sup>2</sup>, Osman Adel<sup>3</sup>, Allen Derek<sup>4</sup>, Rathore Munir Ahmad<sup>5</sup>, Loughlin Victor<sup>6</sup>

<sup>1</sup>Lagan Valley Hospital, Lisburn, UK, <sup>2</sup>Lagan Valley Hospital, Lisburn, NI UK, <sup>3</sup>Lagan Valley Hospital, Lisburn, NI UK, <sup>4</sup>Belfast City Hospital, NI UK, <sup>5</sup>Lagan Valley Hospital, Lisburn, NI UK, <sup>6</sup>Lagan Valley Hospital, Lisburn, NI UK (munirrathore@yahoo.com)

**Introduction:** Multidisciplinary management (MDM) is increasingly being used for the management of digestive (and other cancers). This study aims to evaluate the completeness of resection of primary colorectal cancer (CRC) and the incidence of APR.

**Patients & methods:** The study period is Jan 2002 – Dec 2006 inclusive (5 years). The data were obtained from medical records, pathology and radiology. The patient inclusion criteria were resection of primary CRC (curative or palliative intent) including synchronous or metachronous cancer. Exclusion criteria were recurrent CRC, cancer not operated, cancer not resected (stoma-only, open-close) and endomucosal resection. The parameters for resectional completion were LRM, CRM, TME (rectal), LNH and R-level of resection. The data were analyzed and compared with the literature and the national audit.

**Results:** There were 142 resections in 141 patients (mean = 28 per annum). M:F ratio was 0.97:1 and median age was 71years. There were 86 colonic (60.5%) and 56 (39.5%) rectal cancers. There were 70 (49.3%) anterior resections. Eighty eight percent of resections were elective (OR = 2.2  $p$  = 0.003 compared to the national audit). 17.6% had metastasis at presentation. Adenocarcinoma NOS constituted 94% of all histology results. Median circumferential resection margin (CRM) was 7.5mm and the CRM involvement was 12.7% for all CRC and 16% for rectal cancers. Median node harvest was 12 (mean = 13  $p$  = 0.08). There was no significant LNH-LNI correlation. There were 11 (14%) APRs compared to 70 (86%) sphincter- saving operations from a total of 83 rectal resections ( $p$  = 0.8 compared to the national audit). Two patients had panproctocolectomy and ileostomy. TME was complete in 35%, incomplete in 11% and missing data in 54%. Eighty four percent of resections were R0. The 30-day mortality was 4.3%. Survival figures for stages I-III CRC revealed 3-yr recurrence-free survival of 82% (all-stage = 67%). With the reported figures both the audits were mutually consistent.

**Conclusion:** With a unified multidisciplinary protocol the completeness of resection of all-site CRC and rectal cancer was consistently high. TME (and PME) assessment requires inter-specialty discussion between surgeons, radiologists and pathologists at an MDTM forum.

## Orthopedic\_2 A064

### Hybrid external fixation for neglected fractures of the distal radius – results after one

Grala Paweł<sup>1</sup>, Tondel Wiesław<sup>2</sup>

<sup>1</sup>Department of Trauma, Burns and Plastic Surgery. K. Marcinkowski Medical University Poznań, Poland, <sup>2</sup>same (pafciog@tlen.pl)

External fixation is a well established procedure for the treatment of unstable fractures of the distal radius but its use is beset with complications. A plethora of theoretical and experimental data suggests nonbridging fixators to be superior



for this setting. A new concept for the use of hybrid external fixation seemed reasonable and was applied for this study. We report on first 14 cases of unstable fractures of the distal radius with a one year follow up and describe the operative technique. All were treated between 3–5 weeks after injury, nevertheless closed reduction after the fixator elements were fixed to the bone was always possible. We had no intraoperative complications, but in the follow up period three cases of algodystrophy and one transient irritation of the ulnar nerve ensued. One case developed superficial infection at the K-wire entry site that resolved with local care and systemic antibiotics. No redisplacements were observed. Early and late (at one year) evaluation of results revealed good and very good anatomic results (Lidström system) and two satisfactory (cases with algodystrophy), eight very good and four good functional outcomes (Gartland-Werley system). The patient's acceptance of the device was high. We conclude that hybrid external fixation of neglected distal radial fractures results in good outcomes if care is taken to prevent overdistraction of bone fragments.

## Orthopedic\_2 A065

### Open reconstruction of articular fractures of the calcaneus using a large femoral distractor

Grala Paweł<sup>1</sup>, Twardzosh Wojciech<sup>2</sup>

<sup>1</sup>Department of Trauma, Burns and Plastic Surgery. K.Marcinkowski Medical University Poznań, Poland, <sup>2</sup>same (pafciog@len.pl)

Operative treatment of comminuted fractures of the calcaneus is a technically demanding procedure, even if good preoperative planning has been done and patient selection has been appropriate. We present the anatomic results of operative reconstruction of 18 consecutive cases of calcaneal fractures but the core of this report is formed on evaluation of the effectiveness of a large femoral distractor in this setting. Operative management of our patient group resulted in good and very good short term anatomic outcome (six months), with shorter operative time and easier reduction of calcaneal fragments as compared with patients treated previously without the distractor. Additionally, with use of the distractor there are fewer assistants needed during the procedure.

## Extremities A066

### Evidence Based Physiotherapy in postmastectomy lymphoedema

Grądalski Tomasz<sup>1</sup>, Ochalek Katarzyna<sup>2</sup>

<sup>1</sup>St. Lazar Hospice, Kraków, Poland, <sup>2</sup>St. Lazar Hospice, Kraków, Poland (tomgr@mp.pl)

Physiotherapy is a method of choice to reduce the lymphoedema volume. Complex Physical Therapy (CPT) usually consists of the manual lymphatic drainage, pneumatic massage, multi-layered compression bandaging and exercises. The comparison of the effectiveness of the CPT is difficult because of differences in the management techniques and methods of assessment among the therapists. There is a need to find the treatment option as good as CPT. In the previous unpublished study we confirmed the effectiveness of CPT in terms of the decrease of the lymphoedema volume, improvement of the limb movement range, hand gripping force, decrease physical complaints and improvement on the health-related quality of life. We observed the trend of enhancement in the spontaneous lymph flow in scintigraphy several days after termination of 2-weeks CPT.

The next question is whether the CPT may be limited to compression bandaging and exercises only. The preliminary results within the group of 40 women showed that the limited CPT can be equally effective. Both groups, full CPT and limited CPT, obtained a significant limb volume reduction (mean 368,3 ml; 11,5% versus 282,3 ml; 10,7%,  $p = 0,4$ , shoulder flexion range movement (42,4% versus 26,3%,  $p = 0,2$ ), abduction range movement (mean 36,0% versus 21,0%,  $p = 0,2$ ), the hand gripping force increase (mean 0,3 dyn/cm<sup>2</sup> versus 0,2 dyn/cm<sup>2</sup>,  $p = 0,7$ ) physical complaints intensity diminishing (mean 1,5 versus 1,6,  $p = 0,4$ ) and QoL improvement (mean Edmonton Symptom Assessment System 0.7/10 versus 0.5/10,  $p = 0,5$ ) These findings indicate that MLD do not contribute significantly to improve the efficacy of compression

bandaging plus exercises alone. The limited CPT may be considered as a primary treatment option in reducing postmastectomy limb lymphoedema.

## Transplantation, Organ preservation\_1 A067

### Pretransplant donor characteristics predict delayed graft function in renal transplant recipients

Hardy Mark<sup>1</sup>, Russo Mark<sup>2</sup>, Witkowski Piotr<sup>3</sup>, Rana Abbas<sup>4</sup>, Chen Jonathan<sup>5</sup>, Gelijns Annetine<sup>6</sup>

<sup>1</sup>Columbia University NY Presbyterian Hospital, USA, <sup>2</sup>Columbia University NY Presbyterian Hospital, <sup>3</sup>Columbia University and Gdansk School of Medicine, <sup>4</sup>Columbia University NY Presbyterian Hospital, <sup>5</sup>Columbia University NY Presbyterian Hospital, <sup>6</sup>Columbia University Mailman School of Public Health (mab1@columbia.edu)

**Background:** To devise a preoperative risk score based on donor characteristics that predicts need for dialysis in the first week (DIAL1WK) post-renal transplantation among dialysis-dependant adult (age > 18yo) recipients undergoing deceased donor renal transplantation (DDRT).

**Methods:** UNOS provided de-identified patient-level data. The study population included 53,413 recipients dialysis-dependant adults (age > 18yo) aged undergoing DDRT between 1/1/99–12/31/06. Recipients ( $n = 1,991$ ) who died < 7 days following implant were excluded from analysis. Logistic regression was performed (backward, remove  $p > 0.15$ ) in order to assess the simultaneous effect of multiple variables on DIAL1WK. Using the relative risks for each identified variable, a risk factor summation score was devised. Model discrimination was assessed by calculating the area under the receiver operating curve (AUC).

**Results:** The risk score included donor age 30–50 yo, donor age > 50 yo, cold ischemic time 24–48 hrs, cold ischemic time > 48 hrs, gfr < 30 ml/min, gfr 30–45 ml/min, gfr 45–60 ml/min, cause of death: CVA, cause of death: anoxia, DCD, non-pump preservation, and history of hypertension. Time from pronouncement of death and organ procurement, cause of death: head trauma, and history of diabetes were not predictive. This risk score is predictive of DIAL1WK by risk score as follows: < 3 14.41% ( $n = 2,302$ ); 3–6.5 28.2% ( $n = 11,718$ ); ≥ 6.5 46.1% ( $n = 4,307$ ). The AUC was 0.652 (95% CI, 0.646–0.656).

**Conclusions:** Pre-implant patient characteristics are highly associated with need for dialysis in the first week following DDRT. Because some recipients might better tolerate delayed graft function, this instrument may be useful in matching recipients and donors. In addition, it may be useful when counseling patient preoperatively regarding risks and benefits of transplantation and in anticipation of postoperative course.

## BJS A068

### Improved Islet Engraftment and Functional Imaging in Intramuscular Space using Biodegradable Scaffolds Enriched with Vascular Growth Factors

Hardy Mark<sup>1</sup>, Witkowski Piotr<sup>2</sup>, Sondermeijer Hugo<sup>3</sup>, Rana Abbas<sup>4</sup>, Itescu Siviou<sup>5</sup>, Harris Paul<sup>6</sup>

<sup>1</sup>Columbia University NY Presbyterian Hospital, USA, <sup>2</sup>Columbia University NY Presbyterian Hospital, <sup>3</sup>Columbia University NY Presbyterian Hospital, <sup>4</sup>Columbia University NY Presbyterian Hospital, <sup>5</sup>Columbia University NY Presbyterian Hospital, <sup>6</sup>Columbia University NY Presbyterian Hospital (mab1@columbia.edu)

**Objectives:** Obstacles for successful islet transplantation are related to problems with engraftment due to a) IBMIR and b) high concentration of toxic immunosuppressives in the liver. We tested intramuscular isograft islet implantation using a novel biocompatible scaffold containing angiogenic factors and a noninvasive monitoring method with PET imaging.

**Material and Methods:** Bioscaffold was made from biodegradable alginate to which was added gradually released VEGF and PDGF as well as cyclic arginine-glycine-aspartic acid (RGD) peptide which increases signaling for both islets and endothelial cell growth. Bioscaffolds were implanted into rectus

muscle of STZ induced diabetic Lewis rats 2 weeks before transplantation of autologous islets.

**Results:** With transplantation into the fully enriched scaffold (gel + VEGF all animals (6/6) achieved normoglycemia (< 100mg%) from day 4 to 60 after islet; only 50% (3/6) became normoglycemic with the unmodified scaffolds while those transplanted without scaffold converted in 33% (2/6). All control animals (sham operated or not transplanted) remained hyperglycemic ( $p < 0.05$ ). Glucose tolerance test was lower 2–4 fold) and staining with factor VIII per high power was most prominent (2–5 fold) in animals that received gel + vegf than in other groups. Removal of scaffolds with led to return of hyperglycemia. The autotransplanted pancreatic islets were well preserved, positive for insulin, and were nearest the newly formed vessels. Recipients were imaged serially with a novel PET scan using a DTBZ radioligand. An area of high activity in the abdominal wall corresponded with the location of islets transplanted 2 months previously. There was no activity in control animals which remained hyperglycemic.

**Conclusions:** The use of a novel biocompatible scaffold containing RGD peptide and vascular growth factors significantly potentiates islet engraftment and permits and extends islet survival after transplantation into an original intramuscular site. Transplanted viable B- cell mass can be monitored for function and viability by sequential PET imaging.

## Cardiovascular, Thoracic\_2 A069

### Lung Metastectomy for Colorectal Cancer–12 year experience

Harris Andrew<sup>1</sup>, Naidu Babu<sup>2</sup>, Rajesh Pala<sup>3</sup>

<sup>1</sup>Regional Department of Thoracic Surgery, Heart of England NHS Foundation Trust, UK, <sup>2</sup>Regional Department of Thoracic Surgery, Heart of England NHS Foundation Trust, <sup>3</sup>Regional Department of Thoracic Surgery, Heart of England NHS Foundation Trust (a.harris@doctors.org.uk)

**Objectives:** NICE guidelines suggest that pulmonary metastectomy may prolong life in highly selected patients who develop colorectal pulmonary metastasis. However there has been recent concern as to the validity of this guideline. Our aim was to evaluate our current practice.

**Method:** 58 patients who underwent pulmonary metastectomy between 1994–2007 were studied. Of these 90% underwent complete surgical resection. 12 patients underwent re-operation and 19 liver resection Analysis was performed by Kaplan-Meier survival and Cox multi-variate regression analysis.

**Results:** Mean age was 66 years. The mean disease free interval was 34 months (median 29, CI 6 to 81). Mean follow-up was 20 months (median 17, CI 1 to 49). The actuarial survival after metastectomy was significantly higher at 5 years for those who underwent complete *versus* incomplete resection. Other significant factors influencing survival were disease free interval over 12 months and over 4 lesions.

**Conclusion:** Surgery appears worthwhile in the group of patients with favorable clinical markers but surgery in patients with unfavorable parameters is unclear. In this group a randomized clinical trial is warranted.

## Sepsis, Infection, Immunity\_2 A070

### Phosphatidylcholine ameliorates the consequences of carrageenan-induced subacute arthritis in rats

Hartmann Petra<sup>1</sup>, Szabó Andrea<sup>2</sup>, Gurabi Dóra<sup>3</sup>, Erős Gábor<sup>4</sup>, Török László<sup>5</sup>, Boros Mihály<sup>6</sup>

<sup>1</sup>Institute of Surgical Research, University of Szeged, Hungary, <sup>2</sup>Institute of Surgical Research, University of Szeged, Hungary, <sup>3</sup>Institute of Surgical Research, University of Szeged, Hungary, <sup>4</sup>Institute of Surgical Research, University of Szeged, Hungary, <sup>5</sup>Department of Traumatology, University of Szeged, Hungary, <sup>6</sup>Institute of Surgical Research, University of Szeged, Hungary (hartmann.petra@fre.hu)

**Aim:** Phospholipids may function as anti-inflammatory substances under certain in vivo conditions. In the present study, the anti-inflammatory actions of oral Phosphatidylcholine (PC) were compared with that of diclofenac sodium in a subacute arthritis model in male Wistar rats.

**Methods:** Arthritis was induced by injecting a solution containing 2%  $\lambda$ -carrageenan and 4% kaolin into the right knee joint (0.07 ml) through the ligamentum patellae, whereas physiological saline was administered into the contralateral knee. The degree of inflammation was estimated at 24 hr by nociceptive tests quantifying thermal and mechanical hyperalgesia, and by knee volume measurements (a direct parameter of joint inflammation) 48 hr after induction. Oral PC (300 mg/kg daily;  $n = 8$ ) and diclofenac treatments (1 mg/kg daily;  $n = 6$ ), were administered twice daily, while control animals ( $n = 8$ ) were gavaged with saline vehicle.

**Results:** Thermal nociceptive latency (secondary hyperalgesia evoked by radiant heating of the paws) was decreased from  $13.1 \pm 0.5$  s to  $7.2 \pm 0.7$  s ( $p < 0.05$ ) in the non-treated control group, whereas it was significantly higher in diclofenac ( $10.3 \pm 0.6$  s) and PC-treated groups ( $10.4 \pm 1.1$  s), respectively. The mechanical touch sensitivity (von Frey test) which was considerably (approximately 3-times) increased in control animals, was completely restored in diclofenac-treated animals, and was likewise, significantly diminished in response to PC treatment. 48 hr after the challenge the knee cross-section area was increased by 35% as compared to baseline, whereas it was only 10% and 13% larger in the diclofenac- and PC-treated animals, respectively.

**Conclusions:** This in vivo experimental study confirms a significant potential for PC to alleviate the symptoms of subacute arthritis. Oral PC could possibly be a novel pharmaco-therapeutic option in inflammatory joint pathologies. (Supported by OTKA K 60752).

## Sepsis, Infection, Immunity\_1 A071

### Coagulation parameters as risk factors of vein thrombosis in patients after splenectomy carried out due to oncologic and non-oncologic indications

Heitzman Marek<sup>1</sup>, Wystrychowski Wojciech<sup>2</sup>, Zagalski Krzysztof<sup>3</sup>, Budziński Grzegorz<sup>4</sup>, Cierpka Lech<sup>5</sup>

<sup>1</sup>Department of General, Vascular and Transplant Surgery, Silesian Medical University, Katowice, Poland, <sup>2</sup>Department of General, Vascular and Transplant Surgery, Silesian Medical University, Katowice, Poland, <sup>3</sup>Department of General, Vascular and Transplant Surgery, Silesian Medical University, Katowice, Poland, <sup>4</sup>Department of General, Vascular and Transplant Surgery, Silesian Medical University, Katowice, Poland, <sup>5</sup>Department of General, Vascular and Transplant Surgery, Silesian Medical University, Katowice, Poland (supermarco@gmx.co.uk)

**Background:** The aim of study was a prospective analysis and comparison of blood coagulation profile and erythrocyte aggregation among patients after splenectomy carried out due to hematologic (oncologic and non-oncologic) indications between June 2005 and March 2007. We tried to find out whether the changes in blood profile may increase the risk of vein thrombosis.

**Materials and Methods:** Blood samples were studied in 30 patients before operations and on 3rd and 7th day after removal of the spleen. In 6 (20%) patients the direct indications due to splenectomy were lymphoproliferative diseases and in 24 (80%) non-oncologic disorders (thrombocytopenia or hemolytic anemia). Coagulation parameters were measured by standard tests. Erythrocyte aggregation was measured by using fully automatic erythrocyte aggregometer (Myrenne GmbH Germany) and shown as MEA (mean extent of aggregation). The blood sample was submitted for 10 or 5s to a shear rate 600s<sup>-1</sup>, after shear stopped the MEA was measured and calculated. After high shearing the MEA was measured during a low-shear rate of 3s<sup>-1</sup>.

**Results:** All patients had a significant increase in number of platelets after splenectomy. The platelet count was higher on day 7th than on day 3rd. Most of the patients had a significant increase in C-reactive protein (CRP) level after splenectomy. On 3rd day the CRP level was significantly higher in group of patients with lymphoproliferative diseases. On 3rd and 7th day after removal of the spleen D-dimers level was significantly higher in patients with lymphomas comparing to non-oncologic group. Moreover patients with lymphoproliferative diseases had lower plasma levels of C protein in 3rd as well as S protein levels on 3rd and 7th day after splenectomy. A significant increase of erythrocyte aggregation was observed on 3rd and 7th day after splenectomy in all patients however it was higher in oncologic patients.

**Conclusions:** Some changes in blood coagulation profile may be the risk factors of thrombotic complications after splenectomy especially in patients with oncologic diseases.

## Wound healing A072

### Estrogen-induced inhibition of smooth muscle activity is non-genomic and cell membrane dependant

Hogan AM<sup>1</sup>, Kennelly R<sup>2</sup>, Gallagher T<sup>3</sup>, Baird AW<sup>4</sup>, Winter DC<sup>5</sup>

<sup>1</sup>Institute for Clinical Outcomes in Research and Education, St. Vincent's University Hospital, Elm Park, Dublin 4, Ireland. <sup>2</sup>College of Life Sciences, University College Dublin, Belfield, Dublin 4. <sup>3</sup>Institute for Clinical Outcomes in Research and Education, St. Vincent's University Hospital, Elm Park, Dublin 4, Ireland. <sup>4</sup>College of Life Sciences, University College Dublin, Belfield, Dublin 4. <sup>5</sup>Institute for Clinical Outcomes in Research and Education, St. Vincent's University Hospital, Elm Park, Dublin 4, Ireland. <sup>6</sup>College of Life Sciences, University College Dublin, Belfield, Dublin 4. <sup>7</sup>Institute for Clinical Outcomes in Research and Education, St. Vincent's University Hospital, Elm Park, Dublin 4, Ireland (aislingbogan@yahoo.com)

**Introduction:** Classical effects of estrogen involve activation of target genes after binding nuclear receptors. Estrogenic effects too rapid for DNA transcription (non-genomic) are now known to occur. However, to date, they have been examined at cell level only. The effect of estrogen on colonic motility is unknown despite the increased prevalence of gastrointestinal symptoms in pregnant and premenopausal women.

**Methods:** Histologically normal colon was obtained from the proximal resection margin of colorectal carcinoma specimens. Circular smooth muscle strips were microdissected and suspended under 1g of tension in organ baths containing oxygenated Krebs's solution at 37°C. After an equilibration period, they were exposed to 17B estradiol ( $n = 28$ ) or bovine serum albumin (BSA) conjugated estrogen ( $n = 8$ ) (too large to cross cell membrane). Fulvestrant, an estrogen receptor antagonist was added to some baths ( $n = 8$ ). The cholinergic agonist carbachol (CCH) was added in increasing concentrations. Contractile activity was recorded isometrically. Institutional research board approval was granted.

**Results:** Estrogen inhibited smooth muscle contractility (mean difference 14%;  $n = 28$ ;  $p = 0.004$ ; CI 95%). In keeping with a non-genomic, rapid onset steroid action, the effect was within fifteen minutes and reversible. It was observed in both 17-B estradiol and BSA conjugated estrogen. The rapid, non-genomic cell membrane receptor-mediated smooth muscle effects were inhibited by fulvestrant (54% versus 40%;  $n = 8$ ;  $p = 0.045$ ; CI95%).

**Conclusion:** Estrogen decreases contractility in human colonic smooth muscle in a non-genomic mechanism on a cell membrane receptor that has yet to be fully clarified.

## Plastic.1 A073

### The 'Difficult' Rhinoplasty: A critical analysis of single surgeon's 81 consecutive non-cleft rhinoplasties

Hsieh Frank<sup>1</sup>, Kumiponjera Devor<sup>2</sup>, Malata Charles<sup>3</sup>

<sup>1</sup>Department of Plastic & Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge University Hospitals NHS Trust, Cambridge, UK, <sup>2</sup>Department of Plastic & Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge University Hospitals NHS Trust, Cambridge, UK, <sup>3</sup>Department of Plastic & Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge University Hospitals NHS Trust, Cambridge, UK. (kbl31@cam.ac.uk)

**Introduction:** Rhinoplasty has become the subject of intense turf wars between plastic, otorhinolaryngological (ENT), maxillofacial and other "facial plastic" surgeons. Tough local health regulatory criteria have sharply curtailed

the numbers of rhinoplasties done under the UK National Health Service (NHS). Consequently the individual plastic surgeon's rhinoplasty caseload has precipitously declined over the last decade reducing training opportunities for the residents. Moreover, there are few rhinoplasty presentations at surgical conferences. To address this deficit we critically reviewed a single operator's consecutive series of rhinoplasties.

**Patients and Methods:** All patients undergoing aesthetic and functional rhinoplasties both privately and on the NHS by a single surgeon (2000–2007) were retrospectively reviewed with respect to presentation (demographics, referral patterns, indications), operative details, postoperative outcomes and reoperation rates. They were identified from the theatre records and the surgeon's log book.

**Results:** Of the 85 patients presenting to the senior author 12 (14%) were turned down. 81 rhinoplasties were performed in 73 patients (22 NHS, 51 private) with a mean age of 36 years (r, 15–67). The female to male ratio was 2.5:1 and 'ethnic' noses comprised 26%. Indications included post-traumatic deformity, elimination of racial features, salvage of ex-ENT patients, and purely aesthetic reasons. 21% were secondary rhinoplasties. Most patients (75%) underwent open (external) rhinoplasty. The re-operation rate was 11% (8/73). Although 90% were pleased with their cosmetic outcomes, 25% were perceived suboptimal by the operator.

**Conclusion:** This diverse rhinoplasty series highlights typical cases presenting to an average aesthetic plastic surgeon today. Despite the small numbers (10 cases/year), there is a preponderance of challenging cases as determined by the high proportion of secondary cases (1/5), 'ethnic' noses (1/4), and male rhinoplasties (1/3). However, the re-operation rate is comparable to that reported in bigger series. There is a need for plastic surgeons to increase their capture of rhinoplasties in order to avoid de-skilling and assure continued practical training of surgical residents.

## Minimally invasive A074

### Pathological findings in a rat surgical model of reflux-induced oesophageal

Ingravallo Giuseppe<sup>1</sup>, Dall'Olmo Luigi<sup>2</sup>, Segat Daniela<sup>3</sup>, Rugge Massimo<sup>4</sup>, Zaninotto Giovanni<sup>5</sup>, Ancona Ermanno<sup>6</sup>

<sup>1</sup>Dipartimento Di Anatomia Patologica E Genetica. University Of Bari, Italy, <sup>2</sup>Istituto Oncologico Veneto-Padua-Dipartimento Di Scienze Chirurgiche E Gastroenterologiche P.G. Cevese. Padua University. Italy, <sup>3</sup>Dipartimento Di Scienze Chirurgiche E Gastroenterologiche P.G. Cevese- Padua University. Italy, <sup>4</sup>Istituto Oncologico Veneto-Padua-Dipartimento Di Scienze Medico-Diagnostiche E Terapie Speciali. Padua University. Italy, <sup>5</sup>Istituto Oncologico Veneto-Padua-Dipartimento Di Scienze Chirurgiche E Gastroenterologiche P.G. Cevese. Padua University. Italy, <sup>6</sup>Istituto Oncologico Veneto-Padua-Dipartimento Di Scienze Chirurgiche E Gastroenterologiche P.G. Cevese. Padua University. Italy (luigi-dallolmo@libero.it)

**Introduction:** Barrett's esophageal adenocarcinoma (EA) has shown the highest increase in the incidence of all carcinomas in western countries. This justifies the efforts toward animal models of duodeno-gastro-esophageal reflux (DGER), able to reproduce EA. The group of Hattori described a rat surgical model of DGER-induced EA (Kumagai *et al.* 2003). The present study reproduced this rat model.

**Methods:** Sixty-four rats underwent a side-by-side esophagogastric-jejunal anastomosis. According to the period of sacrifice, we defined 3 groups of animals: Group A < 10 weeks p.o. ( $n = 22$ ); Group B 10–30 weeks p.o. ( $n = 22$ ) and Group C > 30 weeks p.o. ( $n = 20$ ). Pathological results were classified as inflammatory-ulcerative lesions, regenerative-hyperplastic lesions (pseudo-tumours), intestinal metaplastic lesions (human Barrett-like), dysplastic lesions and tumours.

**Results:** Group A: 68% inflammatory- ulcerative lesions, 45% pseudo-tumours, 9% metaplastic lesions and neither dysplastic nor neoplastic lesions. Group B: 64% inflammatory-ulcerative lesions, 36% pseudo-tumours, 41% metaplastic lesions and 45% neoplastic lesions: 36% well differentiated mucinous tumours at the anastomotic site and 9% adenosquamous carcinomas. Group C: 80% inflammatory-ulcerative lesions, 50% pseudo-tumours, 60%



metaplastic lesions and 45% neoplastic lesions: 35% well differentiated mucinous tumours at the anastomotic site and 10% adenosquamous carcinomas.

**Discussion:** DGER can induce in rats a “Barrett’s like” intestinal metaplasia. Multi-layered epithelium (MLE), islands of mucinous-columnar cells sharing the pattern of mucin and cytocheratin expression of Barrett’s esophagus, constitutes an evidence of pre-intestinal oesophageal metaplasia. As for carcinomas, we found 4 adenosquamous carcinomas and 15 well differentiated mucinous tumours, defined carcinomas by Hattori. In our opinion, however, the carcinomatous nature of these mucinous tumours is still questionable. In fact, they can be considered reactive lesions or pseudo-tumours. This experimental model has never produced Barrett’s adenocarcinomas, to our knowledge, but squamous or adenosquamous (never intestinal-type) carcinomas. Therefore, those well differentiated mucinous expansive masses could be better defined “oesophagitis cystica profunda” (Buskens *et al* 2006). Moreover, we could never find lesions that can be considered analogue to human dysplasia.

## BJS A075

### Importance of omega-3/omega-6 ratio in the hepatoprotective effect of high-fat nutrition on a warm ischemia/reperfusion injury in rats

Iwasaki Wataru<sup>1</sup>, Kume Makoto<sup>2</sup>, Kudo Kazuhiro<sup>3</sup>, Yoshioka Masato<sup>4</sup>, Uchinami Hiroshi<sup>5</sup>, Yamamoto Yuzo<sup>6</sup>

<sup>1</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan, <sup>2</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan, <sup>3</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan, <sup>4</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan, <sup>5</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan, <sup>6</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan (watarui@pop21.odn.ne.jp)

**Introduction:** We have reported that pre-operative supplementation of omega-3 rich polyunsaturated fatty acid (PUFA) alleviated a warm ischemia-reperfusion injury of rat livers. In this study, we evaluated whether this beneficial effect was arisen from the energy supplementation as high-fat nutrition or from the increase of omega-3 PUFA itself.

**Methods:** Male Wistar rats were divided into three groups and were supplemented with different type of PUFA oil once a day besides normal chow for 7 days. Group A: Omega-3 rich PUFA oil (0.54 g/day, omega-3:omega-6 = 1 : 1). Group B: omega-6 rich PUFA oil (0.54 g/day, omega-3:omega-6 = 1 : 7). Group C: water (0.6 ml/day, no fat). After these treatments, a 25-minute hepatic warm ischemia was produced by Pringle’s maneuver. Liver tissue and blood samples were collected, before ischemia and at 120 minutes post reperfusion. Concentrations of PUFA in liver tissues (µg/g wet tissue) were quantified. Liver injury was evaluated by serum ALT (IU/l). Inflammatory response was evaluated by serum TNF-alpha (pg/ml). A p-value less than 0.05 was considered statistically significant by analysis of variance, (mean±SD, *n* = 8 in each group, \* *p* < 0.05).

**Results:** Omega-3/omega-6 ratio in group A was significantly higher than those in groups B and C (A, 0.53 ± 0.07<sup>\*</sup> versus B, 0.23 ± 0.01, C, 0.33 ± 0.05). At 120 minutes post reperfusion, ALT and TNF-alpha were significantly lower in group A than groups B and C (ALT: A, 1535.5 ± 621.2<sup>\*</sup> versus B, 2321.5 ± 679.8, C, 2230.9 ± 630.6; TNF-alpha: A, 32.04 ± 10.80<sup>\*</sup> versus B, 59.39 ± 19.37, C, 49.48 ± 14.43).

**Conclusions:** Supplementation of omega-3 rich PUFA ameliorated hepatic I/R injury in rats with increasing omega-3/omega-6 ratio and suppressing inflammatory response. However, as well as water, supplementation of omega-6 rich PUFA did not show any benefits. This indicates that omega-3 rich PUFA supplementation give rise to its beneficial results by increasing the ratio of omega-3/omega-6, but not by increasing the energy as high-fat nutrition.

## Hepatobiliary\_2 A076

### Early complications in different methods of iatrogenic biliary injuries surgical

Jabłońska Beata<sup>1</sup>, Lampe Paweł<sup>2</sup>, Olakowski Marek<sup>3</sup>, Lekstan Andrzej<sup>4</sup>, Górka Zygmunt<sup>5</sup>

<sup>1</sup>Department Of Gastrointestinal Surgery, Silesian Medical University, Katowice, Poland, <sup>2</sup>Department Of Gastrointestinal Surgery, Silesian Medical University, Katowice, Poland, <sup>3</sup>Department Of Gastrointestinal Surgery, Silesian Medical University, Katowice, Poland, <sup>4</sup>Department Of Gastrointestinal Surgery, Silesian Medical University, Katowice, Poland, <sup>5</sup>Department Of Gastrointestinal Surgery, Silesian Medical University, Katowice, Poland (bjablonska@poczta.onet.pl)

Treatment of the iatrogenic biliary injuries is the important problem in the gastrointestinal surgery. The aim of paper was analysis of early complications following different methods of iatrogenic biliary injuries reconstruction. Between January 1990 and March 2005, 138 patients—37 (26.8%) men and 101 (73.2%) women with iatrogenic biliary injuries were operated in the Department of Gastrointestinal Surgery. The mean age was 52.9 ± 15.02 (18–85) years. The most frequently iatrogenic biliary injuries were caused by open and laparoscopic cholecystectomy. The clinical symptoms were following: abdominal pain, jaundice, cholangitis, pruritus, nausea, vomitus. The laboratory investigations and radiological examinations were performed before surgical procedure. The level of injury was classified according to Bismuth. The following types of biliary injuries were noted: I – u 78 (56.5%) patients, II – u 34 (24.6%) patients, III – u 14 (10.1%) patients, IV – u 6 (4.3%) patients, V – u 6 (4.3%) patients. The following reconstruction methods were performed: Roux-Y hepaticojejunostomy – in 49 patients (group 1), end-to-end ductal anastomosis – u 45 patients (group 2), jejunal interposition hepaticoduodenostomy – in 27 patients (group 3), bile duct plastic reconstruction – u 6 patients (group 4), choledochoduodenostomy – in 2 patients (group 5), others – in 8 patients (group 6). The mean duration of hospitalization was 31 (8–225) days. The mean duration of operation was 4.5 (2–10) hours. Early complications were observed in 22 (16%) patients (in 12 patients – in group 1, in 3 patients – in group 2, in 2 patients – in group 3, in 4 patients – in group 4, in 1 patient – in group 6). The following early complications were noted: bile collection (11), intraabdominal abscess (4), wound infection (13), peritonitis (2), cholangitis (2), eventration (1), pneumonia (7), acute circulatory insufficiency (3). 7 (5%) early reoperations were performed: 2 – due to biliary-enteric anastomosis dehiscence, 1 – due to eventration, 4 – due to bile collection or intraabdominal abscess. 3 (2%) hospital deaths were noted: 1 – due to acute circulatory insufficiency, 1 – due to liver necrosis and acute respiratory and circulatory insufficiency, 1 – due to biliary-enteric anastomosis dehiscence, bile collection, peritonitis and acute circulatory and respiratory insufficiency. Surgical biliary injuries reconstructions performed in experienced surgical centres are safe surgical procedures with low risk of complications.

## Unusual observations, strange ideas A077

### Role of Power Assisted Liposuction in correction of Gynaecomastia

Jose Rajive Mathew<sup>1</sup>, Thomas Sunil<sup>2</sup>

<sup>1</sup>Dept of Plastic Surgery Selly Oak Hospital Birmingham, UK, <sup>2</sup>Dept of Plastic Surgery Selly Oak Hospital Birmingham, UK B29 6JD (rajivemathew@yahoo.com)

The surgical techniques for gynaecomastia have evolved with advances in liposuction techniques. Our technique for gynaecomastia correction includes an initial liposuction procedure in patients with fatty gynaecomastia and conversion to open procedure if necessary. Those with glandular type gynaecomastia are offered an excisional procedure at the outset with or without liposuction. A five year retrospective and four month prospective study was conducted to compare the outcomes of various surgical procedures for gynaecomastia. A total of 135 breasts were operated on in 74 patients. The patients were divided into three groups. Those who had liposuction alone, liposuction with an excisional

procedure and those who had an excisional procedure alone. There were 33 cases of liposuction alone, 25 cases of liposuction with excision and 16 cases of excision alone. There were no complications in the liposuction group but 13 patients underwent revisional surgery (39%). The second group had a complication rate of 12% and a re-operation rate of 28%. The third group had a complication rate of 11% and a re-operation rate of 31%. The overall complication rate was 6.8% and patient satisfaction rate 80%. Using liposuction alone can be sufficient treatment for a significant number of patients and is associated with fewer complications. However it is important to warn patients about the possibility of revision surgery.

## Sepsis, Infection, Immunity\_1 A078

### The effects of abdominal compartment syndrome on respiratory and urinary systems functions

Kafali Ertugrul<sup>1</sup>, Mollahüseynoglu Hasan<sup>2</sup>, Er Cemil<sup>3</sup>, Sahin Mustafa<sup>4</sup>, Unlü Yasar<sup>5</sup>

<sup>1</sup>Selçuk University, Meram Medical Faculty, Emergency Service, Konya Turkey,

<sup>2</sup>Selçuk University, Meram Medical Faculty, Emergency Service, Konya Turkey,

<sup>3</sup>Meram Education and Training Hospital, Konya Turkey, <sup>4</sup>Selçuk University Meram Medical Faculty, General Surgery, Konya Turkey, <sup>5</sup>Meram Education and Training Hospital, Konya Turkey (sabinmu@hotmail.com)

**Aim:** Our aim is to investigate the relation between the increase of abdominal pressure and pulmonary and urinary system functions.

**Materials and Methods:** 61 patients admitted to Selçuk University Meram Medical Faculty Emergency Service with diagnosis of acute abdomen were included in this study. The diagnosis were; 25 cases ileus, 13 cases acute pancreatitis, 11 cases mesentery ischemia and 12 cases with intestinal perforations. In all cases urine bladder pressures were recorded as the reflection of abdominal pressure. Meanwhile pH, PaCO<sub>2</sub>, PaO<sub>2</sub>, SGPT, SGOT, urea and creatinin levels were measured in venous and arterial blood samples. The procedure was repeated consequently 24, 48 and 72 hours. The correlation between abdominal pressure increase and these parameters were evaluated.

**Findings:** Increase in abdominal pressure has negative effects on renal, pulmonary and liver organ systems. Renal function effected by 10 cm H<sub>2</sub>O pressure and was obviously affected after 20 cm H<sub>2</sub>O pressure. The increase of abdominal pressure causes respiratory alcholosis; at initial time and hypoxia, hypercarbia, metabolic acidosis and respiratory insufficiency at the late period. Liver enzymes were recorded at high level in abdominal pressure increase.

**Results:** Urine bladder pressure is reflecting abdominal pressure correctly. The increase of abdominal pressure caused meaningful increase in urea, creatinin, SGOT, SGPT, and PaCO<sub>2</sub> levels and decrease in PaO<sub>2</sub> and pH levels.

## Transplantation, Organ preservation\_1 A079

### Kidney transplantation from HCV-positive cadaveric donors in HCV-positive recipients – experience of one centre

Kasprzyk Tomasz<sup>1</sup>, Kwiatkowski Artur<sup>2</sup>, Wszola Michal<sup>3</sup>, Domagala Piotr<sup>4</sup>, Durlik Magdalena<sup>5</sup>, Chmura Andrzej<sup>6</sup>

<sup>1</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>2</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>3</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>4</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>5</sup>Department of Transplantology and Nephrology, Medical University of Warsaw,

<sup>6</sup>Department of General and Transplantation Surgery, Medical University of Warsaw (pdomagal@mp.pl)

**Body:** Due to the shortage of organs for transplantation procurement of kidneys from marginal donors is inevitable. Not infrequently these donors are infected with hepatitis C virus (HCV). The aim of this study was to determine the effect of transplanting kidneys from anti-HCV positive donors to anti-HCV positive recipients.

**Patients and methods:** 765 KT<sub>x</sub> performed between 1994 till 2006 had been included in the study, in which 259 kidneys recipients were anti-HCV positive. 60 of them received kidney from anti-HCV positive donor (HCV+/HCV+ group). The remaining patients received kidneys from seronegative donors (HCV-/HCV- group). Control group consisted of 506 seronegative recipients whose received kidneys from seronegative donors (HCV-/HCV- group). All kidneys from anti-HCV positive donors prior to KT<sub>x</sub> were preserved with Machine Perfusion. We investigated recipients liver function [ALT, AST, ALP, bilirubin], graft survival, patient survival.

**Results:** 1. no statistically significant differences between the groups in biochemistry results (LFTs, creatinine at 5 years) 2. no statistically significant differences between the groups in patient survival, graft survival or number of patients returning to dialysis.

**Conclusion:** Transplantation of kidneys from HCV-positive donors in HCV-positive recipients: • does not influence long-term liver function • has no influence on long-term renal allograft function enhances • the availability of transplantation as means of end-stage renal disease treatment.

## BRENDEL A080

### Characterization of the endothelin-induced coronary vasoconstrictor responses in the normal and regionally ischemic myocardium

Katalin Túri<sup>1</sup>, Balázs Sax<sup>2</sup>, Andrea Nagy<sup>3</sup>, Máté Kerekes<sup>4</sup>, Violetta Kékési<sup>5</sup>

<sup>1</sup>Semmelweis University, Cardiology Center, Budapest, Hungary, <sup>2</sup>Semmelweis University, Cardiology Center, Budapest, Hungary, <sup>3</sup>Semmelweis University, Cardiology Center, Budapest, Hungary, <sup>4</sup>Semmelweis University, Cardiology Center, Budapest, Hungary, <sup>5</sup>Semmelweis University, Cardiology Center, Budapest, Hungary (turkat83@gmail.com)

Myocardial endothelin-1 (ET-1) production is known to be significantly elevated in certain cardiac diseases like myocardial ischemia and heart failure. Our aim was to characterize the vasoconstrictor effect of ET-1 on the intact (series I,  $n = 15$ ) and ischemic (series II,  $n = 9$ ) coronary bed. In the first series of experiments increasing doses of ET-1 (0.01–1.0 nM) were administered into the left anterior descending (LAD) coronary artery of the in situ dog heart. Coronary blood flow (CBF) was measured by an electromagnetic flow probe (total CBF). In the series II the same ET-1 doses were administered intracoronarily to the regionally ischemic heart prepared by mid-part occlusion of the LAD artery. Residual CBF (measurable proximal to the occlusion), flow-dependent epicardial heat emission (quantitative thermographic method) and retrograde coronary pressure (intraluminal pressure in the ischemic vasculature) was measured in these experiments. According to our results, ET-1 significantly reduced both total and residual CBF in a dose-dependent manner. The maximum reduction of CBF was  $-91 \pm 3\%$  and  $-83 \pm 9\%$  (mean  $\pm$  SEM), respectively. No significant change could be observed in myocardial contractility, arterial pressure and heart rate. At the highest dose of ET-1 a significant augmentation of retrograde coronary pressure was observed. The flow-dependent heat emission significantly decreased both in the LAD-supplied ischemic and non-ischemic area ( $\Delta T_{\max}$ :  $-0.14 \pm 0.04$  and  $-0.17 \pm 0.04^\circ\text{C}$ ). However, the extent of myocardial cooling did not follow the drastic drop in CBF. In conclusion, ET-1 evokes vasoconstriction to a similar extent both in the normal and ischemic myocardium. The discrepancies between the degree of myocardial cooling and volume-flow reduction—since they occurred at constant or even at elevated retrograde coronary pressure—may suggest the significant participation of the small arteries of the mid-myocardial and endocardial layers in the ET-1 induced vasoconstriction at least in the ischemic region of the heart.

## Unusual observations, strange ideas A081

### Urinary Tract Infections (UTI's) in the Early Period After Liver Transplantation – etiological agents and their susceptibility

Kawecki Dariusz<sup>1</sup>, Chmura Andrzej<sup>2</sup>, Malkowski Piotr<sup>3</sup>, Kot Katarzyna<sup>4</sup>, Swoboda-Kopec Ewa<sup>5</sup>, Luczak Mirosław<sup>6</sup>

<sup>1</sup>Dept. of Medical Microbiology Medical University of Warsaw, Poland, <sup>2</sup>Dept. of General Surgery and Transplantation Medical University of Warsaw, <sup>3</sup>Dept. of Surgical and Transplantation Nursing Medical University of Warsaw, <sup>4</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>5</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>6</sup>Dept. of Medical Microbiology Medical University of Warsaw (dkawecki@o2.pl)

Urinary Tract Infection (UTI) is a one of the common infection in liver transplantation (LT).

**Material and methods:** The study covered 83 adult patients undergoing liver transplantation (piggy back technique) between September 2001 and October 2004. All the patients were followed prospectively for urinary tract infections from the LT date and during the first four weeks after surgery. Samples of urine were investigated for bacteriological cultures. The microorganisms were cultured and identified in accordance with standard bacteriological procedures. Susceptibility testing was carried out using National Committee for Clinical Laboratory Standards (NCCLS) procedures.

**Results:** Urine specimens were examined in 53 pre-operative recipients (63.9%) and in 64 patients (77.1%) during the first month after transplantation. Of the 182 samples investigated, 73 were positive. Bacterial strains were cultured from 17 recipients before LT and from 28 patients after surgery. Among the bacterial strains isolated in early period after LT ( $n = 71$ ), the most common were Gram-negative rods  $n = 46$  (63%) isolates, the Enterobacteriaceae family  $n = 44$  (95.6%) isolates among them  $n = 12$  (27.3%) of the Gram-negative rods were Extended-Spectrum Beta-Lactamases ESB(+)-strains. Gram-positive bacteria were cultured 34% ( $n = 25$ ) and fungal strains 3% ( $n = 2$ ).

**Conclusions:** 1. The predominance of Gram-negative rods was caused by ESB(+)- and use of broad spectrum antimicrobial prophylaxis. 2. The increased proportion of isolation Multi-Drug-Resistant (MDR) bacteria to antimicrobial agents may be due to the frequent use of these agents for prophylaxis of bacterial infections in liver transplant patients. 3. These (MDR) bacterial strains caused severe UTI's in patients after LT.

## Sepsis, Infection, Immunity\_1 A082

### Bacterial infections in the early posttransplant period after liver transplantation – etiological agents and their susceptibility

Kawecki Dariusz<sup>1</sup>, Kot Katarzyna<sup>2</sup>, Sawicka-Grzelak Anna<sup>3</sup>, Malkowski Piotr<sup>4</sup>, Chmura Andrzej<sup>5</sup>, Luczak Mirosław<sup>6</sup>

<sup>1</sup>Dept. of Medical Microbiology Medical University of Warsaw, Poland, <sup>2</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>3</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>4</sup>Dept. of Surgical and Transplantation Nursing, <sup>5</sup>Dept. of General Surgery and Transplantation Medical University of Warsaw, <sup>6</sup>Dept. of Medical Microbiology Medical University of Warsaw (dkawecki@o2.pl)

An analysis of bacterial infections in the early posttransplant period after liver transplantation in adults.

**Material and methods:** The study covered 83 adult patients undergoing liver transplantation from 2001 to 2004. All the patients were followed prospectively for infections from the LT date and during the first four weeks after surgery. Samples of clinical materials (blood, urine, wound swabs, stool and other) were investigated. The microorganisms were cultured and identified in accordance with standard bacteriological procedures. Susceptibility testing was carried out using (NCCLS) procedures. The statistical analysis was made by chi-square test.

**Results:** 913 clinical samples taken from liver recipients were investigated in microbiological laboratory. In total 469 strains were cultured. Among the bacterial strains, the most common were Gram-positive bacteria  $n = 331$  strains (70.6%), Gram-negative bacteria  $n = 133$  strains (28.4%) and yeast like fungi  $n = 5$  strains (1%). In the early posttransplant period the common isolates were taken from Surgical Site Area  $n = 284$  (60%) with predomination of Gram(+) strains  $n = 222$  (78%), Gram(–) strains  $n = 61$  (21.5%). From blood  $n = 99$  strains (21.1%) were cultured: Gram(+)  $n = 75$  (75.8%) and Gram(–)  $n = 22$  (22.2%). Urine samples  $n = 73$  (15.6%): among them Gram(–)  $n = 46$  (63%), Gram(+)  $n = 25$  (34%), fungi  $n = 2$  (3%). Samples taken from respiratory tract  $n = 13$  (2.8%) strains were cultured: Gram(+)  $n = 9$  (69%), Gram(–)  $n = 4$  (31%). From 54 stool samples Clostridium difficile toxins were positive in 63%, only in 16.7% of samples C. difficile strains were detected, 30% were negative. We analyzed the susceptibility of cultured strains to antibacterial agents. In total  $n = 10$  strains of (MRSA),  $n = 138$  of (MRCNS) staphylococci were detected, 86% of enterococci were (HLAR) strains and from Enterobacteriaceae family 12.5% (ESBL) rods were detected.

**Conclusions:** The presence of (MDR) bacterial strains after liver transplantation such as: methicillin-resistant staphylococci (MRSA) – 52.6%, (MRCNS) – 81.7%, enterococci (HLAR) – 86%, enteric Gram(–) bacteria (ESBL) – 12.5% required professional infection controls.

## Gastrointestinal\_1 A083

### Melittin enhances site specific drug delivery in the gastrointestinal tract

Kennelly Rory<sup>1</sup>, Hogan Aisling<sup>2</sup>, Bzik Victoria<sup>3</sup>, Baird Alan<sup>4</sup>, Winter Desmond C<sup>5</sup>

<sup>1</sup>Institute For Clinical Outcomes In Research And Education, <sup>2</sup>Institute for clinical outcomes in research and education, <sup>3</sup>University College Dublin, <sup>4</sup>University College Dublin, <sup>5</sup>Institute for clinical outcomes in research and education (kennellyrory@yahoo.ie)

The mainstay of management of inflammatory bowel disease is non specific anti inflammatory therapy such as mesalamine. These drugs are formulated for colonic release however are poorly absorbed limiting their effect to the surface epithelium. Melittin, a peptide derived from honey bee venom has tight junction (T.J.) modulation properties. Melittin may have the ability to locally ameliorate absorption of these drugs, potentiating their effect. Human colon was sourced from the clear margins of colon cancer resection specimens. The mucosa was microdissected from the underlying muscle and suspended in permeability chambers with physiological solution bathing both apical and basolateral surfaces. Permeability was measured by calculation of trans-epithelial electrical resistance (TEER) and macromolecular transfer via radiolabelled [(14)-C]-mannitol and fluorescein labelled dextran (FD4) flux coefficients. Tissue viability was investigated by secretagogue challenge at the end of each experiment and by lactate dehydrogenase assay at varying time points. Epithelial morphology was examined with haematoxylin/eosin and alcian blue staining. Confocal microscopy was used for direct visualisation of T.J. protein distribution. Melittin was added to the apical side mimicking oral/luminal delivery. Institution review board approval was obtained. A 50% drop in TEER occurred ( $p < 0.05$ ) indicating T.J. opening. Transfer coefficients for macromolecules were increased in parallel with this finding (mannitol:  $p = 0.009$ , FD4:  $p = 0.04$ ). This effect was rapid ( $< 5$ mins), concentration dependent ( $EC_{50} = 40 \mu M$ ) and transient with recovery in less than 45 minutes indicating T.J. closure. There was no morphological or physiological tissue compromise detected. Melittin has the ability to deliver poorly absorbed therapeutics through the colonic tight junction.



## Hepatobiliary.2 A084

**Analysis of the role of urinary trypsin inhibitor (UTI) in the patients with hepatocellular carcinoma**Kikuchi Isao<sup>1</sup>, Uchinami Hiroshi<sup>2</sup>, Nakajima Akio<sup>3</sup>, Yamamoto Yuza<sup>4</sup><sup>1</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan, <sup>2</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan, <sup>3</sup>Department of Surgery, Division of Hepato-pancreato-biliary surgery and Transplantation Kyoto University Graduate School of Medicine, Kyoto, Japan, <sup>4</sup>Department of Gastroenterological Surgery, Akita University School of Medicine, Akita, Japan (isaok@pop17.odn.ne.jp)**Background and aim:** UTI, an endogenous protease inhibitor, has been considered as an important molecule to suppress the inflammatory response during postoperative course. Since UTI is produced mainly in the liver, it is likely that major hepatectomy decreases the UTI production excessively, resulting in increasing the rate of inflammatory complication. This study aimed to clarify whether UTI has protective effect on inflammatory response by analyzing the correlation between perioperative kinetics of plasma UTI and clinical factors including liver volume in the patients with hepatocellular carcinoma (HCC) undergoing hepatectomy.**Methods:** Twenty-five patients with HCC who underwent sectionectomy or larger hepatectomies were enrolled in this study. Plasma UTI was measured before operation, on POD1 and POD7.  $\Delta$ UTI was defined as the increase of value from preoperative to POD1 level of UTI. Liver volume and tumor volume were measured by CT. UTI expression in the liver was examined by immunohistochemistry. The correlation between  $\Delta$ UTI and clinical factors were assessed using Pearson's correlation coefficient. Results are expressed as mean  $\pm$  SD.**Results:** Resected liver, tumor and non-tumor volume were ranged from 112.3 ml to 1980.8 ml, 7.7 ml to 1236.8 ml, and 71.3 ml to 744.0 ml, respectively. Plasma UTI level decreased significantly on POD1 (pre-op:  $9.8 \pm 3.9$ , POD1:  $7.2 \pm 3.0$  IU/ml,  $p < 0.01$ ) and recovered immediately on POD7. The resected liver volume ( $r = -0.694$ ,  $p < 0.001$ ) and tumor volume ( $r = -0.700$ ,  $p < 0.001$ ) were inversely-correlated with  $\Delta$ UTI, while non-tumor volume was not. There are no correlations between  $\Delta$ UTI and other clinical factors except the increase in C-reactive protein on POD1. Immunohistochemistry revealed UTI was expressed stronger in cancer cell than hepatocyte in 8 of 13 HCC samples.**Conclusion:** Our study suggested that decrease in UTI level was caused by the resection of tumor and did not lead to inflammatory complication. Further investigation of UTI production in cancer cells will give the hints to uncover the UTI potential.

## Hepatobiliary.2 A085

**Cholestasis enhances liver ischemia reperfusion induced coagulation activation**Kloek Jaap<sup>1</sup>, Levi Marcel<sup>2</sup>, Heger Michal<sup>3</sup>, Gouma Dirk<sup>4</sup>, van Gulik Thomas<sup>5</sup><sup>1</sup>Department of Surgery, University of Amsterdam, Amsterdam, The Netherlands,<sup>2</sup>Department of Internal medicine, <sup>3</sup>Department of Surgery, <sup>4</sup>Department of Surgery,<sup>5</sup>Department of Surgery (jaap.kloek@amc.uva.nl)**Background Data:** Cholestasis is associated with increased morbidity and mortality in patients undergoing major liver surgery. An additional risk is induced when vascular inflow occlusion is applied giving rise to liver I-R injury which is known to result in microcirculatory perfusion failure. The role of the coagulation system in this type of injury is undetermined.**Objective:** The aim of this study was to assess activation of coagulation as a result of hepatic ischemia-reperfusion (I-R) injury in cholestatic rats along with outcome after liver resection (PHx).**Methods:** Wistar rats were randomized into 2 groups, i.e. bile duct ligation (BDL) or sham laparotomy (control group) and after 7 days both groups underwent 30 mins partial liver ischemia. Rats were sacrificed beforeischemia and after 6 h, 24 h, and 48 h reperfusion, respectively ( $n = 6$  per time point). Survival was assessed in an additional two groups (BDL and control animals) undergoing 45 mins partial liver ischemia combined with PHx of the nonischemic lobes ( $n = 6$  each group).**Results:** Serum AST and ALT levels were higher after I-R in cholestatic rats ( $p < 0.05$ ). Hepatic necrosis, wet/dry ratios of liver tissue and neutrophil influx measured by myeloperoxidase activity were increased in the BDL group after up to 48h reperfusion ( $p < 0.05$ ). Liver synthetic function was decreased in the BDL group as reflected by prolonged prothrombin time at 6h and 24h reperfusion ( $p < 0.05$ ). I-R in cholestatic rats resulted in a 12fold versus 7fold ( $p < 0.01$ ) increase in markers for thrombin generation (thrombin-antithrombin complex levels) and a 6fold versus 2fold ( $p < 0.01$ ) increase in fibrin degradation products, (BDL versus control, respectively). In addition, the cholestatic rats showed significantly increased levels of the fibrinolytic inhibitor plasminogen activator inhibitor (PAI-1) after 6h and 24h reperfusion. I-R + PHx resulted in increased lethal injury in the BDL group (mortality 4/6 versus 0/6;  $P < 0.05$ ).**Conclusions:** Cholestasis enhances liver I-R induced activation of coagulation and is accompanied by increased mortality when combined with PHx.

## Cardiovascular, Thoracic.2 A086

**Calcium scoring: Is it possible in the aorto-iliacal arteries?**Komen Niels<sup>1</sup>, Hermans John<sup>2</sup>, Klitsie Pieter<sup>3</sup>, Kleinrensink Gert-Jan<sup>4</sup>, Jeekel Hans<sup>5</sup>, Lange Johan<sup>6</sup><sup>1</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>2</sup>Department of Radiology University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>3</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>4</sup>Department of Neurosciences University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>5</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>6</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands (n.komen@erasmusmc.nl)

Purpose To evaluate the effect of the lower threshold (LT), slice thickness (ST), convolution kernel (CK) and contrast enhancement on the calcium score and to determine the necessity for a uniform scoring method.

**Materials and Methods:** The CK was determined by comparing calcium scores of individual lesions on CT-scan of one patient, obtained with 3 different CKs (B10, B20, B31). Afterwards, calcium scores of 15 patients were determined by two researchers, using 10 different LTs (130–1000 HU), CT-scans with and without contrast-enhancement, with STs varying between 1, 2 and 5 mm. The calcium scores obtained with different settings were compared as follows: 1) NC–2–130 versus NC–5–130 2) NC–2–130 versus NC–2–500 3) NC–5–130 versus NC–5–500 4) NC–2–500 versus NC–5–500 5) NC–2–500 versus C–1–500 6) NC–5–500 versus C–5–500 7) C–1–500 versus C–5–500 (Contrast enhancement (C) or not (NC) – ST (millimetres) – LT (Hounsfield units))**Results:** Calcium scores obtained with different CKs were all significantly correlated ( $p < 0.01$ ) and significantly different. Further analysis was done with kernel B20. Increasing LT and ST resulted decreasing calcium scores while use of contrast agent led to an increase. Correlations between scores obtained with the previously described settings were all significant ( $p < 0.01$ ) as were the differences ( $p < 0.001$ ). The interobserver reproducibility was excellent ( $p < 0.001$ ), except for one setting, NC–5–130 ( $p = 0.042$ ).**Conclusions:** Although lower threshold, slice thickness, convolution kernel and contrastenhancement all affect calcium scoring, it can be performed in a reproducible fashion in the aorto-iliacal arteries. The scores obtained with different settings are correlated, implying that they can all be applied. However, the significant differences indicate that they are not interchangeable. Therefore a uniform setting should be used.

## Gastrointestinal\_2 A087

**Colorectal anastomotic leakage: A new experimental model**

Komen Niels<sup>1</sup>, van der Wal Hans-Christiaan<sup>2</sup>, Ditzel Max<sup>3</sup>, Kleinrensink Gert-Jan<sup>4</sup>, Jeekel Hans<sup>5</sup>, Lange Johan<sup>6</sup>

<sup>1</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>2</sup>Department of Surgery Tweesteden Ziekenhuis Tilburg, The Netherlands, <sup>3</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, the Netherlands, <sup>4</sup>Department of Neuroscience University Medical Center Rotterdam Erasmus MC, Rotterdam, the Netherlands, <sup>5</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, the Netherlands, <sup>6</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, the Netherlands (n.komen@erasmusmc.nl)

**Introduction:** Anastomotic leakage is the major complication after colorectal surgery, with an incidence varying between 3 and 19%. To date, animal experiments concerning colorectal anastomoses focus on anastomotic healing instead of anastomotic leakage. This study aims to develop a new animal model for colorectal anastomotic leakage caused by insufficient suturing.

**Methods:** A control group, receiving an anastomosis with 12 interrupted sutures, was compared to a group receiving an anastomosis with 6 interrupted sutures. After the leakage rate was observed to be lower than 20%, the number of sutures was decreased stepwise, to 5 or less. Each group contained 9 "C57Bl6-mice". After 7 days the mice were sacrificed and Anastomotic Bursting Pressure (ABP) was determined. Mice that were ill before day 7 were removed from the experiment, ABP determined and sacrificed.

**Results:** In the first experiment, only one abscess, located at the anastomotic site (11,1%), was observed in the case group. No leakage occurred in the control group. Average ABP was 152,2 mmHg in the control group and 138,8 mmHg in the case group ( $p = 0,111$ ). In the second experiment, the case group received an anastomosis with 5 sutures, 4 mice (44,4%) developed leakage in the case group. This experiment was repeated twice resulting in leakage rates of 33,3% and 44,4%. The latter showed abscess formation in one control mouse as well. The average overall ABP in the case group was 142,7 mmHg versus 179,9 mmHg ( $p = 0,022$ ) in the control group. In all experiments, the groups without leakage showed a stabilization of average weight loss around day 2 and 3 and a decrease afterwards. The groups with leakage showed a decrease of average weight loss only after day 5. The difference of the wellness-scores between the groups with- and the groups without leakage was 2 points, which increased after postoperative day 1.

**Conclusion:** The model of anastomotic leakage caused by creating an anastomosis with 5 interrupted sutures is feasible and reproducibly induces leakage in 33% to 44% of cases. Weight loss and wellness-scores are good predictors of leakage.

## Orthopedic\_2 A088

**Modulation of Functional Recovery of Achilles Tendon to Bone Unit after Transection**

Krivic Andrija<sup>1</sup>, Majerovic Mate<sup>2</sup>, Seiwerth Sven<sup>3</sup>, Sikiric Predrag<sup>4</sup>

<sup>1</sup>University Hospital Center Zagreb General Surgery, Croatia, <sup>2</sup>University Hospital Center Zagreb Clinical Professor in Surgery, <sup>3</sup>University of Zagreb Medical School, Department of Pathology, <sup>4</sup>University of Zagreb Medical School, Department of Pharmacology (akrivic2004@yahoo.com)

**Objective:** Tendon to bone region injuries make as much as 90% of sport related lesions. These injuries are hampered with long healing period and common patient noncompliance. In addition, blood flow in the Achilles tendon edge after injury is significantly reduced within the first 24 hours. Insufficient vascular supply, sparse cellular recruit and low nerve stimulation makes Achilles tendon to bone unit as an excellent wound healing model. Recently, we showed

that BPC 157 facilitates stronger tendon to bone insertion over control by prompt clearing of collagen type III and substitution with collagen type I fibers in healing tissue since day 4 after sharp Achilles tendon to bone transection. Here we compared the effect of stable peptide BPC 157 and methylprednisolone on early functional recovery after Achilles tendon to bone transection before collagen healing started.

**Methods:** Surgical transection of the right Achilles tendon to bone area was performed in seventy-two Wistar Albino male rats. Healing Achilles tendon edges were harvested at days 1–4 following the transection. Using Achilles functional index (AFI), myeloperoxidase activity, histological inflammatory cell influx and vascular index early functional recovery was evaluated. Agents (peptide BPC 157 10 µg, methylprednisolone 5 mg, normal saline 5 ml) were given alone (kg b.w., intraperitoneally, once time daily, first 30 min after surgery, last 24h before analysis). Control group received normal saline 5ml/kg.

**Results:** BPC 157 improves functional recovery (AFI values increased during all time points,  $p < 0.05$ ) by anti-inflammatory (decreased myeloperoxidase (MPO) activity and histological inflammatory cell influx,  $p < 0.05$ ) and increased new blood vessel formation (increased vascular index,  $p < 0.05$ ). Methylprednisolone decrease MPO activity and histological inflammatory cell influx, ( $p < 0.05$ ) but also decrease new blood vessel formation and does not effect early functional recovery.

**Conclusions:** Joint anti-inflammatory action and early new blood vessel formation facilitates early functional recovery in Achilles tendon to bone healing.

## Minimally invasive A089

**Value of laparoscopic surgery for colon cancer in clinical routine**

Kube Rainer<sup>1</sup>, Mroczkowski Pawel<sup>2</sup>, Gastinger Ingo<sup>3</sup>, Lippert Hans<sup>4</sup>

<sup>1</sup>Klinik für Allgemein-, Viszeral-und Gefäßchirurgie Universitätsklinikum Magdeburg, Germany, <sup>2</sup>Klinik für Allgemein-, Viszeral-und Gefäßchirurgie Universitätsklinikum Magdeburg Leipziger Str. 44 39120 Magdeburg, <sup>3</sup>Carl-Thiem-Klinikum Cottbus Germany, <sup>4</sup>Klinik für Allgemein-, Viszeral-und Gefäßchirurgie Universitätsklinikum Magdeburg Leipziger Str. 44 39120 Magdeburg (rainer.kube@med.ovgu.de)

**Background:** Using data and analysis compiled in the nationwide German qualitative multi-centered study "Colon/Rectum Cancer" (WGCRC), the aim is to determine the value of laparoscopic surgery for colon cancer as clinical routine.

**Methods:** From 01/01/2000 to 12/31/2003 observed patients with colon cancer resections were evaluated for short term peri-operative and long term oncologic results associated with operative approach (laparoscopic versus conversion versus open).

**Results:** 949 (4.4%) of 21,721 patients underwent laparoscopic resection. These patients were significantly younger ( $p < 0.001$ ) with a lower ASA risk factor ( $p < 0.001$ ) and earlier UICC tumor stages ( $p < 0.001$ ) compared with open resection-treated patients. They showed reduced overall morbidity ( $p < 0.001$ ) and in-hospital mortality ( $p = 0.001$ ) as well as shorter hospital stays ( $p < 0.001$ ), the rates of intra-operative and specific complications remaining unchanged. 19% of patients received resections converted to open surgery. These had the highest overall morbidity and longest hospital stays. Their mortality was 3 times that of the group with complete laparoscopic resection.

**Conclusions:** In Germany laparoscopic surgery is used in only a small number of patients with colon carcinoma. These patients are selected for surgical suitability as mirrored by superior early post-operative results. Conversions are associated with inferior peri-operative and long term oncologic outcomes. At 19%, the rate of conversion resections is too high. Accordingly, the use of laparoscopic surgery for colon carcinoma should be centrally concentrated with corresponding patient selection criteria to ensure optimal results.

## Sepsis, Infection, Immunity\_2 A090

**Hepatocellular apoptosis is mediated by TNF $\alpha$ -dependent Fas/FasL cytotoxicity in a murine model of Gal/LPS-induced acute liver failure**Kuhla Angela<sup>1</sup>, Eipel Christian<sup>2</sup>, Siebert Nikolai<sup>3</sup>, Abshagen Kerstin<sup>4</sup>, Menger Michael D<sup>5</sup>, Vollmar Brigitte<sup>6</sup><sup>1</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,<sup>2</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,<sup>3</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,<sup>4</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,<sup>5</sup>Institute for Clinical & Experimental Surgery, University of Saarland, Homburg/Saar, Germany,<sup>6</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany (angela.kuhla@uni-rostock.de)

**Background/Aim:** There is increasing evidence that active contribution of the hepatocyte to liver disease is strongly dependent on the local cytokine environment. Most recently, it has been shown in vitro that tumor necrosis factor alpha (TNF $\alpha$ ) can enhance hepatocyte FasL-mediated cytotoxicity. The present in vivo study examined the relevance of the Fas/FasL pathway for hepatocellular apoptosis in a TNF $\alpha$ -driven model of acute liver failure.

**Methods:** Fas wild type (wt) and Fas lpr (lymphoproliferation) mutant (Fas lpr/lpr) mice pretreated with either soluble TNF $\alpha$ -receptor or saline were exposed to galactosamine (Gal) and E. coli lipopolysaccharide (LPS).

**Results:** In Fas wt mice, Gal/LPS-exposed livers highly expressed not only Fas but also FasL and revealed marked tissue damage with hepatocellular apoptosis (in vivo microscopy:  $268 \pm 20$  cells/mm<sup>2</sup>), cleavage of caspase-3 protein, sinusoidal perfusion failure and alanine aminotransferase (ALT) release ( $497 \pm 106$  U/L) which was almost completely prevented by application of the soluble TNF $\alpha$ -receptor (apoptotic hepatocytes/mm<sup>2</sup>:  $19 \pm 4$ ; ALT:  $103 \pm 19$  U/L). Fas lpr/lpr mice revealed markedly lower FasL upregulation and were significantly protected against Gal/LPS-induced apoptosis (apoptotic hepatocytes/mm<sup>2</sup>:  $65 \pm 4$ ) and necrosis (ALT:  $252 \pm 73$  U/L). Additional neutralization of TNF $\alpha$  could further reduce apoptotic cell death (apoptotic hepatocytes/mm<sup>2</sup>:  $36 \pm 9$ ). Two colour flow cytometry revealed that TNF $\alpha$ -induced apoptosis of HepG2 cells which was associated with both Fas and FasL upregulation could significantly be prevented by addition of a FasL-neutralizing antibody.

**Conclusion:** Taken together, our data provide evidence for a direct link between TNF $\alpha$  and Fas/FasL in mediating hepatocyte apoptosis upon Gal/LPS exposure. The TNF $\alpha$ -induced hepatocellular upregulation of Fas and FasL allows their apoptosis by this ligand-receptor interaction. Thus, hepatocytes must be considered as active contributors in Gal/LPS-induced liver injury.

## Sepsis, Infection, Immunity\_2 A091

**Role of perforin cytotoxicity for hepatocellular apoptosis in a murine model of Gal/LPS-induced acute liver failure**Kuhla Angela<sup>1</sup>, Eipel Christian<sup>2</sup>, Siebert Nikolai<sup>3</sup>, Abshagen Kerstin<sup>4</sup>, Menger Michael D<sup>5</sup>, Vollmar Brigitte<sup>6</sup><sup>1</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,<sup>2</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,<sup>3</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,<sup>4</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,<sup>5</sup>Institute for Clinical & Experimental Surgery, University of Saarland, Homburg/Saar, Germany,<sup>6</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany (angela.kuhla@uni-rostock.de)

**Background/Aim:** Cytotoxic T lymphocytes (CTL) play a major role in the modulation of inflammatory liver injury. However, it is unclear to what extent cytolytic pathways like TNF $\alpha$ /TNFR and perforin contribute to this process. In the present in vivo study we used mice lacking the perforin gene and examined the relevance of the perforin pathway for hepatocellular apoptosis in a TNF $\alpha$ -driven model of acute liver failure (ALF).

**Methods:** Perforin wild type (Pwt) and perforin knock out (Pko) mice pretreated with either soluble TNF $\alpha$ -receptor for neutralization of circulating

TNF $\alpha$  or saline were exposed to galactosamine (Gal) and E. coli lipopolysaccharide (LPS).

**Results:** In Pwt mice, Gal/LPS-exposed livers revealed marked tissue damage with hepatocellular apoptosis which was almost completely prevented by application of the soluble TNF $\alpha$ -receptor, and was accompanied by a downregulation of Fas and FasL protein expression. In Pko mice apoptotic liver tissue injury upon induction of ALF was comparably in extent when compared to Gal/LPS-exposed Pwt mice. In addition, neutralization of TNF $\alpha$  in Pko mice also markedly reduced apoptotic cell death. In contrast, however, Gal/LPS-treated Pko mice revealed a considerably higher release of interleukin-6 ( $1760 \pm 354$  pg/mL) and higher necrosis rate (ALT:  $870 \pm 263$  U/L) compared to Pwt mice (IL-6:  $597 \pm 359$  pg/mL; ALT:  $406 \pm 85$  U/L). Moreover, TNF $\alpha$  neutralization caused a marked upregulation of both Fas and FasL protein expression in livers of Gal/LPS-exposed Pko mice.

**Conclusion:** Taken together, these findings indicate that hepatocellular apoptosis in ALF is independent from the perforin pathway, but highly dependent from TNF $\alpha$  and the TNF $\alpha$ -driven Fas/FasL pathway. In contrast to that, availability of perforin mediates partial protection against hepatic necrosis, supposedly via limited IL-6 release. Thus, Fas- and TNF $\alpha$ -mediated mechanisms constitute the principal pathways by which the innate immune system causes acute liver injury.

## Education A092

**Medico-Legal education & training amongst consultant surgeons: a questionnaire**Kumar Bhaskar<sup>1</sup>, Paringe Vishal<sup>2</sup>, Shaikh Faisal<sup>3</sup>, Siddiqui Bajaf<sup>4</sup>, Touqan Nader<sup>5</sup>, Ahmad Syed Muzzafar<sup>6</sup><sup>1</sup>Scunthorpe General Hospital, UK, <sup>2</sup>Scunthorpe General Hospital, <sup>3</sup>ScunthorpeGeneral Hospital, <sup>4</sup>Scunthorpe General Hospital, <sup>5</sup>Scunthorpe General Hospital,<sup>6</sup>Scunthorpe General Hospital (bbaskARGOPAKUMAR@DOCTORS.ORG.UK)

**Aims:** Modern day surgical practice is under continual public scrutiny as medico-legal issues continue to grow at alarming levels. There are no studies that have addressed medico-legal training and education amongst surgeons. The aim of this study was to assess the views of Consultant surgeons from a variety of surgical specialities on their attitudes towards medico-legal education and training.

**Methods:** A questionnaire survey was conducted amongst Consultant surgeons from 5 NHS trusts in the Yorkshire region, consisting of six questions and an area of free text for comments to allow consultants to voice concerns or issues.

**Results:** Surveys were completed by 60 Consultant surgeons. 88% ( $n = 53$ ) stated that medico-legal training should be provided to consultant surgeons and 90% ( $n = 54$ ) stated that registrars should also receive similar training. 45% ( $n = 27$ ) state that they had received formal training on medico-legal aspects of surgery. 80% ( $n = 48$ ) expressed concern that there will be a growing number of medico-legal problems in future surgical practice. 17% ( $n = 10$ ) felt that they were not receiving enough support from their medical defence union. 42% ( $n = 25$ ) had not heard of the Confidential Reporting System in Surgery (CORESS). 5 consultants refused to complete the survey for various reasons.

**Conclusions:** The majority of Consultant surgeons believe that education in medico-legal aspects of surgery should be an essential part of a surgeon's training at both consultant and registrar level. Such training may help to reduce the incidence of future medico-legal problems in surgery and to lessen their impact.

## Gastrointestinal\_2 A093

**Establishing a consultant surgeon led service to deliver stenting for inoperable rectal carcinoma**Kumar Bhaskar<sup>1</sup>, Paringe Vishal<sup>3</sup>, Ahmad Syed Muzzafar<sup>2</sup><sup>1</sup>Scunthorpe General Hospital, UK, <sup>2</sup>Scunthorpe General Hospital

bbaskARGOPAKUMAR@DOCTORS.ORG.UK



**Aims:** Evaluation of a model for establishing a consultant-led service for delivering endoscopic rectal stenting for inoperable rectal carcinoma in East Yorkshire. We outline an appropriate model for setting up such a service based on our experience of serving a population of 200 000 patients.

**Methods:** Prospectively collected data from patients undergoing stenting for inoperable rectal carcinoma was studied along with analysis of data forming a business case for establishing this service. An audit of results was performed one year since the introduction of the service.

**Results:** A business plan was formulated based on 10–15 new patient referrals per year at a cost of £1000 per stent. This was balanced against the cost of inpatient hospital stay, surgery and the cost of stoma bags. Key personnel involved in establishing this service have been an experienced endoscopist, radiologist, endoscopy nurses and cancer nurse specialist. Ten patients with inoperable rectal carcinoma have undergone rectal stenting over the past year. Two clinical failures and two technical failures have occurred the latter being a reflection of the learning curve involved. No perforations and no stent migrations have occurred. One patient complained of rectal bleeding and pain. To date there has been no procedure related mortality.

**Conclusions:** Our early experience shows that it is possible to set up a successful service to deliver this technique to patients from a large population. We believe this study also provides guidance to those seeking to establish a similar service in their region.

## Gastrointestinal\_1 A094

### The regression of the Metabolic Syndrome depending on the type of bariatric surgery

Kwiatkowski Andrzej<sup>1</sup>, Paośnik Krzysztof<sup>2</sup>, Stanowski Edward<sup>3</sup>, Badyda Artur<sup>4</sup>

<sup>1</sup>Department of General, Oncological and Thoracic Surgery, Military Institute of Health Services, Warsaw, Poland, <sup>2</sup>Department of General, Oncological and Thoracic Surgery Military Institute of Health Services, Warsaw, Poland, <sup>3</sup>Department of General, Oncological and Thoracic Surgery, Military Institute of Health Services, Warsaw, Poland, <sup>4</sup>Department of Informatics and Environment Quality Research, Faculty of Environmental Engineering, Warsaw University of Technology (andkwiatkowski@poczta.onet.pl)

**Introduction:** The Metabolic Syndrome (MS) is the combination of the most hazardous, often mutually bind risk factors of progression of arteriosclerosis and diabetes mellitus type II. The connection between the metabolic syndrome and obesity is well evidenced. The two most widespread definitions of the MS, first created by IDF in 2005 and second one by NCEP-ATPIII indicated the obesity especially the central one as main etiological factor of the MS. In Poland 20% of the population have the MS.

**Material and methods:** The aim of study is to present the results of the treatment of patients with MS who underwent operational intervention due to obesity. In our department we have operated 232 persons due to obesity since January 2003 to December 2005. 201 of them met the inclusion criteria (BMI  $\geq 40$  kg/m<sup>2</sup>). After one year 152 patients responded the postoperative questionnaire (75,62%). The MS meeting the criteria of IDF 2005 was diagnosed at 53,3%.

**Results:** The MS regressed at 70,37%. The comparison of the results in the group with BMI  $\geq 40 < 50$  kg/m<sup>2</sup> and with BMI  $\geq 50$  kg/m<sup>2</sup> showed better results in morbid obesity. In the both groups the best results were observed after GB, subsequently ASGB and VBG. Similarly the highest percentage of the regressing of single components of the MS, with exclusion HT in morbid obesity and central obesity in the both groups, was observed after GB.

**Conclusions:** The type of operation has important impact on the regressing the MS and its components. All the bariatric operations could be effective in treating the MS, but the most effective, especially in superobesity is gastric by-pass-GB. It should influence the choice of surgical procedure. The higher percentage of the declining of MS and its components was observed in morbid obesity.

## Sepsis, Infection, Immunity\_1 A095

### Time course of pro-and anti-inflammatory cytokine levels in patients with burn injury. The prognostic value of IL-10

Lantos János<sup>1</sup>, Földi Viktor<sup>2</sup>, Pálkás László<sup>3</sup>, Bogár Lajos<sup>4</sup>, Roth Elizabeth<sup>5</sup>, Csontos Csaba<sup>6</sup>

<sup>1</sup>Department of Surgical Research and Techniques, University of Pécs Medical School, Hungary, <sup>2</sup>Department of Anaesthesia and Intensive Therapy, University of Pécs Medical School, Hungary, <sup>3</sup>Department of Immunology and Biotechnology, University of Pécs Medical School, Hungary, <sup>4</sup>Department of Anaesthesia and Intensive Therapy, University of Pécs Medical School, Hungary, <sup>5</sup>Department of Surgical Research and Techniques, University of Pécs Medical School, Hungary, <sup>6</sup>Department of Anaesthesia and Intensive Therapy, University of Pécs Medical School, Hungary (janos.lantos@aok.pte.hu)

**Introduction:** Elevated circulating level of cytokines has already been observed suggesting their important role in the pathophysiological responses following burn injury. However, the dynamism and the prognostic role of these cytokines are controversial. The purpose of this study was to determine the time course of pro-and anti-inflammatory cytokine levels, and their prognostic value in patients with burn injury.

**Patients and Methods:** 26 patients (21 male, 5 female, mean age  $48 \pm 19$  years) with burn injury were studied. Blood samples were collected at the time of hospital admission and 5 consecutive days thereafter. Concentrations of IL-1 $\beta$ , IL-6, IL-8, IL-10, IL-12p70, and TNF- $\alpha$  were concurrently measured in plasma from EDTA anticoagulated and non-stimulated blood by a new, sensitive technique, the flow cytometric bead array (CBA Human Inflammation Kit, BD Biosciences, USA).

**Results:** Total burn surface area was significantly different in survivor ( $n = 14$ ) and non-survivor ( $n = 12$ ) patients ( $20.1 \pm 6.3\%$  versus  $36.7 \pm 18.0\%$ ,  $p < 0.001$ ). Among the 6 cytokines studied higher concentration of IL-6, IL-8, IL-10 were observed in both groups. IL-6 and IL-8 was moderately elevated on admission and started to increase markedly from the day 2, peaking on the day 4 after injury. IL-10 concentration was elevated at the time of hospital admission and gradually decreased thereafter. ROC analysis of data on admission showed that at a level of 14 pg/ml IL-10 indicated the lethality with 83.3% sensitivity and 100% specificity. Significant differences ( $p < 0.05$ ) between survivors and non-survivors in concentration of IL-6 was observed on day 4, in IL-8 on days 5 and 6, and in IL-10 on days 1, 2 and 3 post injury, all with higher levels in non-survivors. IL-6/IL10 and IL8/IL10 ratios elevated in both groups of patients until day 3, but decreased thereafter in survivors.

**Conclusion:** Our results confirmed that cytokines play an important role in the post burn pathophysiological processes. Burn injury was accompanied by an acute anti-inflammatory response that was significantly higher in non-survivor patients. The IL-10 level on admission had prognostic value. Inflammatory cytokine levels overwhelmed the anti-inflammatory processes from the day after trauma but started to normalize earlier in surviving patients. This work was supported by OTKA T060227 grant.

## Unusual observations, strange ideas A096

### Emergency general surgical admissions of Octogenarians, a prospective study

Latif Shehzad<sup>1</sup>, Mustafa syed abdur rahman<sup>2</sup>, Alam Imran<sup>3</sup>, Baxter John<sup>4</sup>

<sup>1</sup>Morrison Hospital, Swansea, UK, <sup>2</sup>Morrison Hospital, Swansea, <sup>3</sup>Morrison Hospital, Swansea, <sup>4</sup>Morrison Hospital, Swansea (smustafa@hotmail.co.uk)

**Background:** Emergency surgical admissions of octogenarians (80 years and above) is increasing, as we are living longer. A number of octogenarians are referred to surgeons with problems that could be managed easily in primary care, hence increasing the surgical workload. Some hospitals have implemented

an early treatment and discharge policy via Surgical decision making units (SDMU) to deal with similar problems.

**Aim:** Over the last decade the shortage of beds in an acute hospital has become a major problem and it is getting worse. The aim of this study is to assess the inappropriate general surgical admissions of octogenarians (and above) and to establish the trends of surgical problems in this set of population and their outcome.

**Method:** A prospective data was collected for four months in the newly established SDMU at Morriston Hospital. Results The total number of patients admitted to SDMU was 1466, 935 (64%) were general surgical patients excluding vascular and urology (90 + 441 respectively). Octogenarians and above constituted 12.5% ( $n = 117$ ). The main presenting complaint was abdominal pain (61%), followed by rectal bleeding (12%) and constipation (10%). Other complaints included vomiting, jaundice, abdominal mass and trauma (19%). 12% ( $n = 14$ ) had different surgical procedures. The mortality in the operated group was high (35%). The overall mortality was 9.5%. The patients who were discharged within 48 hours of admission were 20.5%. The rest (56%) were discharged ultimately (3–59 days). Two patients are still admitted.

**Discussion:** Our study shows that octogenarians constitute a considerable work load in acute hospitals. Avoiding inappropriate admission would result in significant improvement in bed utilization for elective and emergency cases. SDMU plays a major role in reducing the unnecessary hospital in-patient admissions.

## Oncology\_1 A097

### Mass spectrometry based proteomic profiling of colo-rectal cancer tissue as a source of biomarker discovery and an adjunct to disease staging

Liao Christopher C L<sup>1</sup>, Ward Nicholas J<sup>2</sup>, Wright James M<sup>3</sup>, Marsh Simon<sup>4</sup>, Arulampalam Tan<sup>5</sup>, Norton John<sup>6</sup>

<sup>1</sup>University of Essex, Colchester General Hospital, UK, <sup>2</sup>Colchester General Hospital, <sup>3</sup>Colchester General Hospital, <sup>4</sup>Essex County Hospital, <sup>5</sup>Colchester General Hospital, <sup>6</sup>University of Essex (chienliao@yahoo.com)

**Introduction:** Colorectal cancer develops in a stepwise fashion due to alterations in genetic and epigenetic pathways leading to abnormality in normal epithelial cells. Proteomic profiling of cancer tissue truly reflects the state of the cell and could help in identifying molecular markers for early diagnosis of disease, disease progression and recurrence. We are evaluating the expression profiles of colorectal cancer tissues as compared with adjacent normal mucosa to identify marker proteins for early detection of cancer and signature proteins as an adjunct to disease staging.

**Methods:** Hydrophobic total cell protein from colorectal cancer tissue and adjacent normal mucosa were extracted using MB-HIC8 magnetic beads from 37 patients and processed with MALDI-TOF mass spectrometry. The spectral data were pre-processed using SpecAlign© and analysis was done using on-line bioinformatics software GenePattern©.

**Results:** Unsupervised hierarchical clustering segregated all but one tumour from normal spectra and correctly identified all spectra with 97.2% accuracy. A total of 597 discriminatory peaks were identified between tumour and normal; prediction algorithm using 'leave-one-out' k-NN and weighted-voting cross validation clearly predicted tumour from normal with a sensitivity of 100% and specificity of 94%. Train and test model correctly identified tumour from normal using the top ranked 73 most discriminatory peaks. Self organising maps (SOM) formed an optimum of three clusters based on tumour cell differentiation, Dukes' staging, lymph node metastasis and extramural vascular invasion.

**Conclusions:** Mass spectrometry based tissue proteomics is a highly sensitive tool in identifying cancer specific proteins. It could discriminate cancer from normal and serve as molecular signatures for individualised therapy in disease monitoring. Further follow-up data on patient survival would validate clustering algorithm based on histological parameters.

## Plastic\_1 A098

### Salvage of Failed Prosthetic Breast Reconstruction by Autologous Conversion to Free Tissue Transfers

Lie Kwok Hao<sup>1</sup>, Kumiponjera Devor<sup>2</sup>, Simcock Jeremy W<sup>3</sup>, Malata Charles M<sup>4</sup>

<sup>1</sup>University of Cambridge School of Clinical Medicine, UK, <sup>2</sup>Department of Plastic & Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge University Hospitals NHS Trust, Hills Road, Cambridge CB2 2QQ, UK, <sup>3</sup>Department of Plastic & Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge University Hospitals NHS Trust, Hills Road, Cambridge CB2 2QQ, UK, <sup>4</sup>Department of Plastic & Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge University Hospitals NHS Trust, Hills Road, Cambridge CB2 2QQ, UK (kbl31@cam.ac.uk)

**Introduction:** Implant-based breast reconstructions are popular but important complications like capsular contracture, implant failures and unsatisfactory aesthetic results make them inherently prone to revisional surgery. In the context of adjuvant radiotherapy or infection, the original prosthetic reconstruction often fails to provide satisfactory outcomes despite multiple revisional procedures to address complications. Patients continue to complain of pain, poor cosmesis and general dissatisfaction. As a last resort, conversion to autologous tissue reconstruction in the form of free flaps provides excellent cosmetic results and symptom relief. We therefore reviewed our experience in the replacement of failed prosthetic reconstructions with free tissue transfers.

**Patients & Methods:** Patients undergoing salvage of failed prosthetic reconstructions were retrospectively reviewed. Reconstructive methods, previous radiotherapy, indications for revision, salvage procedures and outcomes were noted. Results: In the six patients studied (mean age = 40 years,  $r = 23-57$ ), there had been 2 delayed and 4 immediate reconstructions. Five patients had received adjuvant radiotherapy. Five presented after multiple revisional surgeries. The commonest indications for free tissue transfer were recalcitrant capsular contracture, persistent pain and poor cosmetic outcome. Salvage involved explantation, total capsulectomy and autologous tissue conversion using abdominal flaps. The average time interval between initial prosthetic reconstruction and final salvage was 75 months. All operations were successful – patients had soft, natural-looking breasts and remain symptom-free at follow up.

**Discussion and Conclusion:** The choice for a patient to undergo a major second reconstruction is difficult, especially as these women have had multiple revisions of their implant-based reconstructions. However, we have shown that implant-free salvage with free abdominal tissue cures their discomfort and disfigurement. We recommend that autologous replacement be performed as soon as an implant-based reconstruction becomes unsatisfactory. Moreover, this subgroup of women would have been better served by initial autologous reconstruction. The challenge is to identify them prospectively.

## Plastic\_1 A099

### Experience with Wise pattern skin resection in skin-sparing mastectomy and immediate breast reconstruction for large breast volumes

Lie Kwok Hao<sup>1</sup>, Di Candia Michele<sup>2</sup>, Forouhi Parto<sup>3</sup>, Malata Charles M<sup>4</sup>

<sup>1</sup>University of Cambridge School of Clinical Medicine, Addenbrooke's Hospital, Cambridge, UK, <sup>2</sup>Department of Plastic and Reconstructive Surgery, Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Box 186, Hills Road, Cambridge, <sup>3</sup>Cambridge Breast Unit, Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Box 186, Hills Road, Cambridge, <sup>4</sup>Cambridge Breast Unit, Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Box 186, Hills Road, Cambridge (kbl31@cam.ac.uk)

**Introduction:** Skin-sparing mastectomy (SSM) and immediate breast reconstruction (IBR) remain technically challenging in very large breasted women, often requiring extensive skin reduction, with high incidence of postoperative complications. We report our experience with SSM and Wise pattern skin reduction (WPSR) in IBR, and examine factors contributing to postoperative complications.

**Patients & Methods:** The medical records of patients undergoing SSM and IBR with WPSR between 1999–2007 were reviewed. Co-morbidity, BMI, smoking, ptosis grade, mastectomy weight, reconstruction type, indications and axillary surgery were noted. Complications were categorised into those relating to skin healing, proven wound infections and “other”.

**Results:** 25 operations (20 for malignancy, 5 prophylactic; comprising 17 free TRAM/DIEPs, 5 pedicled TRAMs, 6 LD-flaps and 2 implant-only) were undertaken in 22 patients aged 32–62 (mean: 51), BMI 22.5–39.3 kg/m<sup>2</sup> (mean: 30.4 kg/m<sup>2</sup>), 5/22 current smokers. There were 13 associated axillary clearances. All breasts had grade 2 or 3 ptosis. Mastectomies weighed 924–1972 g (mean: 1299 g). Sixteen operations developed skin complications; 8 (32%) were minor, but 8 required further surgical intervention. 9/25 operations developed an infection, and there were 4 other minor complications. All operations achieved satisfactory aesthetic outcomes. At median cancer follow-up of 24 months (range: 2–98), there have been no local recurrences and 2 deaths. Mastectomy weight was significantly associated with major skin complications requiring further surgery (age adjusted OR per 100g = 1.6 CI: 1.1–2.3,  $p = 0.02$ ). Performance of axillary clearance at the time of SSM was significantly associated with risk of postoperative infection (age adjusted OR = 5.8, CI = 1.3–26.0,  $p = 0.021$ ). These relationships were maintained after adjusting for patient (including BMI), surgical and tumour factors.

**Conclusion:** Wise pattern skin reduction is a useful technique for managing large, ptotic breasts undergoing SSM and IBR. Increasing breast size and the type of cancer surgery are important predictors of postoperative complications.

**Results:** Mean duration of surgery was 133 minutes (range: 75–280) in group A versus 124 (range: 90–180) and 107 (range: 60–180) in B and C respectively, with significant statistical differences among the three groups: A versus B ( $p = 0.07$ ); A versus C ( $p = 0.001$ ); B versus C ( $p = 0.006$ ). The drainage stay was significantly shorter in group C (32.2 hours) versus A (39.7 hours,  $p = 0.02$ ) and shorter in C versus B (39.7 hours,  $p = \text{NS}$ ). The post-operative stay was higher in group B (mean: 49.8 hours) versus group A (mean: 47.5 hours;  $p = \text{NS}$ ) and significantly higher in B versus C (mean: 42.2 hours;  $p = 0.02$ ) and in A versus C ( $p = 0.06$ ). The study showed no significant differences in terms of postoperative morbidity: transient hypoparathyroidism (30.6% versus 21.1% versus 27.8%), transient recurrent nerve palsy (4.1% versus 3.8% versus 3.7%) and post-operative haemorrhage (0% versus 1.9% versus 0%).

**Conclusions:** FloSeal matrix is a safe, effective and easy-to-employ agent improving hemostasis in patients undergoing thyroid surgery.

## Wound healing A100

### The impact of floseal matrix hemostatic agent in thyroid surgery: a prospective, randomized, comparative study

Lissidini Germana<sup>1</sup>, Gurrado Angela<sup>2</sup>, Poli Elisabetta<sup>3</sup>, Piccinni Giuseppe<sup>4</sup>, Marzaioli Rinaldo<sup>5</sup>, Testini Mario<sup>6</sup>

<sup>1</sup>Department of Applications in Surgery of Innovative Technologies. University Medical School of Bari, Italy, <sup>2</sup>Department of Applications in Surgery of Innovative Technologies. University Medical School of Bari, Italy, <sup>3</sup>Department of Applications in Surgery of Innovative Technologies. University Medical School of Bari, Italy, <sup>4</sup>Department of Applications in Surgery of Innovative Technologies. University Medical School of Bari, Italy, <sup>5</sup>Department of Applications in Surgery of Innovative Technologies. University Medical School of Bari, Italy, <sup>6</sup>Department of Applications in Surgery of Innovative Technologies. University Medical School of Bari, Italy. (mario.testini@chirgen2.uniba.it)

**Introduction:** Hemorrhage is a rare but severe and potentially lethal complication of thyroid surgery. Starting from the occasional successful employment of the FloSeal Matrix hemostatic agent, we decided to design a prospective, randomized, controlled trial aiming to compare the impact of FloSeal Matrix hemostatic agent on thyroid surgery with hemostatic surgical procedures and other hemostatic agents.

**Materials and Methods:** Between 2006 and 2007, 155 patients underwent a total thyroidectomy. The patients were randomized into three groups: group A ( $n = 49$ ) in which the total thyroidectomy was performed using hemostatic surgical procedures like ligatures, and bipolar electrocauterization without the use of hemostatic agents; group B ( $n = 52$ ) and group C ( $n = 54$ ) in which the hemostasis was completed by employing human fibrin glue/oxidized regenerated cellulose patch and FloSeal, respectively. Randomization was performed using numbered and sealed envelopes that were opened at the beginning of the operation.

## Hepatobiliary\_1 A101

### Relationship between Chemokine levels of the Central Nervous and Splanchnic Systems in rats with Prehepatic Portal Hypertension

Losada M<sup>1</sup>, Cruz A<sup>2</sup>, Aller MA<sup>3</sup>, Merino JJ<sup>4</sup>, Arias J<sup>5</sup>, Arias JL<sup>6</sup>

<sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>3</sup>Surgery Chair. Dept. of Surgery I. School of Medicine. UCM.Madrid, Spain, <sup>4</sup>Neurobiology Lab. Psychobiology Department. UNED. Madrid, Spain, <sup>5</sup>Surgery Chair. Dept. of Surgery I. School of Medicine. UCM.Madrid, Spain, <sup>6</sup>Psychobiology Department. School of Psychology. University of Oviedo, Spain (manuellosadaruiz@hotmail.com)

**Background and aims:** Chemokines are a family of chemotactic cytokines involved in inflammation and cellular regeneration. In experimental portal hypertension, the cerebral (Encephalopathy) and splanchnic (Hepato-enteropathy) morphofunctional alterations could have an interrelated inflammatory etiopathogenesis. To verify this hypothesis, the concentrations of chemokines were assayed in the brain and in the gastrointestinal tract of rats with prehepatic portal hypertension.

**Methods:** Male Wistar rats were used: Control ( $n = 8$ ); Sham-operated ( $n = 6$ ) and Triple Partial Portal Vein Ligation ( $n = 12$ ). At one month of evolution, RANTES, CXCR4/SDF-1 $\alpha$  and CX3CR1/Fractalkine were measured by ELISA in synaptosomes from several brain areas (hippocampus, cerebellum, hypothalamus, prefrontal cortex and striatum) as well as in the gastrointestinal tract (liver, ileum and mesenteric lymph nodes). Furthermore, TNF- $\alpha$ , Nestine and Bcl-2 were assayed in the hippocampus, liver and ileum.

**Results:** In the CNS of portal hypertensive-rats, SDF-1 $\alpha$  increased not only in synaptosomes from the hippocampus ( $p < 0.05$ ), but also in cerebellum ( $p < 0.05$ ). In addition, RANTES ( $p < 0.05$ ) decreased in the striatum, whereas TNF- $\alpha$  and CXCR4 levels trend to increase in the hippocampus. Moreover, in these rats TNF- $\alpha$  also increased in the ileum and in mesenteric lymphatic nodes. We have not found regulation of both chemokine systems (CXCR4/SDF-1 $\alpha$  and CX3CR1/Fractalkine and RANTES) in the rest of the brain areas studied. Interestingly, in the liver Bcl-2 levels were reduced and it was associated with a decrease of both chemokine systems (CXCR4/SDF-1 $\alpha$  and CXCR1/Fractalkine). Moreover, CX3CR1 levels increased in the ileum ( $p < 0.05$ ), whereas its ligand, Fractalkine, increased ( $p < 0.05$ ) in the mesenteric lymph nodes.

**Conclusion:** The alterations of chemokines in the splanchnic-cerebral axis, all over CX3CR1/Fractalkine protein levels, in rats with prehepatic portal hypertension suggest a role of anti-inflammatory and repair mechanisms that could compensate the pathological action of pro-inflammatory mediators. In this way, increased SDF1- $\alpha$  levels in the hippocampus and cerebellum could suggest the involvement of this alpha chemokine in stem cell recruitment and in neuronal rearrangements. Therefore, the existence of a mechanism of communication chemokine-dependent through the splanchnic-brain axis in prehepatic portal hypertension could be hypothesized.



## Hepatobiliary\_2 A102

**Mast Cell could express a dual role in Microsurgical Extrahepatic Cholestasis in the**

Losada M<sup>1</sup>, Cruz A<sup>2</sup>, Sánchez-Patán F<sup>3</sup>, Anchuelo R<sup>4</sup>, Aller M A<sup>5</sup>, Arias J<sup>6</sup>

<sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>3</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>4</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>5</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>6</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain (manuellosadaruz@hotmail.com)

**Background:** Fibrosis, bile duct proliferation and mast cell hyperplasia are characteristic histopathological changes in experimental chronic extrahepatic cholestasis. We have studied these liver alterations in a new microsurgical model of extrahepatic cholestasis in the rat.

**Methods:** Male Wistar rats were divided into two groups: I (Sham-operated;  $n = 9$ ) and II (Microsurgical Cholestasis;  $n = 10$ ). After 4 weeks, a morphometric study was carried out using an image analysis system to assess bile proliferation and the fibrosis content of the liver. The liver expression of  $\alpha$ -smooth muscle actin (SMA) was assayed by an immunohistochemical technique and mast cells were also counted.

**Results:** The animals with microsurgical cholestasis presented portal hypertension with extrahepatic portosystemic collateral circulation, mesenteric venous vasculopathy and increased ( $p = 0.0001$ ), plasma levels of bilirubin, alkaline phosphatase, AST, ALT and LDH. On the contrary, plasma levels of Albumin decreased ( $p = 0.001$ ). In cholestatic-rats the liver showed intense biliary duct proliferation ( $p = 0.0001$ ) and fibrosis ( $p = 0.0001$ ). Mast cells accumulate ( $p = 0.0001$ ) around proliferating bile ducts and fibrous septa in the liver of cholestatic-rats.

**Conclusions:** The microsurgical resection of the extrahepatic bile tract in the rat induces fibrosis and hyperplasia of bile ducts and mast cells. The great mast cell heterogeneity suggests that they could develop a protective role favouring liver remodeling in experimental extrahepatic cholestasis.

## Orthopedic\_1 A103

**Post operative pain management of unicompartmental knee arthroplasty with intra-articular cocktail regimen**

Malhotra Akshay<sup>1</sup>, Velpula Jagan<sup>2</sup>, Singh Jagwant<sup>3</sup>, Poonacha Tej<sup>4</sup>, Denn Peter<sup>5</sup>, Mitchell Paula<sup>6</sup>

<sup>1</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>2</sup>Macclesfield DGH, UK, <sup>3</sup>Macclesfield DGH, UK, <sup>4</sup>Macclesfield DGH, UK, <sup>5</sup>Macclesfield DGH, UK, <sup>6</sup>Macclesfield DGH, UK (aksbay16@gmail.com)

Post operative pain management is an essential component of joint replacement surgery. Routinely epidural infusions have been used for managing post operative pain in total knee replacements. In unicompartmental knee replacements we used a cocktail regime consisting of 30 ml of levobupivacaine (5 mg/ml), 0.5 ml of adrenalin (1:1000) and 40 mg of parecoxib mixed in 50 ml of normal saline. This was injected in to the joint after the surgery was performed. No epidural analgesia was used post operatively. We found that this regime provided effective pain relief in post-operative patients supported by decreased use of oral or paraneural analgesics. It enabled patients to mobilize early, shorter convalescence period and a shorter hospital stay. They all achieved good post operative range of movements averaging 120 degrees by the second day. This led to high patient satisfaction. Twelve patients who have had a unicompartmental knee replacement done, had this cocktail regime. Their average length of hospital stay was three days. Pain relief was satisfactory and physiotherapy outcome was improved. In conclusion our study shows that the cocktail regime not only helps in effective pain relief, early mobilization, reducing the incidence of deep vein thrombosis, pulmonary embolism and reducing the hospital stay.

## Orthopedic\_1 A104

**Comparison between closed wound drainage and no drainage in total knee**

Malhotra Akshay<sup>1</sup>, Velpula Jagan<sup>2</sup>, Singh Jagwant<sup>3</sup>, Benton Mark<sup>4</sup>, Denn Peter<sup>5</sup>

<sup>1</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>2</sup>Macclesfield DGH, UK, <sup>3</sup>Macclesfield DGH, UK, <sup>4</sup>Macclesfield DGH, UK, <sup>5</sup>Macclesfield DGH, UK (aksbay16@gmail.com)

The use of drains in total knee arthroplasty remains controversial. The drains do not affect the patients' hospital stay, blood loss or the patients' satisfaction in any way. On the contrary the drains tend to cost the National Health Service dearly. This prospective, non-randomised study was designed to evaluate the role of drains in routine total knee arthroplasty. Our study involved a single surgeon and a single prosthetic knee implant. Tourniquet was used which was released after applying the dressing. We analysed the following parameters – age, sex of the patient, length of stay and haemoglobin drop. We investigated 100 patients undergoing knee arthroplasties out of which 50 patients had drains inserted and 50 had no drains inserted. The group having no drains inserted had an average age of 70 years with a range of 54–88 years and a male to female ratio of 3:4. The average length of stay in hospital was 5 days and the average haemoglobin drop was 22gm/ml. The group having drains inserted had an average age of 69 years with range of 54–87 years and a male female ratio of 1:2. The average length of stay in hospital was 5 days and average haemoglobin drop was 30 gm/ml. Thus on conclusion we found that patients without any drains placed had a comparable length of hospital stay and a lesser drop in haemoglobin as compared to the group of patients where drains were used. There were no wound complications in this group either. The cost-effectiveness of not using drains supported by better patient satisfaction and easier dressing post-operatively on the ward outweighs against argument in the favour of placing drains.

## Transplantation, Organ preservation\_2 A105

**Optimising post-conditioning time of marginal livers**

Manekeller Steffen<sup>1</sup>, Stegemann Judith<sup>2</sup>, Seinsche Alexandra<sup>3</sup>

<sup>1</sup>Department of Surgery, Faculty of Medicine, Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany, <sup>2</sup>Surgical Research Division, Faculty of Medicine, Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany, <sup>3</sup>Surgical Research Division, Faculty of Medicine, Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany (steffen.manekeller@ukb.uni-bonn.de)

**Background:** Due to the discrepancy between organ donors and receptors the use of marginal livers (steatosis livers or organs from non-heart-beating donors) for transplantation purpose increased. The potential of a short-term aerobic machine perfusion for 'less than optimal' grafts after cold storage was recently demonstrated. In this context it was shown that this post-conditioning mainly depends on the provision of oxygen, but was independent on the allowance of nutrients. In our study the optimal time course of post-conditioning is to be evaluated.

**Material and methods:** Livers from male Wistar rats were withdrawn 30min after cardiac arrest and flushed with 60ml of HTK preservation solution (via portal vein). The organs were then stored at 4°C for 18h under ischemic conditions (CS). After 16h a part of the livers were then transferred to an aerobic machine perfusion circuit for 0.5h, 1h, 2h or 3h. Afterwards the viability of the organs was estimated by an acellular, aerobic normothermic reperfusion (2h) in vitro. The vascular resistance (Pa/s/ml), the enzyme release into the perfusate (U/l), bile production ( $\mu$ l/g/h), the O<sub>2</sub>-consumption ( $\mu$ l/g/min), the ammonium-clearance ( $\mu$ mol urea/g/h), the ATP content (%/CS) and expression of apoptotic factors in the tissues (TUNEL) were evaluated.

**Results:** After 1h of post-conditioning (1h and 2h) a significant increase in bile production and a decrease in enzyme release could be detected in comparison to CS. Also for the vascular resistance, the oxygen consumption and the urea clearance a positive tendency was noted starting with 1h of PK. The

ATP content of the PK livers after 1h of treatment was 60% higher than in CS organs. No markers for apoptosis could be detected after 1h of PK.

**Conclusion:** It can be concluded that a post-conditioning time of 1h after cold storage can ameliorate the organviability of marginal livers. The extension or abbreviation of PK time seems to have no further beneficial effects. After 1h of PK the ATP content reaches his maximum, afterwards the values decrease. Also the apoptotic induction is triggered on PK times over 1 hour.

## Hepatobiliary\_2 A106

### Noninvasive quantitative assessment of hepatic steatosis in the rat liver using 3.0 Tesla 1H-Magnetic Resonance Spectroscopy

Marsman Hendrik<sup>1</sup>, Werven van Jochem<sup>2</sup>, Nederveen Aart<sup>3</sup>, Kate, ten Fibo<sup>4</sup>, Stoker Jaap<sup>5</sup>, Gulik, van Thomas<sup>6</sup>

<sup>1</sup>Department of Surgery, University of Amsterdam, Amsterdam, The Netherlands, <sup>2</sup>Radiology department, Academic Medical Center, <sup>3</sup>Radiology department, Academic Medical Center, <sup>4</sup>Pathology department, Academic Medical Center, <sup>5</sup>Radiology department, Academic Medical Center, <sup>6</sup>Surgery Department, Academic Medical Center (b.a.marsman@amc.uva.nl)

The amount of hepatic fat accumulation (steatosis) is an important diagnostic parameter in the pre-operative workup of patients undergoing liver resection or in living donor liver transplantation. The gold standard for quantitative steatosis determination is histopathological assessment of needle biopsies, which is invasive, subject to underscoring and associated with complications. <sup>1</sup>H-Magnetic Resonance Spectroscopy (<sup>1</sup>H-MRS) using a conventional MRI scanner allows non-invasive quantification of steatosis. The aim of this study was to validate 3.0 Tesla <sup>1</sup>H-MRS measurements in a rat steatosis model and to investigate the discriminative power of <sup>1</sup>H-MRS. Steatosis was induced by feeding rats a methionine choline deficient (MCD) diet for 0, 1, 2, 3 or 5 weeks ( $n = 5$  per group). 3.0 Tesla <sup>1</sup>H-MRS measurements of rat livers were performed and multiple samples were taken for hepatic fat analysis. Correlations (Spearman) were studied between <sup>1</sup>H-MRS, histopathology and total fatty acid concentration (gas chromatography). Histopathology revealed no macrovesicular steatosis (MAS) in control rats, whereas one week of MCD diet induced mild MAS (mean, range) of 6% (0–23%). After two weeks MCD diet, a significantly increased MAS was seen of 40% (31–70%) which after three and five weeks, was 60% (30–73%) and 84% (70–93%), respectively. A significant correlation was observed between <sup>1</sup>H-MRS measurements and histopathological MAS ( $r = 0.93$ ,  $p < 0.0001$ ). Also, <sup>1</sup>H-MRS correlated significantly with total fatty acids ( $r = 0.94$ ,  $p < 0.0001$ ). <sup>1</sup>H-MRS measurements of rat livers with increasing steatosis grades were significantly different: 0–25% versus 25–50% MAS ( $p = 0.01$ ), 25–50% versus 50–75% MAS ( $p = 0.009$ ), and 50–75% versus 75–100% MAS ( $p = 0.01$ ).

**Conclusion:** 3.0 Tesla <sup>1</sup>H-MRS measurements in a rat steatosis model correlate strongly with morphological and biochemical assessments of parenchymal fat. <sup>1</sup>H-MRS was also able to accurately discriminate between varying degrees of steatosis. These results encourage application of <sup>1</sup>H-MRS for non-invasive quantitative assessment of steatosis in a clinical trial.

## Oncology\_2 A107

### Effect of all-trans retinoic acid on the development of colon carcinoma liver metastases following partial hepatectomy in rats

Martinez-Astorquiza Txanto<sup>1</sup>, Palomares Teodoro<sup>2</sup>, San Cristobal Juan<sup>3</sup>, Marin Hector<sup>4</sup>, Quintana Adrian<sup>5</sup>, Garcia-Alonso Ignacio<sup>6</sup>

<sup>1</sup>Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>2</sup>Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>3</sup>Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>4</sup>Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>5</sup>Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>6</sup>Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain (ignacio.galons@ehu.es)

We have previously established that partial liver resection increases the growth of rhabdomyosarcoma cells in the remnant lobes of the liver, while all-trans retinoic acid (ATRA) hinders that stimulus. To check if those results can be applied to other kind of tumours, we have assessed the effect of ATRA on a different cell line. Methods. 250,000 rat colon carcinoma cells CC-351 (CLS, Germany) have been inoculated into the spleen of WAG male rats (8 animals/group), and the spleen was removed after 5 minutes. Ten days later a 40% hepatectomy or a sham operation were performed. The animals were sacrificed on day 30th and the number and size of liver metastases was assessed. In another series of experiments, hepatectomized rats received either ATRA for 14 days or the solvent, analysing the effect of the treatment on the number and size of the metastases and the survival of the animals. Results. Hepatectomized animals showed a three fold increase in the number of liver metastases when compared to the sham operated (4.5 versus 1.5,  $p < 0.05$ ). After sorting the metastases by their size ( $< 1$  mm, 1–3 mm,  $> 3$  mm) the same difference could be seen in each of the three categories. ATRA treatment did not modify the number of liver metastases in hepatectomized animals (4.2 versus 4.8,  $p = 0.41$ ). However, in treated animals the mean number of big metastases (over 3 mm) experienced a six fold reduction (0.2 versus 1.2,  $p < 0.05$ ), while the figures increased in the other two categories ( $p > 0.05$ ). Though there was a delay of ten days in the first deaths in ATRA treated animals it was not statistically significant ( $p > 0.05$ ); and from there on the curves were nearly identical to non-treated rats. Conclusions. Liver resection stimulates the development of liver metastases. ATRA treatment delays their growth, but does not improve survival.

## Oncology\_1 A108

### Histological and clinical evaluation of total regressions of lower two-third rectal cancers after neoadjuvant combined radio-chemotherapy

Martis Gabor<sup>1</sup>, Török Miklós<sup>2</sup>, Horváth Ákos<sup>3</sup>, Kincses Zsolt<sup>4</sup>

<sup>1</sup>Kenezy Teaching Hospital, Surg. Oncol., Debrecen, Hungary, <sup>2</sup>Kenezy Teaching Hospital, Dept. of Pathology, <sup>3</sup>Univ. of Debrecen, Medical Center, Dept. of Rad. Oncol., <sup>4</sup>Kenezy teaching Hospital, Surg. Oncol. (martisgabor@unicommail.hu)

**Background:** There are even greater number of evidence that the present gold standard treatment of locally advanced adenocarcinomas of lower two-third rectum is the combined chemotherapy and long term radiation treatment completed with surgery and postoperative chemotherapy. The authors have conducted a 6-y. trial involving patients with disease mentioned above. The aim of this study was the analysis of partial and total regressions after neoadjuvant treatment.

**Method and patients:** Total number of patients involved in the so-called long-term radiated patients-group were 78. All patients were proved locally advanced (T3–4) lower two-third adenoc. Previous staging examination these patients were administered 5 FU based chemotherapy regime twice or three times and they underwent a  $28 \times 1.8$  Gray three-field 3D conformal radiation treatment. It was analysed the eventual (up) or down staging by rectal USG and MRI and -after operation-by histological evaluation of tumor regression in a 5-grade scale (TRG). All lymph nodes dissected by TME were scrutinised considering metastases. It was analysed in the comprehensive study the DFS, OS, TR and metastasis free survival (MFS) and all these factors were compared to the TRG by statistical analysis. Patients with other organ metastases were excluded from the study.

**Results:** All patient in this group reacted positively on neoadjuvant long term treatment considering improvement of daily bowel movements. 57 percent of patients could be proved a certain degree of down-staging. In 13 cases out of 78 were verified histological complete regression. Each patient had a lower third T3 tumour in a original maximum diameter of 6,5 cm. In 3 patients out of 13 were diagnosed pararectal lymph node met. There could not be found significantly better OS in patients with less than 3 positive lymph nodes compared to lymph node negative patients. It turned out that proportion of local recidives are significantly higher if the patients were more than 3 positive lymph nodes. In these cases the average TR was 16 months which is considerably shorter than it was patients with less than 3 positive lymph nodes.

**Conclusion:** The degree of down staging and TRG are considerable factors play a leading role in a sphincter preservative operation but the final OS and

TR is determined by the number of positive lymph nodes. Proportion of anal sphincter preservative operation have been increased as many as 15 percent. It goes without question that patients with T3–4 rectal cancers should be treated by neoadjuvant long term radiation therapy and chemotherapy. Combination of node negative specimen, originally less than 6 cm of diameter of tumour considerable or total regression of tumour are the most important factors in definitive DFS. The one million dollar question is – or at least will be (not) in the far future – that how you should manage patients with preoperatively proved total regression and in the meantime with negative lymph nodes.

## Sepsis, Infection, Immunity\_2 A109

### Real-time detection technology for rapid diagnosis of mycobacterial tuberculosis complex (mtbc) in endoscopic biopsy samples and paraffin-embedded tissue

Maudar Kewal<sup>1</sup>, Mishra Pradyumna<sup>2</sup>

<sup>1</sup>Bhopal Memorial Hospital and Research Centre, Bhopal, INDIA (maudarij@yahoo.com)

**Introduction:** The diagnosis of Mycobacterium tuberculosis complex (MTBC) in endoscopy biopsy samples and formalin-fixed, paraffin-embedded surgically resected tissues of the gastro-intestinal tract remains a complex issue because the most widely used conventional diagnostic tools, such as culture and acid fast bacilli staining are unable to rapidly detect Mycobacterium tuberculosis with sufficient sensitivity. Using fluorescence resonance energy transfer (FRET) technology based on hybridization probes, we applied a novel technique consisting of an internally controlled quantitative real-time PCR assay that provided a significant improvement in detection sensitivity and quantification.

**Materials & Methods:** Mycobacterial DNA was extracted from endoscopic biopsies and tissue sections by proteinase K digestion in combination with DNeasy Blood & Tissue Kit (Qiagen, Germany). Real time assay was performed with RealArt Mycobacterium tuberculosis Kit using Roche Light Cycler 2.0. Qualitative and quantitative analysis was performed in 14 biopsies and 8 tissue sections received from Medical & Surgical Gastroenterology Departments of our institute with suspected cases of MTB infection.

**Results:** Clinical suspected cases ( $n = 22$ ) of tuberculosis infection in the gastro-intestinal tract included in the study were negative for qualitative presence of MTBC using conventional diagnostic methodologies. However, application of Real time PCR detection technology showed positivity of 45% and specificity of 100% confirming presence of MTBC in 10 cases out of the 22 studied.

**Conclusion:** Results of our investigation exhibit that the real-time detection technology using FRET probes has much higher sensitivity and specificity for the detection of MTBC DNA in endoscopy biopsy samples and formalin-fixed, paraffin-embedded surgically resected tissues of the gastro-intestinal tract. However, to establish the superiority of this novel technique for MTBC diagnosis in various latent infectious states, it will be necessary to accumulate data from a larger number of patients with suspected tuberculosis infection.

## Cardiovascular, Thoracic\_2 A110

### Early result : Randomized Controlled trial of treatment for intermittent claudication

Mazari Fayyaz Ali Khan<sup>1</sup>, Gulati Sumit<sup>2</sup>, Lee H. L.D<sup>3</sup>, Mehta Tapan<sup>4</sup>, Rahman MNA<sup>5</sup>, Chetter Ian<sup>6</sup>

<sup>1</sup>Academic Vascular Surgical Unit, Alderson House, Hull Royal Infirmary, Anlaby Road, Hull. HU3 2JZ, <sup>2</sup>Academic Vascular Surgical Unit, Alderson House, Hull Royal Infirmary, Anlaby Road, Hull. HU3 2JZ, <sup>3</sup>Academic Vascular Surgical Unit, Alderson House, Hull Royal Infirmary, Anlaby Road, Hull. HU3 2JZ, <sup>4</sup>Academic Vascular Surgical Unit, Alderson House, Hull Royal Infirmary, Anlaby Road, Hull. HU3 2JZ, <sup>5</sup>Academic Vascular Surgical Unit, Alderson House, Hull Royal Infirmary, Anlaby Road, Hull. HU3 2JZ, <sup>6</sup>Academic Vascular Surgical Unit, Alderson House, Hull Royal Infirmary, Anlaby Road, Hull. HU3 2JZ (fayyazmazari@hotmail.com)

**Objective:** To compare angioplasty (PTA), supervised exercise (SEP) and PTA + SEP in the treatment of intermittent claudication (IC) due to femoro-popliteal disease

**Methods:** Over a 6 years period, 178 patients (108 men, median age 70 years) with angioplastiable femoro-popliteal lesions were randomized to: PTA, SEP or PTA + SEP. Patients were assessed prior to and at 1 & 3 month post treatment. ISCVS outcome criteria (Ankle pressures, treadmill walking distances) and Quality of Life (QoL) questionnaires (SF36 and VascuQoL) were analysed.

**Results:** All groups were well matched at baseline. 21 patients withdrew. Intra group analysis: All groups demonstrated significant clinical and QoL improvements (Friedman test,  $p < 0.05$ ). SEP (59 patients, 8 withdrew) – 62.7% of patients ( $n = 32$ ) improved following treatment [20 mild, 9 moderate, 3 marked], 27.4% ( $n = 14$ ) no improvement and 9.8% ( $n = 5$ ) deteriorated. PTA (60 patients, 3 withdrew) – 66.6% of patients ( $n = 38$ ) improved following treatment [19 mild, 10 moderate, 9 marked], 22.8% ( $n = 13$ ) no improvement and 10.5% ( $n = 6$ ) deteriorated. PTA + SEP (59 patients, 10 withdrew) – 81.6% of patients ( $n = 40$ ) improved following treatment. [10 mild, 17 moderate, 13 marked], 14.2% ( $n = 7$ ) no improvement and 4.0% ( $n = 2$ ) deteriorated. Inter group Analysis: PTA + SEP produce a much greater improvement in clinical outcome measures than PTA or SEP alone, but there was no significant QoL advantage (Kruskal Wallis test,  $p > 0.05$ ).

**Conclusion:** SEP should be the primary treatment for the patients with claudication and PTA should be supplemented by a SEP.

## Gastrointestinal\_2 A111

### How the symptoms of dyspepsia Improve after cholecystectomy?

Mehrvarz Shaban<sup>1</sup>, Fanaie S.Ahmad<sup>2</sup>

<sup>1</sup>Dept. of Surgery, Baqiyatallah University of Medical Sciences, Tebran, Iran,

<sup>2</sup>Assistant Professor of Surgery, Dept. of Surgery, Baqiyatallah University of Medical Sciences, Tebran, Iran (mehrvarz@bmsu.ac.ir)

**Introduction:** Although in the symptomatic Gallstone disease, cholecystectomy is the treatment of choice, but these patients may have atypical or dyspepsia symptoms such as (Globus sensation, heart burn, bloating ...). The rates of improvement of symptoms after cholecystectomy are varying, and they are not acceptable. This study intends to determine the rate of improvement of symptoms, especially in dyspeptic patient after cholecystectomy.

**Methods and Material:** In this study, 148 patients with symptomatic gall stone (98 with typical pain and 50 with dyspeptic symptom) underwent cholecystectomy, were included. Four months after operation they evaluated for the improvement of their preoperative symptoms.

**Results:** In 17 patients of 50 patients (34%) who had dyspeptic symptoms, symptoms disappeared completely after cholecystectomy, but in 33 patients (66%), didn't disappear. Female sex, preoperative peptic disease, and presence of psychological disorders, were associated with poor improvement rate after cholecystectomy. Also in patients who had only one symptom, the rate of improvement was better than who had more symptoms. Nausea, Vomiting had the best improvement rate after cholecystectomy. Bloating, Regurgitation and Globus sensation didn't improved.

**Conclusions:** In patients who have dyspeptic symptoms, improvement rate after cholecystectomy is low (33%). We recommend that in patients with Gallstone and dyspeptic symptoms without typical biliary pain, it is best to do more investigations before surgery, such as upper GI endoscopies, psychological consultation and ... to rule out other differential diagnosis. Key Words: Gallstone, Cholecystectomy, Dyspepsia, Regurgitation, Globus sensation

## Education A112

### Mentoring and Innovation in Surgery; the role of mentors in the life of an academic surgeon

Merkel Frederick K

Rush University, University of Illinois at Chicago, Chicago Regional Organ and Tissue Bank, USA (frederickmerkel@hotmail.com)



This presentation, which focuses on the importance of innovative mentors in the training and further development, is based on my own experience. During the course of medical school, residency, fellowship and faculty appointments, I was indebted to many innovative mentors and colleagues who prompted me to consider, not only the “tried and true” but also innovative approaches solutions to problems, both in the laboratory and in the clinic. These “Guiding Lights” were Alfred Blalock, (1958–1961), at the Johns Hopkins School of Medicine, who started me transplanting lobes of liver in dogs, at a time when no one else was doing that, Willard Goodwin at UCLA, who introduced me to clinical renal transplantation in 1961 and many others. Under Wm. Kelly and R.C. Lillehei I developed in the laboratory the first routinely successful method for long term success with pancreas transplants in dogs and then became one of the three operating surgeons performing the first human renal/pancreas transplants in 1966. Other mentors who stimulated me to be creative in my work were Drs. Robert A Good, Thomas Starzl, Folkert Belzer, Ben Eiseman and John S. Najarian and Sir Peter Medawar. Through their efforts I also learned how to teach and mentor and also reach out to the community. In this presentation, I will demonstrate how these and other mentors influenced and helped me become innovative in my approach to surgical problems in transplantation.

## Oncology\_1 A113

### Critical role of p38 mitogen-activated protein kinase signaling in colonic radiation

Mihaescu Andrada<sup>1</sup>, Jeppsson Bengt<sup>2</sup>, Thorlacius Henrik<sup>3</sup>

<sup>1</sup>Department of Surgery, Lund University, Malmö University Hospital, Malmö, Sweden, <sup>2</sup>Department of Surgery, Lund University, Malmö University Hospital, Malmö, Sweden, <sup>3</sup>Department of Surgery, Lund University, Malmö University Hospital, Malmö, Sweden (Andrada.Mihaescu@med.lu.se)

**Background:** Adjuvant radiation is frequently used in the treatment of different types of tumours although associated with serious side effects. Leukocyte and platelet-mediated tissue damage constitute a key feature in irradiation injury but the signalling mechanisms behind leukocyte and platelet recruitment in the colon remain elusive. p38 mitogen activated protein kinase (MAPK) signalling is an important signal transduction pathways integrating extracellular stimulus to an intracellular signal. The aim of our study was to define the role of p38 MAPK signalling in colonic radiation injury.

**Method:** Male C57Bl mice were randomly divided into 6 groups (5 animals in each). The specific p38 MAPK inhibitor SB239063 was given intravenously immediately prior radiation (0–4mg/kg). Leukocyte and platelet-endothelium interactions in the colon were determined by use of inverted intravital fluorescence microscopy 16 h after radiation with 20Gy. CXC chemokines were determined by use of ELISA.

**Results:** Radiation induced clear-cut increase in leukocyte and platelet recruitment as well as in CXC chemokines levels in the colon. Inhibition of p38 MAPK signaling reduced dose-dependently radiation-induced leukocyte rolling and adhesion as well as platelet rolling and adhesion. Moreover SB239063 decreased MIP-2 and KC expressions more than 60% and respective 40% in the colon of radiated mice.

**Conclusion:** Our study demonstrates that p38 MAPK signalling constitutes a key role in radiation damage of the colon and that inhibition of p38 MAPK activity abolish leukocyte and platelet recruitment as well as CXC chemokine formation. Thus, we conclude that p38 MAPK signalling pathway may be useful for new therapeutic strategy against radiation injury.

## Oncology\_2 A114

### Various patterns of Podoplanin Expression in Esophageal Cancer

Mizuno Yasuhiro<sup>1</sup>, Kubo Hajime<sup>2</sup>, Watanabe Go<sup>3</sup>, Sakai Yoshiharu<sup>4</sup>

<sup>1</sup>Department of Surgery, Kyoto University, Kyoto, Japan, <sup>2</sup>Department of Surgery, Kyoto University, Kyoto, Japan, <sup>3</sup>Department of Surgery, Kyoto University, Kyoto, Japan, <sup>4</sup>Department of Surgery, Kyoto University, Kyoto, Japan (mizunoy3000@yahoo.co.jp)

**Background:** Podoplanin is a mucin-type glycoprotein and is known as a lymphatic endothelial maker. Immunostaining against podoplanin is currently a useful tool to detect lymphatic involvement of cancers, and is widely used in a routine pathological diagnosis. However, we often observe the expression in cancer cells per se and fibroblastic mesenchymal cells.

**Purpose:** We examined the expression patterns of podoplanin in esophageal cancer, and investigated the association with clinicopathological data.

**Method:** Total of 26 esophageal cancer cases were selected from the pathology case archive of Kyoto University Hospital based on the diagnosis and the quality of the available tissue on the paraffin block. We investigated the podoplanin expression in 26 cases, using home-made monoclonal antibody, clone 7B10. The specificity and sensitivity of 7B10 were higher than commercially available D2-40.

**Result:** We observed the podoplanin expression in cancer cells and mesenchymal cells as well as lymphatic endothelial cells. As for the staining in the cancer cells, 13 samples (50%) were detected as positive for podoplanin. Among these 13 samples, 2 samples were detected only in the invasive front. 10 samples (38.5%) were stained in the mesenchymal cells. We classified 26 samples into several groups according to the expression pattern of podoplanin and investigated whether podoplanin expression was associated with clinicopathological data. However, we revealed no significant correlation between the expression and prognosis.

**Conclusion:** Although podoplanin is well known as the lymphatic marker, we here reported that it could be also expressed by cancer cells per se and mesenchymal cells. We recently reported that podoplanin expression in stroma is significantly associated with poorer prognosis in lung cancer. The cases investigated in this study may be few. Podoplanin could be an interesting tumor marker.

## Oncology\_1 A115

### Dukes B colorectal cancer: are the right patients getting chemotherapy?

Mohamed Faheez<sup>1</sup>, Jha Madan<sup>2</sup>, Wilson Robert<sup>3</sup>

<sup>1</sup>Department of Coloproctology, James Cook University Hospital, Marton Road, Middlesbrough, United Kingdom, <sup>2</sup>Department of Coloproctology, James Cook University Hospital, Marton Road, Middlesbrough, United Kingdom, <sup>3</sup>Department of Coloproctology, James Cook University Hospital, Marton Road, Middlesbrough, United Kingdom (faheez@btinternet.com)

**Introduction:** Treatment for colorectal cancer is dictated by stage. The role of adjuvant chemotherapy for Dukes B (T3 or T4 N0 (Stage II) patients remains unclear. The Colorectal Multidisciplinary Team (MDT) identifies patients from this group who may benefit from adjuvant chemotherapy. Our aim was to analyze outcome of Dukes B colorectal cancer patients treated at our institution.

**Methods:** All patients with Dukes B histology were selected from a prospectively collected database of all colorectal cancers resected between 1997 and 2007 at our institution. Data including demographics, CEPOD classification, site of tumour, histopathology and adjuvant treatment were analysed. Survival from date of operation was calculated using Kaplan–Meier estimates

**Results:** Of 1098 patients who underwent colorectal cancer resections, 38% (414/1098) were staged as Dukes B (238 males and 176 females). Mean age at surgery was 71 years (range 37 to 97 years). Median follow up was 45 months. Resections were elective in 79% (328/414) of patients, and urgent or emergency in 21% (86/414). Tumours were colonic in 66% (275/414) of patients, and rectal in 34% (139/414). 25% (105/414) of patients received adjuvant chemotherapy. Overall median survival was 80 months with a 60% 5-year survival. Patients who received chemotherapy had a median survival of 81 months and 56% five year survival. This was equivalent to patients who received no chemotherapy (80 months median survival, 62% 5-year survival,  $p = 0.98$ ).

**Conclusion:** Our colorectal MDT selection criteria appear to optimize survival in those Dukes B patients who would benefit while minimizing inappropriate use of chemotherapy.

## Cardiovascular, Thoracic\_2 A116

**Video-Assisted Thoracoscopic Surgery in Solitary Pulmonary Nodule**Mohebbi Hassan Ali<sup>1</sup>, Mehrvarz Shaban<sup>2</sup>, Fanaie Seyed Ahmad<sup>3</sup><sup>1</sup>Baqiyatallah University of Medical Science, Department of Surgery and Trauma Research Center-IR, Iran, <sup>2</sup>associate professor of general surgery -Baqiyatallah University of Medical Science, Department of Surgery-IR, Iran, <sup>3</sup>assistant professor of general surgery-Baqiyatallah University of Medical Science, Department of Surgery-IR, Iran (mohebbi@yahoo.co.in)**Introduction:** A solitary pulmonary nodule (SPN) is a single, well-circumscribed, spherical and small lesion. A new solitary pulmonary nodule on chest radiography may be malignant. Chest CT scan and PET scanning are used but only a biopsy can definitively diagnose. Bronchoscopic or Transthoracic biopsy can identify but Video-Assisted Thoracoscopic Surgery (VATS) is an accepted approach specially for peripheral and small lesions.**Method & materials:** In this case-series study, patients with SPN and risk factors, were admitted. They underwent VATS by double lumen orotracheal tube and three ports insertion. All of the SPN were resected by EndoGIA (45–3.5 mm) staplers.**Results:** In five patients, all were male. Their ages were 46, 42, 30, 45 and 73 years and the size of nodules were 1.5, 2, 1, 2 and 4 cm respectively. Resections were successful and complete; only one of them was malignant.**Conclusion:** VATS in SPN is a suitable, diagnostic and therapeutic approach.

## Minimally invasive A117

**Pulmonary Wedge Resections by Video-Assisted Thoracoscopic Surgery**Mohebbi Hassan Ali<sup>1</sup>, Mehrvarz Shaban<sup>2</sup>, Nasser Mohammad<sup>3</sup>, Hassan<sup>4</sup><sup>1</sup>Baqiyatallah University of Medical Science, Department of Surgery and Trauma Research Center, <sup>2</sup>Associate professor of Surgery-Department of Surgery -Baqiyatallah University of Medical Science, Tebran, I.R.Iran, <sup>3</sup>Assistant professor of cardiothoracic Surgery-Department of Surgery-Baqiyatallah University of Medical Science, Tebran, I.R.Iran, <sup>4</sup>Medical Science, Tebran, I.R.Iran (mohebbi@yahoo.co.in)**Introduction:** Pulmonary wedge resections are necessary for definite diagnosis in some situations. Video-Assisted Thoracoscopic Surgery (VATS) is suitable approach instead of open surgery.**Method:** In a case-series study, patients who referred for Pulmonary Wedge Resection by pulmonologist were admitted. VATS performed by general anesthesia through simple orotracheal tube and via three incisions and ports. Wedges were resected by applying two EndoGIA (45–3.5 mm) staplers. The pleural cavity was drained with a chest tube. Postoperative pain assessed by Visual Analog Scale as 0–10. Data Analysis was done by evaluation of central indices, Pearson-chi square and student T-test.**Results:** In 37 patients, 33 (89%) were male. The mean age was 39 + 8.3 years. Resections were 93% in right side with enough specimens. The most common morbidity was chest wall pain in 34 cases (92%) but the mean Visual Analog Scale was 2.39. Hemoptysis observed in 7 cases (19%). In 3 cases (8%); chest tubes were more than one day in places because of air leakage.**Conclusion:** Pulmonary wedge resections are advised to do by VATS due to low morbidity, less pain and good result.

## Plastic.1 A118

**Immediate postmastectomy reconstruction of the small breast: A five year retrospective study of a single surgeon's experience**Molina Alexandra<sup>1</sup>, Chitumbo Chungu<sup>2</sup>, Malata Charles<sup>3</sup><sup>1</sup>Department of Plastics and Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge, UK, <sup>2</sup>University of Cambridge School of Clinical Medicine, <sup>3</sup>Department of Plastics and Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge. (kbl31@cam.ac.uk)**Introduction:** Reconstruction of the small breast poses a number of challenges to the plastic surgeon including lack of donor sites, thin soft tissue cover and limited implant choice. There is a paucity of literature addressing this frequently encountered scenario. The problem is further exacerbated in those patients who wish to avoid contralateral balancing breast augmentation. This paper highlights some of the practical problems presented by thin, small-breasted patients requesting immediate post-mastectomy breast reconstruction.**Patients & Methods:** We retrospectively reviewed the experience of a single plastic surgeon in treating 20 patients with mastectomy weight of less than 350g (<25th centile) over a 5-year period at a large University Teaching Hospital. Data including BMI, bra cup size, mastectomy weight, co-morbidity, reconstruction type, complications and aesthetic outcome were collected. Pre- and post-operative medical photographs were reviewed and patients followed up in clinics.**Results:** Twenty-four reconstructions were performed in 20 patients, incorporating 10 latissimus dorsi flaps (of which one was totally autologous), 8 implant-only reconstructions, 4 free and one pedicled abdominal tissue flaps, and a single superior gluteal artery perforator (SGAP) flap. Half of the study patients underwent surgery to the contralateral breast. The average mastectomy weight was 208 g (range 74g–342g). One free TRAM flap failed due to fulminant MRSA septicaemia, and salvage reconstruction was performed using an LD flap and expander. There were no other serious complications and all patients achieved satisfactory aesthetic results.**Discussion and Conclusion:** Small breasted women generally have low BMIs and thus are good surgical candidates: post-operatively they are at relatively low risk of complications. However, any breast size mismatch is more noticeable and implants may produce obvious wrinkling and ridging due to poor soft tissue cover. The majority of these patients wish to avoid contralateral surgery which imposes further restrictions on the surgeon in the choice of reconstructive technique. Autologous flaps have traditionally been avoided in thinner women due to inadequacy of donor site tissue, but in fact often produce superior cosmetic results. We advocate tailoring the choice of reconstructive technique to the individual patient but have enjoyed success with the variety of methods discussed. Newer autologous flaps such as the inferior gluteal perforator flap and the transverse gracilis myocutaneous flap should be considered for thin small breasted patients in view of the limitations of well established techniques.

## Plastic.2 A119

**Reverse abdominoplasty as a simple option for oncological trunk reconstruction**Mondal Debabrata<sup>1</sup>, Kumiponjera Devor<sup>2</sup>, Wishart Gordon<sup>3</sup>, Malata Charles<sup>4</sup><sup>1</sup>Department of Plastic & Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge, UK, <sup>2</sup>Department of Plastic & Reconstructive Surgery, Addenbrooke's University Hospital, Cambridge, United Kingdom, <sup>3</sup>Cambridge Breast Unit, Addenbrooke's University Hospital, Cambridge, United Kingdom, <sup>4</sup>Department of Plastic & Reconstructive Surgery and Cambridge Breast Unit, Addenbrooke's University Hospital, Cambridge, United Kingdom (debabrata.mondal@addenbrookes.nhs.uk)**Introduction:** Central trunk reconstruction, following radical ablation of recurrent malignancy, poses a challenge because of unavailability of standard local flaps, their reach limitations and possible harbouring of subclinical disease. This report presents two women reconstructed with reverse abdominoplasty flaps following full thickness resection of a recurrent lower chest wall angiosarcoma and upper abdominal wall metastatic adenocarcinoma.**Reports:** A 65 year old female with multiple recurrences of a radiation-induced angiosarcoma of the right breast underwent four successive resections over a 5 year period. The resultant defects were variously reconstructed by direct closure, local advancement flaps, ipsilateral latissimus dorsi musculocutaneous (LD) flap, contralateral LD flap and finally reverse abdominoplasty. The last resection entailed full thickness anterior abdominal wall and xiphisternal resection necessitating the concomitant use of prosthetic mesh. The patient remains disease-free with a high Karnofsky performance status and an acceptable aesthetic appearance. A 47 year old woman with laparoscopic epigastric port-side recurrent carcinoma from previous cholecystectomy underwent

full thickness resection of her anterior abdominal wall. The defect was uneventfully reconstructed with a combination of a prosthetic mesh and a reverse abdominoplasty. One year after surgery she remains disease-free and has no abdominal herniation or bulging.

**Conclusion:** Upper central trunk malignancy ablation defects are difficult to reconstruct because of their particular anatomical location especially in the presence of recurrence or adjuvant radiotherapy. These case reports demonstrate that successful oncological reconstruction of the central trunk can be achieved in selected cases using a simple technique such as the reverse abdominoplasty flap; without resorting to complex microsurgical free tissue transfers.

## Gastrointestinal\_1 A120

### Result of Biliointestinal Bypass in treatment of Morbid Obesity

Mosavi Naieni Seyed Morteza<sup>1</sup>, mehrvarz shaban<sup>2</sup>

<sup>1</sup>Dept. of Surgery, Baqiyatallah University of Medical Sciences, Tebran, Iran,

<sup>2</sup>Dept. of Surgery, Baqiyatallah University of Medical Sciences, Tebran, Iran (mehrvarz@bmsu.ac.ir)

**Background:** There are a lot of surgical methods for treatment of morbidly obese patients. Biliointestinal Bypass (BIB) is a Bariatric surgery produces significant long term weight reduction by malabsorption in the gut. This operation is a modification of Jejunoileal bypass (JIB) with anastomosis of the proximal end of jejunum to the fundus of the gall bladder. In this study we evaluated the efficacy and complication of JIB in the treatment of morbid obesity.

**Method & Material:** The indication of surgery was BMI > 40 or BMI = 35–40 with co-morbid illness. In this prospective study, between Sep 2004 and March 2006, 23 patients (16 female and 7 male) with median weight 125 ± 18 and body mass index 44 ± 5, underwent BIB surgery in khatam and Baqiyatallah(a.s) hospitals. At least 83% of patients complained one of the co-morbid illnesses due to excess weight like musculoskeletal problems, diabetes, cardio-pulmonary disease and .... After surgery the patients evaluated for weight reduction and other surgical and metabolic complications for average 16 months (11–24 mo).

**Results:** In the follow up period there was no significant adverse metabolic complication. None of the patients had DVT or PE and the mortality rate was zero. The average weight reduction after 6, 12, 18 and 24 months were 22.1, 34.5, 39.6 and 42.5 Kg, respectively. The average BMI after 6, 12, 18 and 24 months were 37.5, 33, 32 and 33, respectively. Diarrhea was the most frequent complication which observed within the 21% of the patients. Two (8.6%) Incisional hernia was observed because of postoperative wound infection. This study showed that amount of weight loss was significantly better in the men.

**Conclusion:** BIB is a simple and reversible method for the morbidly obese patients. Anastomosis of the proximal end of jejunum to the gall bladder eliminates the blind loop in JIB and maintains enterohepatic circulation of bile and prevents of bacterial overgrowth, renal calculi formation and hepatic failure. In comparison of the original technique using the slightly longer terminal ileum (30–40 Cm versus 20 Cm) and 20 Cm jejunum reduces metabolic side effects.

## Oncology\_2 A121

### Influence of location and mitotic index on prognosis in patients with gastrointestinal stromal tumors

Mrowiec Sławomir<sup>1</sup>, Jabłońska Beata<sup>2</sup>, Leidgens Marcin<sup>3</sup>, Pająk Jacek<sup>4</sup>, Lampe Paweł<sup>5</sup>

<sup>1</sup>Department of Gastrointestinal Surgery, Silesian Medical University, Katowice, Poland, <sup>2</sup>Department of Gastrointestinal Surgery, Silesian Medical University, Katowice, Poland, <sup>3</sup>Department of General Surgery, Hospital dr Tytus Hahubiński in Zakopane, <sup>4</sup>Department of Pathology, Silesian Medical University, Katowice, Poland, <sup>5</sup>Department of Gastrointestinal Surgery, Silesian Medical University, Katowice, Poland (bjablonska@poczta.onet.pl)

Gastrointestinal stromal tumors (GIST) are particular group of neoplasms originating from interstitial pacemaker cells of Cajal. The most useful prognostic factors are: tumor diameter, mitotic index, cell structure and location in the gastrointestinal tract. The aim of paper was to correlate two prognostic factors (location and mitotic index) with survival of patients operated for GIST. Between 1989 and 2002, 74 patients (37 men and 37 women) were operated for GIST in the Department of Gastrointestinal Surgery. The mean age was 54.9 (13–89). 2 years- and 5 years-survival was analyzed in operated patients. Two prognostic factors: location in the alimentary tract and mitotic index were analyzed. The location of GIST was following: in 3 (4%) patients – in the lower oesophagus, in 42 (56.8%) patients – in the stomach, in 4 (5.4%) patients – in the duodenum, in 13 (17.6%) patients – in the small intestine, in 12 (16.2%) patients – in the large bowel. The most frequently (51%) mitotic index was 2–9/50 hpf considered as the intermediate malignant potential risk. Survival of 2 years was the most frequently noted in patients with GIST located in the oesophagus, stomach, duodenum – 34 (79%) patients. Lower rate of 2 years survival was noted in patients with GIST arising from the small intestine – 7 (63.6%) patients and from the colon and rectum – 4 (36.3%) patients. Survival of 5 years was also the most frequent in patients with GIST located in the upper part of gastrointestinal tract – 37.2%, in the median part of gastrointestinal tract – 36.3%, in the lower part of gastrointestinal tract – 27.7%. The results were analyzed statistically ( $p \leq 0.05$  was considered as significant). Correlation between location, mitotic index and survival of patients was assessed. The investigation showed statistically significant influence of tumor location in the gastrointestinal tract ( $p = 0.0264$ ) and mitotic index ( $p = 0.0003$ ) to survival of patients operated for GIST. The lower location and higher mitotic index of GIST are associated with shorter survival of patients.

## Minimally invasive A122

### Fundus-first approach reduces the conversion rate in difficult laparoscopic cholecystectomies. Personal technique and preliminary results

Nazari Shahram<sup>1</sup>, Khosroushahi Semira<sup>2</sup>, Ziaee S. Ali<sup>3</sup>, Fanaei S. Ahmad<sup>4</sup>, Amini Afshin<sup>5</sup>, Sarie Hamid reza<sup>6</sup>

<sup>1</sup>Erfan Hospital, Tebran, Iran, <sup>2</sup>Erfan Hospital, <sup>3</sup>Erfan Hospital, <sup>4</sup>Baqiyatallah Hospital, <sup>5</sup>Imam Hosain Hospital, <sup>6</sup>Erfan Hospital (dsnazari@hotmail.com)

**Objectives:** Laparoscopic cholecystectomy (LC) is the 'gold standard' in surgical management of symptomatic cholecystolithiasis. Isolation of the cystic duct is the first dangerous technique in LCs. Nearly all of the laparoscopic surgeons are now popular with standard LC, in which dissection begins at Calot's triangle. In conventional open cholecystectomy, the fundus-first dissection (FFD) is a well recognized safe procedure during difficult cholecystectomies because it minimizes the risks of damage to the structures in or around Calot's triangle. In spite of this, FFD is not widely practiced in LCs.

**Methods:** The purpose of this study is to evaluate the facility of FFD in difficult LCs. The study included 500 patients treated over 25 months. The inclusion criterion was the presence of ultrasound proven gallstones. Patients were excluded from the study if there was evidence of common bile duct stones, or carcinoma of the gallbladder. The great majority were difficult cases, so we also reviewed the safety aspects of this approach and evaluated whether the fundus-first technique can prevent conversion in difficult cases.

**Results:** The fundus-first approach was started in 35 patients; 30 procedures were completed laparoscopically. Five of the cases were further converted to open surgery. The mean operative time was 95–130 minutes (mean 112.5), which is significantly greater than conventional laparoscopic standard cholecystectomy (range 20–40 minutes, mean 30). Fundus-first laparoscopic cholecystectomy (FFLC) was performed without immediate or late complications.

**Conclusion:** FFLC appears to be safe procedure, and has the potential to reduce the conversion rate in difficult cases and may decrease the risk of injury to bile ducts.

**Recommendation:** FFLC could be started in difficult LCs. The surgeon should have adequate laparoscopic experience. If in spite of FFD, the anatomy of Calot's triangle is still obscure, he must convert to open exploration to prevent bile duct injuries.



## Unusual observations, strange ideas A123

### Gonadectomy and related hematological and hemorheological changes in the rat. A pilot study

Nemeth Norbert<sup>1</sup>, Kiss Ferenc<sup>2</sup>, Hever Timea<sup>3</sup>, Gulyas Adrienn<sup>4</sup>, Furka Istvan<sup>5</sup>, Miko Iren<sup>6</sup>

<sup>1</sup> Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary,

<sup>2</sup> Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary,

<sup>3</sup> Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary,

<sup>4</sup> Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary,

<sup>5</sup> Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary,

<sup>6</sup> Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary (nemeth@med.unideb.hu)

**Introduction:** Pathophysiological gender differences of diseases (distribution, progression, therapy) became important nowadays. Previously, in a canine model gonadectomy and reverse hormone substitution were found to cause significant changes in hemorheological parameters. In recent rodent study we aimed to investigate the postoperative changes after gonadectomy, focusing on the determinants of deformability and aggregation properties of erythrocytes.

**Methods:** Twelve male and twelve female (in inter-estrus phase) outbred rats were anaesthetised. Three animals of both genders, respectively, were used as healthy controls. On the other animals, bilaterally, orchidectomy via incisions on scrota and ovariectomy through a lower median laparotomy were performed, making careful ligatures of deferent duct/uterine tube and of testicular/ovarian vessels. The wounds were closed. In the 1st, 2nd and 3rd postoperative months 3–3 males and females were anaesthetized for blood sampling via cardiac puncture (exsanguination). Hematological parameters (Sysmex F-800 microcell-counter), fibrinogen concentration (Sysmex CA-500 coagulometer), blood- and plasma viscosity (Hevimet-40 viscosimeter), erythrocyte deformability (Carat FT-1 filterometer) and erythrocyte aggregation (Myrenne MA-1 aggregometer) were determined.

**Results:** In males leukocyte count markedly increased for 2nd, and decreased for 3rd month. Lymphocyte ratio increased in males, decreased in females. Platelet count of both genders showed slight elevation by the 1st month. In males hematocrit became lower, while in females mean corpuscular volume was larger by 10% in the 3rd month. Fibrinogen concentration and plasma viscosity increased in both genders. Blood viscosity increased in males, however the hematocrit/viscosity ratio lowered in females. Erythrocyte aggregation at zero shear-rate was markedly high in females, showing permanent elevation at low shear-rate in both genders. Erythrocyte deformability moderately worsened in females.

**Conclusions:** Gonadectomy can variously affect the hematological and hemorheological parameters during postoperative months. Thus, supposedly the risk of microcirculatory changes may also alter after gonadectomy according to the hormonal changes. Grants: KPO 0147/2006 and OTKA F68323.

## Minimally invasive A124

### Endoscopic assisted versus open free flap harvesting. A comparative study in pigs

Nistor Alexandru<sup>1</sup>, Blidisel Alexandru<sup>2</sup>, Jiga Lucian<sup>3</sup>, Hoinoiu Bogdan<sup>4</sup>, Ionac Mihai<sup>5</sup>

<sup>1</sup> Victor Babes University of Medicine and Pharmacy Timisoara, Romania, <sup>2</sup> Victor Babes University of Medicine and Pharmacy Timisoara, <sup>3</sup> Victor Babes University of Medicine and Pharmacy Timisoara, <sup>4</sup> Victor Babes University of Medicine and Pharmacy Timisoara, <sup>5</sup> Victor Babes University of Medicine and Pharmacy Timisoara (alex@umft.ro)

**Introduction:** In an era of minimal invasive surgery, endoscopic flap harvesting has not been widely accepted as the gold standard for harvesting muscles flaps, despite numerous benefits over the open technique. This is due to a lack of experience.

**Materials and Methods:** This study analyses three experimental flap models in pigs (gracilis, rectus abdominis, latissimus dorsi) comparing the endoscopic assisted technique with the open one in 23 trainees without extensive endoscopic experience, harvesting a total of 68 flaps. A brief presentations of the techniques used in the endoscopic models is given in contrast to the open models. Evaluation was based on the following criteria: total procedure time, complications, post-op recovery time, difficulty and learning curve.

**Results:** Endoscopic flap harvesting performed by trainees without extensive experience, still yields better results over the open technique and has major advantages such as minimal donor site morbidity and pain, less scarring and early recovery. The disadvantages include a longer procedure time, 2D vision and a longer learning curve. Mean operating time was significantly higher for the endoscopic procedure (120–210 min) compared to the open models (90–150 min). The recovery period ranged from 4h to 12h for the endoscopic assisted procedure versus 36h to 72h in the open procedure. The overall difficulty was not significantly higher for the endoscopic assisted model (3.26 out of 5) compared to the open one (2.42 out of 5).

**Conclusions:** Given the low complication rate and relative ease of harvest, 24 out of 26 trainees would apply the endoscopic technique in the clinic. We conclude that the endoscopic technique is currently the best way to harvest these types of flaps, despite being underrated by senior consultants.

## Transplantation, Organ preservation\_2 A125

### Upper GI lesions in hemodialyzed and renal transplant patients – endoscopic and histopathological evaluation

Ostrowski Krzysztof<sup>1</sup>, Kwiatkowski Artur<sup>2</sup>, Rowiński Wojciech<sup>3</sup>, Chmura Andrzej<sup>4</sup>

<sup>1</sup> Department of General and Transplantation Surgery, Medical University, Warsaw, Poland, <sup>2</sup> Department of General and Transplantation Surgery, Warsaw Medical University, <sup>3</sup> Department of General and Transplantation Surgery, Warsaw Medical University, <sup>4</sup> Department of General and Transplantation Surgery, Warsaw Medical University (ostrowski67@tlen.pl)

Patients on hemodialysis due to ESRF and organ allograft recipients are believed to have a greater risk of developing upper gastrointestinal lesions and their complications than the general population. The aim of the study was to compare mucosal lesions of the upper gastrointestinal tract in three groups of patients, assess the influence of *Helicobacter pylori* infection on the occurrence of lesions and estimate the level of concordance of endoscopic diagnosis with microscopic evaluation. Fifty general surgical outpatients (GEN), fifty hemodialysed patients (HD) and fifty kidney recipients (TX) were examined by upper GI endoscopy. *Helicobacter pylori* infection was established by fast urease testing.

**Results:** Endoscopic and microscopic findings Gen (%) HD (%) TX (%) Abnormal endoscopy 84 72 66 Duodenal ulcer 4 2 4 Gastric ulcer 6 2 2 Chronic gastritis 44 34 26 Erosive/hyperaemic gastropathy 20 80 *Helicobacter pylori* infection 58 48 30 Normal mucosa on microscopy 30 24 40 Polyps 4 10 10 Neoplasm 0 0 2 Degree of matching endoscopic and microscopic findings 68 62 42 The analysis of inflammatory changes in relation to *Helicobacter pylori* presence revealed a significant association of their frequency, severity and extent with *Helicobacter pylori* in the HD and TX groups. One malignant B-cell lymphoma was found in the TX group. Endoscopic abnormalities and microscopic inflammatory lesions compared on the basis of their graded density, extent and severity were most pronounced in the GEN group. The overall concurrence of endoscopic and microscopic diagnoses was 57%. A tendency to underestimate the observed lesions (46%) was noted in the TX group.

**Conclusions:** The extent and severity of mucosal changes in hemodialysis and transplant patients are strongly associated with *Helicobacter pylori* infection. Poor consistency of endoscopic and microscopic diagnoses in transplant recipients suggests that endoscopic assessment is unsatisfactory and should be supplemented by mucosal biopsies.

## Sepsis, Infection, Immunity\_1 A126

### Idiopathic liver abscesses

Otto Włodzimierz<sup>1</sup>, Cieślak Bartosz<sup>2</sup>, Najnigier Bogusław<sup>3</sup>, Mackiewicz Anna<sup>4</sup>, Krawczyk Marek<sup>5</sup>

<sup>1</sup>Medical University Warsaw, Poland, <sup>2</sup>A.M. Warszawa, <sup>3</sup>A.M. Warszawa, <sup>4</sup>A.M. Warszawa, <sup>5</sup>A.M. Warszawa (wotto@gysystem.pl)

Idiopathic liver abscess is the pathology of the liver arising without any apparent cause.

**Aim of study:** The aim was to evaluate the results of treatment applied to 128 patients (m.77, f.51, m.a.50) from 1998 to 2007, according to the prospective protocol. Material: Ultrasound abdomen and CT scans established the diagnosis of single abscess in 84 patients (65%), multiple abscesses in 30 patients (24%) and multiloculated abscess in 14 patients (11%).

**Method:** The treatment included antibiotic therapy alone for the abscesses < 6cm in size (36 pts.), percutaneous aspiration for the single abscess > 6cm in size (48 pts.) and the open drainage and/or liver resection for multiloculated or multiple abscesses (44 pts.).

**Results:** Out of 36 patients treated with antibiotics alone 20 (55%) required percutaneous drainage; 8 of them (40%) required percutaneous aspiration but 9 (45%) required surgical drainage and 3 (5%) liver resection. Out of 48 patients treated with percutaneous aspiration 32 (66.6%) recovered but 16 (33.4%) required open drainage or liver resection; 9 (18%) of them developed complications and 4 (8.3%) died due to sepsis. Out of 44 patients treated initially with open drainage 8 (18%) developed complications; 3 of them (7%) required additional percutaneous aspiration and 5 (11%) surgical drainage. Three of them (6.8%) died due to sepsis. Cultures was positive for Staphylococcus, Enterococcus and Escherichia coli in 28%, 19%, 16%, respectively.

**Conclusions:** Antibiotic therapy, percutaneous aspiration and surgical drainage appeared to be the complementary methods of treatment. Results were dependent upon the advances of infection, abscess peculiarity and surgeon experience.

## Transplantation, Organ preservation\_2 A127

### Biliary complications following liver transplantation (ltx). Is that a laboratory or clinical problem?

Pacholczyk Marek<sup>1</sup>, Lagiewska Beata<sup>2</sup>, Adadyński Leszek<sup>3</sup>, Lisik Wojciech<sup>4</sup>, Wasiak Dariusz<sup>5</sup>, Chmura Andrzej<sup>6</sup>

<sup>1</sup>Dept of General and Transplantation Surgery, Medical University, Warsaw, Poland, <sup>2</sup>Dept of General and Transplantation Surgery Warsaw Medical University, <sup>3</sup>Dept of General and Transplantation Surgery Warsaw Medical University, <sup>4</sup>Dept of General and Transplantation Surgery Warsaw Medical University, <sup>5</sup>Dept. of Surgical and Transplantation Nursing Medical University of Warsaw, <sup>6</sup>Dept of General and Transplantation Surgery Warsaw Medical University (pacholczyk@interia.pl)

Biliary complications (BC) following LTx remain one of the major causes of postoperative morbidity and treatment failure. The list of most frequent BC consists of biliary stricture, fistula, ischemic type biliary lesions (ITBL), cholangitis and bile leakage following T-drain removal. Between 2000–2007 200 consecutive cadaveric LTx have been performed in our institution. All but 10 were the first, full size grafts. 18 patients were transplanted from the emergency reasons (MUC/UNOS 1), remaining 182 (91.0%) from elective (36 patients [19.8%] status 2 by UNOS). All but 7 patients had a standard choledochcholedochostomy using straight drain drainage for 6 weeks. Routine bile cultures have been taken. Bile drain was removed after cholangiogram. All patients received antibiotic prophylaxis. Ursodeoxycholic acid was used in selected cases.

**Results:** During first 6 weeks positive bile cultures in absence of clinical and biochemical symptoms of cholangitis were found in 114(57%) cases. Symptomatic cholangitis requiring antibiotic treatment were observed in 22 patients(11%) during the first 6 months. Two patients required endoscopic sphincterotomy and temporary stenting due to anastomotic stricture (1) or papilla fibrosis (1). Bile leakage following drain removal was observed in 18 (9%) patients. 14 (7%) out of them were treated conservatively, and

only remaining 4(2%) required surgery with lavage and/or stenting during procedure. In one case extra-hepatic bile ducts necrosis was diagnosed which required reconstruction of biliary anastomosis. No ITBL case has been observed or stricture requiring surgical repair. Bile leaks at the site of anastomosis was found in 2 recipients (1%) successfully treated endoscopically (sphincterotomy 1, stenting 1).

**Conclusion:** Despite the high incidence of positive bile culture related most likely to use of drain the overall number of BC was low-22 (11%). Most of these complications have been successfully treated conservatively-18(9%)and only 4 had a surgery with good outcome.

## Orthopedic\_1 A128

### Avascular Necrosis of Multiple Large Joints secondary to Lyme arthritis-an unusual presentation

Paringe Vishal<sup>1</sup>, Thiru Madhu<sup>2</sup>, Siddiqi Najaf<sup>3</sup>, Shafqat S.O<sup>4</sup>

<sup>1</sup>Department of trauma and orthopaedics, North Lincolnshire and Goole NHS trust, Scunthorpe General Hospital, UK, <sup>2</sup>Department of trauma and orthopaedics, North Lincolnshire and Goole NHS trust, Scunthorpe General Hospital, DN15 7BH United Kingdom, <sup>3</sup>Department of trauma and orthopaedics, North Lincolnshire and Goole NHS trust, Scunthorpe General Hospital, DN15 7BH United Kingdom, <sup>4</sup>Department of trauma and orthopaedics, North Lincolnshire and Goole NHS trust, Scunthorpe General Hospital, DN15 7BH United Kingdom. (vishalparinge@doctors.org.uk)

Lyme disease is caused by the spirochetal bacterium *Borrelia burgdorferi* transmitted by ticks of the *Ixodes ricinus* complex. The primary stage is characterized by round rash called 'Erythema migrans' (EM), at the site of tick bite. The secondary stage involves musculoskeletal symptoms like migrating joint pains without obvious swelling. The tertiary stage characterized by intermittent attacks of monoarticular or oligoarticular arthritis, primarily in large joints. Avascular necrosis of multiple large joints secondary to Lyme disease has never been reported in literature as yet. We present a 36-year-old male patient with rapid onset of avascular necrosis of major joints, following Borelliosis, referred to the clinic in Oct 2005, with progressively worsening pain in his hips, shoulders and knee joints. He was not diabetic or on immunosuppressive medications. In June 2002, while on holiday in Tenerife, he reported insect bites to this right hip region followed with severe pain in right hip region with both legs being weak, numb and he noticed a bullous rash at the site of the bites and diagnosis was Lyme disease after noting antibodies to the disease and was treated with massive doses of antibiotics. He denied being treated with steroids. He was noted to have progressively worsening signs of avascular necrosis of hip and shoulder joints on plain radiographs. He underwent bilateral hip and shoulder arthroplasty and histology of the femoral confirming avascular necrosis. Most patients with Lyme arthritis respond to antibiotic therapy; however, in around 10% of patients the inflammation persists despite antibiotic therapy. The incidence of treatment-resistant Lyme arthritis is lower in children than in adults. In Europe, both *B. burgdorferi* and *B. garinii* can cause treatment resistant Lyme arthritis. The Centre for Disease Control and Prevention states that the diagnosis of Lyme disease is based on symptoms, physical findings and patient's history and serology.

## Wound healing A129

### Current use of modified bacterial cellulose in reconstructive surgery

Pasieka Zbigniew MD, PhD;<sup>1</sup>, Grobelski Bartłomiej M.Sc.;<sup>2</sup>, Kowalska Karolina M.Sc.;<sup>3</sup>, Ławniczak Piotr MD;<sup>4</sup>

<sup>1</sup>Experimental Surgery Unit of the Department of Endocrinology of the Medical University of Lodz, Poland, <sup>2</sup>Experimental Surgery Unit of the Department of Endocrinology of the Medical University of Lodz, <sup>3</sup>Experimental Surgery Unit of the Department of Endocrinology of the Medical University of Lodz, <sup>4</sup>Experimental Surgery Unit of the Department of Endocrinology of the Medical University of Lodz; (vagos.corporator@wp.pl)

Today knowledge and materials availability significantly limit the possibilities of internal organs reconstruction. Currently applied polymeric substitutes

(silicones, gore-tex, collagen, plastics) are being rejected due to their physicochemical properties, immunogenicity, lack of vascularisation, and most often do not fulfil the role of replaced organ. On the other hand, autologous grafts make operation rather complicated. The problem concerns the reconstruction of such organs as trachea, peritoneum, as well as damaged peripheral nerves. Experimental Surgery Unit of the Department of Endocrinology of Medical University of Łódź in cooperation with Institute of Technical Biochemistry of the Technical University of Łódź proposes modified bacterial cellulose as a material for organs and tissues reconstruction. Physicochemical properties, susceptibility to vascularisation and high biocompatibility make this material perfect for such purpose. Latest studies showed that bio-cellulose, natural polymer produced by bacteria *Acetobacter xylinum*, is a highly biocompatible material. It has already found an application as a wound dressing. There are also experiments concerning its internal use as vessel substitutes and hernia meshes. Following specific modification process there is a possibility to produce cartilage-like substitute for trachea, auricular and nasal concha or even tubes for nerves regeneration. Obtained products are similar to natural tissue, with biocompatibility, mouldability, biophysical and chemical properties fitting the needs of reconstructive surgery. Current experiments performed in Experimental Surgery Unit concern microbial cellulose used for: trachea reconstruction, hernia meshes and neurotubes. Various surgical techniques, the choice of sutures and tissue glue, and different cellulose samples were tested on animal model. Best methods of implantation and most useful materials were estimated according to observation of animals after operation and histological analysis of explanted samples. Surgical stage is of an extreme importance for project target which is to produce cellulosic material for clinical use. Presented results give new prospects for reconstructive surgery.

## Cardiovascular, Thoracic\_2 A130

### A model for oligonucleotide transfer in the vein graft wall under controlled non-distending pressure

Peroulis Michail<sup>1</sup>, Kakisis Ioannis<sup>2</sup>, Kapelouzou Alkistis<sup>3</sup>, Giaglis Stavros<sup>4</sup>, Macheras Anastasios<sup>5</sup>, Karatzas Gavriil<sup>6</sup>

<sup>1</sup>vascular surgeon in 3rd Department of Surgery, Athens University Medical School, Athens, Greece. post doc in experimental surgery Foundation for Biomedical Research, Academy of Athens, Athens, Greece, <sup>2</sup>lecture of vascular surgery 3rd Department of Surgery, Athens University Medical School, Athens, Greece, <sup>3</sup>post doc in experimental surgery Foundation for Biomedical Research, Academy of Athens, Athens, Greece, <sup>4</sup>Research Center of Immunology & Transplantation Foundation for Biomedical Research, Academy of Athens, Athens, Greece, <sup>5</sup>Assistant Professor 3rd Department of Surgery, Athens University Medical School, Athens, Greece, <sup>6</sup>Professor 3rd Department of Surgery, Athens University Medical School, Athens, Greece. (mperoulis@bioacademy.gr)

Peroulis Michail, 1, 2 Kakisis Ioannis, 2 Kapelouzou Alkistis, 1 Giaglis Stavros, 1 Andreaskos Evangelos, 1 Kostomitsopoulos Nikolaos, 1 Macheras Anastasios, 2 Karatzas Gavriil 2 1 Foundation for Biomedical Research, Academy of Athens, Athens, Greece. 2 3rd Department of Surgery, Athens University Medical School, Athens, Greece.

**Introduction–Aim:** The quest for a simple and low-cost method for the delivery and expression of genes in the living cell is the key for the development of gene therapy. The aim of our study was to test the effectiveness of egr-1 decoy oligonucleotide (ODN) transfection into vein grafts using controlled non-distending pressure.

**Materials–Methods:** Three groups of five male New Zealand rabbits each were used for this study. The experimental animals were anaesthetized with ketamine and xylazine and intubated. A 2,5cm segment of the external jugular vein was harvested, cannulated and inserted into an inelastic plastic sheath that was sealed at both ends. A 40 mMol ODN solution in normal saline was infused via the cannula to a pressure of 1 atm. In the first group, we

delivered an egr-1 decoy ODN, in the second group a mutant decoy and in the third group a fluorescent-labeled ODN. After 20 min, the vein segment was thoroughly rinsed and anastomosed end to end to the carotid artery. The vein graft was removed along with a segment of the contralateral jugular vein 48 hours later.

**Results:** The histological structure of the vein graft was intact. Increase of immunofluorescence was confirmed by DAPI staining in the nucleuses of the vein graft cells, confirming the successful delivery of the ODN. Quantitative real time PCR revealed a 60% decrease of egr-1 gene expression ( $0,39 \pm 0,11$ ) in the animals in which egr-1 decoy ODN was delivered compared to the control group.

**Conclusion:** Pressure-mediated transfection achieved nuclear localization of egr-1 decoy ODN in jugular vein grafts, resulting in a 60% inhibition of target gene expression. The method is safe, quick and effective and may be exploited for the control of diseases in which egr-1 is implicated, such as atherosclerosis and intimal hyperplasia.

## Sepsis, Infection, Immunity\_2 A131

### The virulence of staphylococcus aureus and staphylococcus epidermidis strains isolated from patients with diabetic foot ulcers

Podbielska Ada<sup>1</sup>, Gałkowska Hanna<sup>2</sup>, Stachyra Emilia<sup>3</sup>, Stelmach Ewa<sup>4</sup>, Olszewski Waldemar L.<sup>5</sup>, Łuczak, Rosinski G., Karnafel W. M<sup>6</sup>

<sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>4</sup>Department of Microbiology, Medical University, Warsaw, Poland, <sup>5</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>6</sup>Department of Microbiology, Medical University, Warsaw, Poland (wlo@cmdik.pan.pl)

Pathogenicity of bacterial species is determined by their ability to produce virulence factors involved in colonization and invasion of host tissues i.e. adhesins, invasins, extracellular enzymes and toxins. We selected for *S.aureus* genes encoding bacterial surface proteins binding fibronectin (fmb-A), collagen (cna) and gene for exfoliatin A (eta) and for *S.epidermidis* genes encoding autolysin (atlE) and genes for polysaccharide intercellular adhesin production (icaAB, IS256). The aim of our study was to characterize *S.aureus* and *S.epidermidis* isolates obtained from ulcer curettage, skin biopsy from ulcer edge and from toe web surface of diabetic foot patients and from toe web of healthy volunteers. We analyzed *S.aureus* ( $n = 55$ ) and *S.epidermidis* ( $n = 21$ ) isolates. Strains were identified by using Chapman base, Slidex Staph-kit and API STAPH test after overnight 37°C bacterial culture in BHI base. Genomic DNA was isolated using Roche High Pure Template Kit. Presence of genes were examined in PCR reaction with specific primers. PCR products were detected on 2% agarose gel electrophoresis and stained with ethidium bromide.

**Results:** Genetic profile of *S.aureus* strains yielded from ulcer curettage ( $n = 19$ ): eta 47%, fmbA 79%, cna 84%; from skin biopsy ( $n = 18$ ): eta 39%, fmbA 61%, cna 89%; from toe web surface ( $n = 18$ ): eta 16%, fmbA 44%, cna 94%. Genetic profile of control *S.aureus* strains ( $n = 11$ ) yielded from a toe web surface of healthy volunteers: eta 9%, fmbA 0%, cna 9%. Genetic profile of *S.epidermidis* strains yielded from ulcer curettage ( $n = 5$ ): atlE 100%, icaAB 100%, IS256 80%; from skin biopsy ( $n = 4$ ): atlE 100%, icaAB 100%, IS256 100%; from toe web surface ( $n = 11$ ): atlE 82%, icaAB 100%, IS256 45%.

**Conclusions:** The frequency of all studied genes for virulence factors in strains of *S.aureus* yielded from diabetic foot patients was higher than in control strains. Strains isolated from skin surface were characterized by a low frequency of gene eta compared with strains isolated from ulcer tissue. Investigation of virulence genes atlE and icaAB in *S.epidermidis* strains needs rather evaluation at the mRNA level, whereas the presence of insertion sequence IS256 can be carry out at the DNA level.



## Extremities A132

### Vascular endothelial growth factor/VEGF/in the development of critical limb

Proczka Robert Michał<sup>1</sup>, Bialek Paweł<sup>2</sup>, Małecki Maciej<sup>3</sup>, Chorostowska-Wynimko Joanna<sup>4</sup>, Polańska Małgorzata<sup>5</sup>, Polański Jerzy<sup>6</sup>

<sup>1</sup>2-nd Department of General, Vascular and Onkological Surgery Medical university of Warsaw, <sup>2</sup>2-nd Department of General, Vascular and Onkological Surgery Medical university of Warsaw, <sup>3</sup>Department of Cell Biology Maria-Skłodowska Curie Memorial Institute, <sup>4</sup>Laboratory of Molecular Diagnostics National Institute of Tuberculosis and Lung Diseases, <sup>5</sup>2-nd Department of General, Vascular and Onkological Surgery Medical university of Warsaw, <sup>6</sup>2-nd Department of General, Vascular and Onkological Surgery Medical university of Warsaw (ramjup@poczta.onet.pl)

**Introduction:** Vascular endothelial growth factor/VEGF is the key cytokine responsible for spontaneous growing of collaterals in the ischemic muscle. However, in some patients, especially with critical ischemia, the physiological angiogenic response is not enough for maintaining the basic perfusion. On the other hand, the research of Carolinska Instytut, as well as of our own experience the plasma level of VEGF in the patients with critical limb ischemia is extremely high, but there is no expected biological response. We suspect that critical peripheral ischemia can be connected to or even result from abnormalities in the VEGF family.

**Material and Methods:** In the group of 35 patients with moderate or critical peripheral ischemia, we measured plasma level of vascular endothelial growth factor/using ELISA and specific antibodies/. We measured also lipids level, CRP, the level of leukocytes hemoglobin erythrocytes, and platelets. During the surgical reconstruction or amputation we took a sample of artery in the femoro-popliteal level/mostly common femoral artery/to determine the VEGF-receptors level. We measured mRNA expression for VEGFR 1 and VEGFR 2 in the artery wall/using reverse transcriptase/

**Results:** In all patients that developed critical ischemia we noticed disorders in the lipids levels. We found also the VEGFR 1 and VEGFR 2 expression and VEGF interaction disorders.

**Conclusion:** Critical peripheral ischemia is connected with abnormalities in the VEGF family and its receptors.

## Sepsis, Infection, Immunity\_2 A133

### Influence of parenteral nutrition on activity of N-acetyl-β-hexosaminidase

Rackowska K<sup>1</sup>, Snarska J<sup>2</sup>, Grycz E<sup>3</sup>, Rackowski K<sup>4</sup>, Szajda S<sup>5</sup>

<sup>1</sup>Department of Pharmaceutical Biochemistry, Medical University of Białystok, Poland, <sup>2</sup>1st Department of General Surgery and Endocrinology, Medical University of Białystok, <sup>3</sup>Department of Anaesthesiology and Intensive Care, Medical University of Białystok (s1n2a3@poczta.onet.pl)

Parenteral nutrition (PN) is an effective method for supplying energy and nutrients via the intravenous route when oral and enteral feeding is impossible or contraindicated. Although PN is a life saving therapy, its use may be associated with serious complications. Parenteral nutrition-related metabolic complication have not yet been adequately defined and described. Laboratory monitoring is an important part of the assessment and management of patients requiring parenteral nutrition support. N-acetyl-β-hexosaminidase (HEX) is the most active lysosomal exoglycosidase participating in catabolism of glycoconjugates. HEX catalyzes removal of N-acetylglucosamine and N-acetylgalactosamine residues from the non-reducing end of oligosaccharide chains of glycoconjugates. The aim of our study was to examine the effect of parenteral nutrition on the HEX activity in the blood serum. The blood serum samples were collected from 10 adult hospital patients: before receiving PN and 5 days after nutritional treatment HEX activity (pKat/ml) was determined colorimetrically by the method of Zwierz et al. Statistical significance was established at  $p < 0.005$ . The preliminary results show significant decrease in HEX activity in blood serum of patients at fifth day PN in comparison to level

of this enzyme before nutritional support (the mean concentration of HEX was 1.31 times lower). These data suggest elevation in the functional activity of lysosomal exoglycosidase under conditions of PN. It is confirmed that a 5-day infusion treatment of PN change metabolism of glycoconjugates.

## Gastrointestinal\_1 A134

### The role of Matrix Metalloproteinases in the pathogenesis of Non-Alcoholic Fatty Liver Disease: an explorative study

Remmerswaal Ronald<sup>1</sup>, van den Engel Sandra<sup>2</sup>, Roest Henk<sup>3</sup>, de Bruin Ron<sup>4</sup>, IJzermans Jan<sup>5</sup>, Alwayn Ian<sup>6</sup>

<sup>1</sup>Department of Experimental Surgery, Erasmus Medical Center Rotterdam, The Netherlands, <sup>2</sup>Department of Experimental Surgery, Erasmus Medical Center Rotterdam, The Netherlands, <sup>3</sup>Department of Experimental Surgery, Erasmus Medical Center Rotterdam, The Netherlands, <sup>4</sup>Department of Experimental Surgery, Erasmus Medical Center Rotterdam, The Netherlands, <sup>5</sup>Department of Experimental Surgery, Erasmus Medical Center Rotterdam, The Netherlands, <sup>6</sup>Department of Experimental Surgery, Erasmus Medical Center Rotterdam, The Netherlands (r.remmerswaal@erasmusmc.nl)

**Background/Aims:** Non-alcoholic fatty liver disease (NAFLD) is considered to be the hepatic manifestation of the metabolic syndrome and accounts for at least four percent of patients on the liver transplant wait list. In search for a therapy for NAFLD, first the pathogenesis needs to be elucidated. The aim of our study is to assess the role of Matrix Metalloproteinases (MMPs) in the pathogenesis of NAFLD.

**Methods:** In C57BL/6 male mice NAFLD was induced by a methionine/choline deficient (MCD) diet. For fourteen days, mice were gavaged twice daily with 200mg/kg/day of a broad spectrum MMP-inhibitor ( $n = 7$ ) or with vehicle ( $n = 7$ ). After sacrificing the animals, samples of urine and liver were collected. The grade of steatosis was assessed according to Brunt's histology scoring system. MMPs were detected in urine with gelatinase zymography and in liver using in situ zymography. Genomic and proteomic analysis of liver-tissue was performed using PCR and Western Blotting respectively.

**Results:** Inhibition of MMPs prevents the development of NAFLD. Less MMP-activity was detectable in urine from MMP-inhibitor treated animals compared to vehicle-treated animals. In fatty livers, in situ zymography showed higher concentrations of MMPs located around fat-droplets and in the nucleus. Genomic and proteomic analysis of liver-tissue revealed alterations in expression of peroxisome proliferator activated receptor-α (PPAR-α) and sterol regulatory element binding protein (SREBP-1c).

**Conclusions:** MMPs are closely involved in the development of hepatic steatosis. Inhibition of these enzymes significantly reduces the manifestation of NAFLD, as shown by histology and in situ zymography. PCR and Western Blotting suggests alterations in levels of fatty acid oxidation and fatty acid synthesis.

## Transplantation, Organ preservation\_2 A135

### Sensitive forensic medicine methods allow to detect donor dna in recipient blood for years after kidney transplantation

Rutkowska Joanna<sup>1</sup>, Interewicz Bożenna<sup>2</sup>, Ginak Renata<sup>3</sup>, Rydzewski Andrzej<sup>4</sup>, Świętek Marta<sup>5</sup>, Dominiak Aleksandra<sup>6</sup>

<sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>4</sup>Department of Surgical Research & Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>5</sup>Central Clinical Hospital, Ministry of Internal Affairs, Warsaw, Poland, <sup>6</sup>Marek Durlak, Waldemar L. Olszewski (wlo@cmdik.pan.pl)

After organ transplantation passenger cells and cellular debris from ischemia and rejection damaged cells disseminate in recipient and in most part are being taken up by macrophages and dendritic cells (DC). The most important question is whether donor DNA may be incorporated into recipient cell genome in the process of the so called "illegitimate DNA incorporation" a frequent phenomenon in nature. A subsequent question would be the presumptive effect of donor DNA on the rejection process.

**Aim:** To search for donor DNA in recipient tissues and cells after allogeneic transplantation and immunosuppression. Materials. Recipient's blood samples were collected before and after kidney transplantation 1, 14, 28, 90, 180, 360 and 720 days and genomic DNA was isolated using Nucleospin kit (Macherey-Nagel). Quantification of DNA was performed in capillary cuvettes on GeneQuant (Amersham Pharmacia Biotech). The short tandem repeats analysis (STR) was applied. The investigated loci were: phospholipase A2-HUMPLA2A1(AAT)n, cytochrome P450 HUMCYARO(AAAT)n and D1S80. This type of analysis is used in forensic medicine.

**Results:** Donor cytochrome P450 or HUMPLA2 or D1S80 genes were detected in recipient blood cells up to 2 years after kidney transplantation. Positive results were observed in all investigated patients, 24hr after grafting in 3 out of 3 pts and in 4 out of 4 pts after 14 days, in 28 out of 28 after 28, in 2 out of 2 after 90, in 3 after 180, in 1 after 1 and in 2 out of 2 after 2 years. All patients remain under further follow-up.

**Conclusions:** Donor DNA can be detected in recipient blood cells 2 years after kidney transplantation. The question as to whether the detected donor DNA was contained in the surviving donor cells or in a form of apoptotic or necrotic bodies in recipient phagocytes or was incorporated into recipient cell genome remains to be answered. The role of donor DNA in recipient cells in rejection or acceptance is not clear, although we know from animal experiments that it is detected in recipient dendritic APCs (antigen presenting cells). Most recent study documents presence of donor DNA in nuclei of recipient APCs. The comparison of clinical course of transplant and level of donor DNA have so far not been carried out because of a low number of patients.

## Sepsis, Infection, Immunity\_2 A136

### Effects of ringer lactate, HAES %10 and HAES %10 + dimethylsulphoxide on free oxygen radicals in haemorrhagic shock

Sahin Mustafa<sup>1</sup>, Kafali Ertugrul<sup>2</sup>, Bayir Aysegül<sup>3</sup>, Ak Ahmet<sup>4</sup>

<sup>1</sup>Selcuk University, Meram Medical Faculty, Konya, Turkey, <sup>2</sup>Selcuk University, Meram Medical Faculty, Konya, Turkey, <sup>3</sup>Selcuk University, Meram Medical Faculty, Konya, Turkey, <sup>4</sup>Selcuk University, Meram Medical Faculty, Konya, Turkey (sahinmu@hotmail.com)

**Background:** The aim of this study was to investigate the effects of antioxidant and resuscitation fluids which were used during haemorrhagic shock on tissue ischemia.

**Methods:** Forty New Zealand type rabbits were divided into four groups as C (control), R(Ringer Lactate), H (HAES) and D (Dimethylsulphoxide-DMSO) + H (HAES). Haemorrhagic shock was induced by bleeding from carotid artery. Thirty minutes after shock, Group C was not resuscitated while Group R was resuscitated with Ringer Lactate, Group H with 10% HAES and Group D with HAES 10% and DMSO. Thiobarbituric acid reactive substances (TBARS) and lactate levels in blood, liver and small bowel samples were measured.

**Results:** There were no significant differences among the groups tissue and plasma TBARS and lactate levels. Other side there were significant differences with D Group and other groups.

**Conclusion:** Resuscitation fluids do not have any superiorities over each other to prevent tissue ischemic insult in haemorrhagic shock. But and addition of antioxidants to the resuscitation fluids give us positively results.

## Cardiovascular, Thoracic\_2 A137

### Evaluation of plasma and pericardial ghrelin levels in patients undergoing cardiac

Sax Balazs<sup>1</sup>, Nagy Andrea<sup>2</sup>, Turi Katalin<sup>3</sup>, Szabolcs Zoltan<sup>4</sup>, Cseh Karoly<sup>5</sup>, Kekesi Violetta<sup>6</sup>

<sup>1</sup>Department of Cardiology, Semmelweis University, Budapest, Hungary,

<sup>2</sup>Department of Cardiology, Semmelweis University, Budapest, Hungary,

<sup>3</sup>Department of Cardiology, Semmelweis University, Budapest, Hungary,

<sup>4</sup>Department of Cardiovascular Surgery, Semmelweis University, Budapest, Hungary, <sup>5</sup>Karolyi Hospital, Budapest, Hungary, <sup>6</sup>Department of Cardiology, Semmelweis University, Budapest, Hungary (sax@freemail.hu)

Ghrelin (GHR) is a newly discovered endocrine regulatory peptide which is mainly produced in the gastrointestinal tract. However, its production has recently been described in various tissues including the myocardium. The peptide was primarily known for releasing growth hormone and regulating food uptake, but remarkable cardioprotective and vasoactive effects have also been shown. Therefore, we aimed to characterize ghrelin concentrations in systemic (central venous plasma) and local (pericardial fluid, PF) samples of patients with ischemic (ISCH,  $n = 37$ , sex (m/f): 28/9, age:  $62 \pm 1$  year, BMI:  $28.7 \pm 0.6$  kg/m<sup>2</sup>) and valvular heart disease (VHD,  $n = 13$ , sex: 5/8, age:  $62 \pm 2$  year, BMI:  $25.6 \pm 1.2$  kg/m<sup>2</sup>), and to investigate their correlation with certain metabolic and cardiac parameters. Plasma and PF samples were collected intraoperatively; active (acylated, A) and total (T) GHR concentrations and insulin levels were measured with RIA and ELISA methods. According to our results, both A-GHR and T-GHR concentrations were found to be higher in the VHD group (mean  $\pm$  SEM:  $155 \pm 9$  versus  $127 \pm 4$  and  $850 \pm 26$  versus  $765 \pm 14$  pg/ml,  $p < 0.05$ ). However, the pericardial to plasma ratio of both A-GHR and T-GHR were significantly higher in the ISCH group ( $0.76 \pm 0.06$  versus  $1.04 \pm 0.06$  and  $0.94 \pm 0.02$  versus  $1.04 \pm 0.02$ ,  $p < 0.01$ ). In concordance with the literature, negative correlation was found between plasma T-GHR and BMI ( $r = -0.34$ ,  $p = 0.01$ ), and between plasma T-GHR and the carbohydrate metabolism index HOMA-A ( $r = -0.30$ ,  $p = 0.03$ ). Significant correlation was found between plasma A-GHR and right ventricular diameter (RVD) ( $r = 0.47$ ,  $p = 0.008$ ). Lower systemic GHR levels in the ISCH group is likely due to the higher BMI of these patients; however, the higher PF to plasma ratio of both GHR forms may refer to an increased local ghrelin production of the ischemic heart. The correlation of RVD and plasma A-GHR may reflect to a possible role of GHR in the regulation of the pulmonary vasculature.

## BJS A138

### Erythropoietin inhibits postischemic leukocyte adhesion in allogeneically transplanted mouse hearts without affecting coronary microcirculatory dysfunction

Schramm Rene<sup>1</sup>, Kirsch Sarah<sup>2</sup>, Schäfers Hans-Joachim<sup>3</sup>, Harder Yves<sup>4</sup>, Menger Michael-D<sup>5</sup>

<sup>1</sup>Department of Thoracic and Cardiovascular Surgery, University of Saarland,

Homburg/Saar, Germany, <sup>2</sup>Institute for Clinical and Experimental Surgery,

<sup>3</sup>Department of Thoracic and Cardiovascular Surgery, <sup>4</sup>Institute for Clinical

and Experimental Surgery, <sup>5</sup>Institute for Clinical and Experimental Surgery (reneschramm@hotmail.com)

This study was meant to analyze the effect of erythropoietin (Epo) on microcirculatory dysfunction and inflammation in murine cardiac allografts. Balb C mouse hearts were transplanted into C57BL/6 mice after 3-hour cold ischemia. Epo was given i.p. in recipients at 2 hours before reperfusion ( $n = 6$ ), while controls received saline only ( $n = 6$ ). The subepicardial microcirculation was assessed by intravital fluorescence microscopy (IVM) at 1, 3 and 6 hours of reperfusion. In controls, subepicardial capillary blood flow velocities and functional capillary densities (FCD) decreased during

reperfusion from  $0.34 \pm 0.04$  mm/s and  $351 \pm 73$  cm/cm<sup>2</sup> to  $0.30 \pm 0.01$  mm/s and  $239 \pm 41$  cm/cm<sup>2</sup>, however not significantly. Capillary diameters and venular blood flow characteristics showed no significant changes over time, ranging between 4.5 and 5.5  $\mu$ m as well as 0.76 and 0.96 mm/s. Epo-treatment had no effect on coronary microhemodynamics. Postischemic inflammation was characterized by augmented microvascular leakage ranging between 71 and 99% throughout the entire observation period. This was comparable between controls and Epo-treated mice. During reperfusion, control allografts showed decreasing numbers of rolling leukocytes and increasing numbers of firmly attached leukocytes from  $64 \pm 16$  cells/min and  $238 \pm 84$  cells/mm<sup>2</sup> to  $19 \pm 16$  cells/min and  $479 \pm 154$  cells/mm<sup>2</sup> ( $p > 0.05$ ). Capillary leukocyte plugging remained stationary over time in controls with  $5.7 \pm 0.4$  cells/HPF at 1 h and  $5.0 \pm 0.5$  cells/HPF at 6 h of reperfusion. Epo-treatment did not alter leukocyte rolling interactions. In contrast, firm leukocyte arrest in postcapillary venules was inhibited by Epo-treatment, resulting in  $84 \pm 34$  cells/mm<sup>2</sup> at 6 h of reperfusion ( $p < 0.05$ ). Epo-treatment also reduced capillary leukocyte plugging to  $3.6 \pm 0.3$ ,  $2.6 \pm 0.3$  and  $3.0 \pm 1.3$  cells/HPF at 1, 3 and 6 h of reperfusion ( $p < 0.05$ ). These are the first data on microcirculatory dysfunction and inflammation in murine cardiac allografts assessed by IVM. We demonstrate that non-hematopoietic treatment with Epo exerts anti-inflammatory effects, reducing leukocyte-coronary endothelium adhesive interactions, without affecting microhemodynamics.

## Transplantation, Organ preservation.1 A139

### Preservation of kidney grafts with the Airdrive, a novel disposable system for oxygenated perfusion of kidney and liver grafts

Schreinemachers Marie-Claire JM<sup>1</sup>, Doorschodt Benedict M<sup>2</sup>, Sitzia Mario<sup>3</sup>, van Gulik Thomas M<sup>4</sup>, Tolba Rene H<sup>5</sup>

<sup>1</sup>Department of Surgery, Surgical Laboratory, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands, <sup>2</sup>Department of Surgery, Surgical Laboratory, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands, <sup>3</sup>House of Experimental Therapy, University Clinic of Bonn, Bonn, Germany, <sup>4</sup>Department of Surgery, Surgical Laboratory, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands, <sup>5</sup>House of Experimental Therapy, University Clinic of Bonn, Bonn, Germany (m.c.schreinemachers@amc.uva.nl)

**Body:** Recently a disposable, low cost machine perfusion (MP) system for the preservation of kidney and liver grafts has been developed, named the Airdrive (AD). This air-pressure driven hypothermic perfusion system allows for oxygenated MP during the entire preservation period. The aim of the study was to assess MP preservation with the Airdrive using the low-viscosity perfusion solution, Polysol. As controls, kidney grafts were cold stored using the University of Wisconsin (UW) or Polysol solution (PS).

**Methods:** German Landrace pigs (18–32 kg) underwent left nephrectomy. The kidneys were thereafter flushed with either UW ( $n = 6$ ) or PS ( $n = 6$ ) followed by 20 hr CS using UW or PS, respectively. Machine perfused kidneys were flushed using PS followed by 20 hr of MP ( $n = 6$ ). Pulsatile perfusion was performed with a mean arterial pressure of 25 mmHg at a temperature of 2–6 °C. After preservation all preserved kidneys were autotransplanted and the contralateral kidneys removed. Renal function was assessed daily. Seven days posttransplant, animals were sacrificed and the kidney grafts removed for histological analysis.

**Results:** All animals survived for 7 days. Overall, an improved recovery of renal function was seen in both the PS AD group and the PS CS group compared to the UW CS group. Also, peak creatinine and peak urea values were lower in PS preserved grafts, for both MP and CS (peak creatinine, PS AD:  $3.58 \pm 0.81$ , PS CS:  $4.79 \pm 0.59$ , UW CS:  $13.01 \pm 2.86$  mg/dl,  $p = 0.003$ , and peak urea, PS AD:  $67.2 \pm 10.7$ , PS CS:  $81.5 \pm 14.3$ , UW CS:  $225.8 \pm 60.2$  mg/dl,  $p = 0.013$ ). Mean posttransplant creatinine clearance rates were numerically higher in the PS AD and PS CS groups at all timepoints with significant differences at posttransplant days 2 and 7 (Creatinine clearance at day 7 (ml/min): PS AD:  $33.4 \pm 2.1$ , PS CS:  $33.1 \pm 2.7$ , UW CS:  $12.3 \pm 8.7$ ,  $p = 0.021$ ). Glomerular damage and tubular injury were less pronounced in the machine perfused grafts compared to the cold stored grafts.

**Conclusions:** Renal function after 20 hr of preservation was significantly improved with the recently developed Airdrive perfusion preservation system

and Polysol perfusion solution compared to UW solution in a large animal model. Structural integrity was better preserved using oxygenated pulsatile perfusion compared to static cold storage.

## BJS A140

### Recovery of non-heart-beating donor kidneys using the Airdrive disposable perfusion system for oxygenated pulsatile perfusion; preliminary results

Schreinemachers Marie-Claire JM<sup>1</sup>, Doorschodt Benedict M<sup>2</sup>, Idu Mirza M<sup>3</sup>, Tolba Rene H<sup>4</sup>, van Gulik Thomas M<sup>5</sup>

<sup>1</sup>Department of Surgery, Surgical Laboratory, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands, <sup>2</sup>Department of Surgery, Surgical Laboratory, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands, <sup>3</sup>Department of Surgery, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands, <sup>4</sup>House of Experimental Therapy, University Clinic of Bonn, Bonn, Germany, <sup>5</sup>Department of Surgery, Surgical Laboratory, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands (m.c.schreinemachers@amc.uva.nl)

**Purpose:** We assessed the efficacy of the Airdrive, a disposable air-pressure driven hypothermic perfusion system in combination with Polysol, a low-viscosity perfusion solution, for the preservation of non-heart-beating-donor (NHBD) kidney grafts in a porcine autotransplantation model.

**Background data:** The gold standard for the preservation of NHBD kidneys is cold storage (CS) using HTK solution. Hypothermic machine perfusion (MP) has proven to be highly beneficial in the preservation of NHBD kidneys. Recently, a disposable perfusion system for oxygenated preservation of kidney and liver grafts has been developed, the Airdrive (AD). For use with the AD a low-viscosity perfusion solution was developed, Polysol (PS).

**Methods:** Pigs (24–30 kg) underwent left nephrectomy after clamping the renal artery for 30 minutes. Kidney grafts were washed out with PS ( $n = 6$ ) or HTK ( $n = 6$ ) and stored for 20 hr at 4 °C (CS) or washed out with PS and perfused in the AD ( $n = 3$ ) for 20 hr using PS. Pulsatile perfusion was performed with a mean arterial pressure of 20 mmHg at a temperature of 2–6 °C. After the preservation period, the preserved kidney was heterotopically transplanted and the contralateral kidney removed. As controls, pigs underwent uninephrectomy ( $n = 4$ ). Renal function was assessed daily for seven days. Seven days posttransplant, animals were sacrificed and the kidney grafts removed.

**Results:** All animals survived for 7 days. Overall, the PS AD group showed improved renal function compared to both HTK and PS CS groups (creatinine, area under the curve,  $p < 0.001$  and  $p < 0.05$ , respectively). Four days after transplantation, serum creatinine and blood urea levels of PS AD preserved grafts were comparable to controls ( $p = 0.360$ ). Peak-creatinine and peak-urea values were lower in both PS AD and PS CS preserved grafts compared to HTK CS. All PS AD and PS CS preserved grafts showed immediate function, as demonstrated by urine production directly after reperfusion as compared to only 1 graft in the HTK CS group.

**Conclusion:** Perfusion preservation of warm ischemically damaged porcine kidney grafts using the Airdrive MP system with Polysol results in improved preservation quality compared to CS using HTK or Polysol and even in complete functional recovery equal to the controls.

## Transplantation, Organ preservation.1 A141

### Gaseous oxygen persufflation as a convenient alternative to hypothermic machine perfusion for the curative preservation of marginal/predamaged donor livers

Schuppius Andrea<sup>1</sup>, Thomas Thomas<sup>2</sup>

<sup>1</sup>Surgical Research Div., Univ. Hospital Bonn, Germany, <sup>2</sup>Surgical Research Division University Clinic of Surgery Sigmund Freud Str. 25 D-53127 Bonn, Germany (tminor@uni-bonn.de)

**Background:** Recently the endoplasmic reticulum(ER) has been disclosed as subcellular target reactive to ischemia/reperfusion, and possibly enhanced by



hypothermic machine preservation. Here, the respective role of perfusate composition and/or the effect of continuous oxygenation to trigger ER-stress in the graft should be investigated.

**Methods:** Livers were retrieved 30min after cardiac arrest of male Wistar rats and preserved by cold storage(CS) in HTK for 18h at 4°C. Other organs were subjected to aerobic conditions either by oxygenated machine perfusion with HTK(MP-HTK) or Belzer solution(MP-Belzer) at 4°C or by venous insufflation of gaseous oxygen during cold storage(VSOP). Viability of livers was evaluated upon reperfusion in vitro according to previously validated techniques for 120 min at 37°C.

**Results:** Oxygenation during preservation(MP-HTK, MP-Belzer or VSOP) concordantly improved functional recovery(bile flow, ammonia clearance) and reduced parenchymal enzyme leakage and histological signs of necrosis. However, MP with either medium produced about 500% elevated protein expression of CHOP/GADD153, suggesting pro-apoptotic ER-stress responses, paralleled by a significant elevation of enzyme activity of the ER-resident Caspase-12, compared to CS. Although MP also promoted a slight(20%) induction of the cytoprotective ER-protein BI-1, prevailing of proapoptotic reactions after ER-stress was suggested by increased cleavage of caspase-3 and PARP in both MP-groups. By contrast, VSOP did neither promote induction of GADD153, BI-1 or caspase 12 activation nor result in cleavage of caspase 3 or PARP as compared to CS.

**Conclusions:** ER-stress is conjectured a specific side effect of long-term oxygenated machine perfusion irrespective of the medium used and actually promotes cellular apoptosis, probably via activation of caspase-12. The simple insufflation of gaseous O<sub>2</sub> may be considered a feasible alternative for long term conditioning of marginal liver grafts, which is apparently indifferent to the endoplasmic reticulum.

## Unusual observations, strange ideas A142

### Isolated primary breast tuberculosis -report of three cases

Şen Meral<sup>1</sup>, görpelioglu canan<sup>2</sup>, özol duygu<sup>3</sup>, bozer mikdat<sup>4</sup>

<sup>1</sup>Fatih University School of Medicine, Department of General Surgery Ankara, Türkiye, <sup>2</sup>Assistant Prof. Dr., Fatih University School of Medicine, Department of Dermatology Ankara, Türkiye, <sup>3</sup>Associated Prof. Dr., Fatih University School of Medicine, Department of Pulmonology, Ankara, Türkiye, <sup>4</sup>Associated Prof. Dr., Fatih University School of Medicine, Department of General Surgery Ankara, Türkiye (drmeralsen@yahoo.com)

Tuberculosis (TB) continues to be an important reason of mortality and morbidity due to spread of HIV infection, increased number of multidrug resistant cases, absence of new, effective drug and vaccine. Sometimes TB cases present atypically and sometimes with predominant extrapulmonary manifestations that result in delays in diagnosis and treatment. Nearly 18% of TB cases have only extrapulmonary manifestations and incidence of breast TB, is less than 0.1% in western countries and 3–4.4% in developing world. As breast TB is a very rare disease, high level of suspicion is the corner stone for the diagnosis. Breast TB might mimic other diseases clinically and radiologically, so we would like to present these cases to mention that mammary tuberculosis should be included in the differential diagnosis of breast lesions like breast carcinoma, persistent breast abscess and infectious pattern with fistulizations, especially for patients from high risk populations and endemic regions. In this report we presented three patients with breast tuberculosis. All of our three female patients were in reproductive age and presented with multiple painful breast masses. In all cases, the diagnosis of breast TB was confirmed by histopathologic evaluation at the time of open surgical biopsy. Antituberculous chemotherapy with four drugs, initiated immediately upon diagnosis and cure had been obtained at the end of sixth month.

## Plastic\_2 A143

### Delayed Sentinel Lymph Node Biopsy in melanoma patients with clinically negative lymphadenopathy

Shah Amit<sup>1</sup>, Azzawi Khayam<sup>2</sup>

<sup>1</sup>University of Cambridge, UK, <sup>2</sup>University of Cambridge (kbl31@cam.ac.uk)

The sentinel node is the first lymph node (or nodes) that drains a primary tumor. The new therapeutic protocols for malignant melanoma (MM) recommend an upgraded assessment of the individual risk to develop metastases. SLN status is the most important factor proven to distinguish high and low risk melanoma patients. In cases of MM, sentinel lymph node biopsy (SLNB) is already being used to determine the nodal basin status to avoid unnecessary regional lymph node dissection in node-negative MM patients. SLNBs also help to more accurately classify the stage of the disease. So far SLNB seems to be the only accessible method for consciously oriented detection of nodal micro-metastases in MM. The ongoing MCRI/MSG SLNB study currently excludes patients who have had their primary melanoma excision outside of a ninety day window from SLNB. This is based on the assumption that in these patients the area represented by the sentinel node “lymphangiosome” has been transgressed making SLNB non-representative of the “true” sentinel node”. The study was done in a series of melanoma patients with clinically negative lymphadenopathy from one plastic surgery center. The purpose of this prospective study of SLNB is to estimate the need for this procedure even if the patient returns a few years on from the primary excision of MM. We report here 6 cases of Stage II malignant melanoma who underwent delayed SLNB. All the cases were performed more than 3 years (mean 3.8 years) after the wide local excision of the primary cutaneous malignant melanoma. These patients requested SLNB out of concern and anxiety over the possibility of residual disease. All cases underwent preoperative lymphoscintigraphy combined with intraoperative vital blue dye technique. The sentinel lymph node(s) was successfully identified in all of the patients. SLN micrometastasis was detected in 2 out of the 6 patients. These 2 cases were subsequently upstaged to Stage III and went on to have clearance lymphadenectomies of the involved nodal basin. In both cases the clearance specimens did not reveal any further metastatic disease. All 6 patients remain disease free to date. The duration of time elapsed since the primary surgery in malignant melanoma does not seem to affect the accuracy of SLNB at detecting the sentinel node of that “lymphangiosome”. Although identification of sentinel lymph node(s) (SLN) has become acceptable in the care of the malignant melanoma patient following on from the initial diagnosis this study asks the question whether we should also be performing delayed sentinel lymph node biopsy on malignant melanoma patients of a certain Breslow depth years after the primary diagnosis.

## Plastic\_2 A144

### Assessment of the influence of vomer flap surgery on maxillary growth in the infant cleft population

Shah Amit<sup>1</sup>, Azzawi Khayam<sup>2</sup>, Ahmad Tariq<sup>3</sup>

<sup>1</sup>University of Cambridge, UK, <sup>2</sup>University of Cambridge, <sup>3</sup>University of Cambridge (as329@hotmail.com)

**Background:** Vomer flap (VF) procedure is a controversial type of palatoplasty surgery that uses the mucoperiosteal tissue of the vomer to cover a cleft hard palate. The controversy is related to the argument that vomer flap surgery possibly interferes with mid-facial growth. However, there have been no studies to date documenting actual long-term growth problems. Moreover, the aetiology, if any, of this effect is not clear. Aim:-To study the influence of the vomer flap in primary repair of complete cleft lip and palate on maxillary growth using dental impressions.

**Methods:** A retrospective study, using an objective reproducible method of comparison, by way of dental impressions. All children included in the study had complete cleft lip and palate which was subsequently surgically repaired. Each child had two dental impressions, one pre-and one post-operatively. Each child was randomly assigned to one of two groups, those treated with the vomer flap procedure and those treated by alternative methods of surgical correction. Suitable comparable measurements of the dimensions of the dental impression—intertuberosity distance, antero-posterior distance, depth, and cleft gap—were taken.

**Results:** The only measurement that showed a significant difference between the two groups was the anteroposterior distance. Those children who had undergone the VF procedure had significantly shorter mid-facial lengths when compared to those children who had had alternative corrective surgery.

**Conclusion:** The vomer flap procedure could have an adverse affect on maxillary growth. Furthermore, this affect seems to be related to the orientation of the resultant scar.

## Plastic.1 A145

### An innovative technique of revision breast reconstruction with the pedicled latissimus dorsi flap

Shah Amit<sup>1</sup>, Azzawi Khayam<sup>2</sup>, Irwin Michael<sup>3</sup>

<sup>1</sup>University of Cambridge, UK, <sup>2</sup>University of Cambridge, <sup>3</sup>University of Cambridge (as329@hotmail.com)

Breast reconstruction utilising the pedicled myocutaneous latissimus dorsi (LD) flap is a method of reconstruction acceptable to many patients. We present two cases of immediate breast reconstruction of a partial breast defect with an LD flap who subsequently required completion mastectomy and further reconstruction re-using the same flap. The revision breast reconstruction is described at the time of completion mastectomy with repositioning and medial advancement of the LD flap and expandable implant insertion. Advantages include utilisation of the same flap without recourse to further tissue harvest and an elegant means of reconstruction producing an aesthetic result whilst achieving the primary goal of tumour excision. We believe these two cases illustrate an innovative method of revision breast reconstruction for tumour recurrence.

## Cardiovascular, Thoracic.1 A146

### Early Carotid Endarterectomy for Critical Carotid Artery Stenosis After Thrombolysis Therapy in Acute Ischaemic Stroke

Siddiqui Tamim<sup>1</sup>, Parnaby Craig<sup>2</sup>, Muir Keith<sup>3</sup>, Stuart Wesley<sup>4</sup>

<sup>1</sup>Southern General Hospital, Glasgow, UK, <sup>2</sup>Southern General Hospital, Glasgow, <sup>3</sup>Southern General Hospital, Glasgow, <sup>4</sup>Southern General Hospital, Glasgow (tamim.s@btmail.co.uk)

**Objective:** Recombinant tissue plasminogen activator (rt-PA) reduces rates of death and dependence when given within 3 hours of acute ischemic stroke. To date the Southern General Hospital Stroke Unit has treated 200 acute stroke patients with IV rt-PA. Following successful treatment, management of the underlying cause of stroke is required, including, occasionally, early carotid endarterectomy (CEA). There are potential areas of concern in these high risk patients, including risks of bleeding, loose embolic material at the carotid stenosis site rendered more fragile by rt-PA and the instability of the patients' neurological state following acute stroke. We elected to examine our experience before continuing to offer early CEA. This paper describes 4 patients who underwent early (< 96 hours) CEA for residual high-grade cervical carotid stenosis after thrombolytic therapy for acute ischaemic stroke.

**Methods:** Four patients underwent early (< 96 hours) CEA for residual high-grade cervical carotid stenosis, after thrombolytic therapy for acute ischaemic stroke. These cases were reviewed to identify adverse events and potential contra-indications to early surgery.

**Results:** All 4 underwent successful CEA under local anaesthetic. One patient required intra-operative shunting. One patient required further surgery for bleeding from the anastomotic suture line. One patient was treated with intravenous dextran therapy and urgent CT angiography because of a single post operative transient ischaemic attack. At discharge, none of the patients had suffered a clinical deterioration of their neurological status.

**Conclusion:** We believe it is safe to perform early CEA (< 96 hours) in patients treated with IV rt-PA for acute stroke. The major concerns regarding surgery in this group include increased risk of bleeding, increased chance of clot at the carotid stenosis site rendered more fragile by rt-PA and the instability of the patients' cerebrovascular state post acute stroke. The benefit of CEA in reducing the risk of recurrent stroke or carotid occlusion in these patients outweighs the risk of complications from early surgery.

## Hepatobiliary.2 A147

### Hydrogen sulfide mediates the hepatic arterial buffer response in rats

Siebert Nikolai<sup>1</sup>, Eipel Christian<sup>2</sup>, Vollmar Brigitte<sup>3</sup>

<sup>1</sup>Institute for Experimental Surgery University of Rostock Rostock, Germany, <sup>2</sup>Institute for Experimental Surgery University of Rostock Rostock, Germany, <sup>3</sup>Institute for Experimental Surgery University of Rostock Rostock, Germany (nikolai.siebert@uni-rostock.de)

**Background:** Hepatic blood supply is uniquely regulated by the hepatic arterial buffer response (HABR), counteracting alterations of portal venous blood flow by flow changes of the hepatic artery. Most recently H<sub>2</sub>S has been recognized as a novel signalling molecule with vasoactive properties. The present study evaluated whether and to what extent H<sub>2</sub>S mediates the HABR.

**Methods:** In pentobarbital-anesthetized and laparotomized rats, flow probes around the portal vein and hepatic artery allowed for assessment of the portal venous (PVBF) and hepatic arterial blood flow (HABF). Standardized reduction of PVBF was induced via tourniquet of the A. mes. sup. In each animal, values for PVBF and HABF were assessed under both baseline conditions and stepwise tourniquet of the A. mes. sup. for induction of HABR. Three groups of animals were studied: (i) animals, which received a continuous infusion of the H<sub>2</sub>S donor Na<sub>2</sub>S (150 µmol/kg-h iv, n = 7); (ii) animals, which received a bolus injection of DL-propargylglycine (PAG), i.e. an inhibitor of the H<sub>2</sub>S synthesising enzyme cystathionine-γ-lyase (100 mg/kg iv, n = 9) followed by continuous infusion of saline and (iii) animals with continuous infusion of saline (control, n = 7).

**Results:** Under baseline conditions, HABF and PVBF averaged 2.0 ± 0.1 ml/min and 18.6 ± 1.1 ml/min without significant differences among animals of the three experimental groups. Na<sub>2</sub>S administration markedly increased the buffer capacity, i.e. the ratio of change in HABF and PVBF with a mean value of 22.2 ± 3.4%, when compared to the saline-treated controls (15.3 ± 2.3%). In contrast, blockade of H<sub>2</sub>S formation by application of PAG reduced the buffer capacity towards 8.1 ± 1.5%. In all three groups mean arterial blood pressure and heart rate remained unchanged throughout the experiments (range: 103–126 mmHg and 318–420/min).

**Conclusion:** Herein, we show for the first time that H<sub>2</sub>S contributes to the HABR and partly mediates the vasodilative response of the hepatic artery.

## BJS A148

### The effect of ischaemic postconditioning on the reperfusion injury in aorto-bifemoral bypass surgery

Sínay Laszlo<sup>1</sup>, Arato Endre<sup>2</sup>, Masoud Shafiei<sup>3</sup>, Kollar Lajos<sup>4</sup>, Roth Erzsebet<sup>5</sup>, Jancso Gabor<sup>6</sup>

<sup>1</sup>University of Pecs Medical School, Department of General and Vascular Surgery, Pecs, Hungary, <sup>2</sup>University of Pecs Medical School, Department of General and Vascular Surgery, <sup>3</sup>University of Pecs Medical School, Department of General and Vascular Surgery, <sup>4</sup>University of Pecs Medical School, Department of General and Vascular Surgery, <sup>5</sup>University of Pecs Medical School, Department of Surgical Research and Techniques, <sup>6</sup>University of Pecs Medical School, Department of Surgical Research and Techniques (sinayl@vipmail.hu)

**Introduction:** During aorto-bifemoral bypass (ABP) surgery due to cross-clamping of the aorta a mass of peripheral skeletal muscle is suffering from ischaemic-reperfusion injury (IRI). IRI induces oxidative stress and inflammatory response with leukocyte activation. Ischaemic postconditioning was described as very potent and simple method for reducing reperfusion injury in experimental cardiac model.

**Aims:** In our study we aimed to examine the protective effect of ischaemic postconditioning on IRI in aorto-bifemoral bypass surgery.

**Materials and Methods:** 20 patients, underwent an ABP surgery, were examined in prospective randomized study. Patients were divided in two groups. In 1st group (control) patients (10) underwent traditional ABP operation. In group 2 (10 patients), we made ischaemic postconditioning with a 60 sec re-clamping of the graft after the first 60 sec of reperfusion. Peripheral blood samples were collected in preoperative period, and after reperfusion in the 2nd and 24th hours, and on 7th day. For monitoring cellular oxidative stress plasma

superoxide-dismutase (SOD) activity, reduced glutathion (GSH) concentration, and total thiol (SH) group concentration were measured. The degree of lipidperoxidation was marked with quantity of malondialdehyde (MDA). For characterize inflammatory response plasma myeloperoxidase (MPO) level, leukocytes free radical production, and expressions of leukocyte adhesion molecules (CD18, CD11a) were measured.

**Results:** Our results showed a reduced oxidative stress in the early postoperative phase (2nd and 24th hour) with a smaller elevation of MDA ( $p < 0,05$ ), and a less depletion of antioxidant systems (SOD, GSH, SH) in postconditioned group. Plasma MPO ( $p < 0,05$ ), CD18 and CD11a levels were continuously lower ( $p < 0,05$ ) in postconditioned group than in control.

**Conclusions:** Our results suggest that ischaemic postconditioning had protective effect against IRI in human aorto-bifemoral bypass surgery. Ischaemic postconditioning might be effective tool in vascular surgery for reducing the ischaemic reperfusion trauma. Supported by OTKA K67731, K48851, K60227 grants.

## Orthopedic\_2 A149

### Four Strands Repair of FDP to Bone: A totally internal technique without a pull out suture: A cadaveric dissection study and bio-mechanical analysis of tendon to bone repair strength

Sinha Manish<sup>1</sup>, Wearing Scott<sup>2</sup>, Nicol Ac<sup>3</sup>, Vijn Vik<sup>4</sup>

<sup>1</sup>Canniesburn Plastic Surgery Unit Glasgow, UK, <sup>2</sup>wolfson bioengineering unit strathclyde university glasgow, <sup>3</sup>wolfson bioengineering unit strathclyde university glasgow, <sup>4</sup>selly oak hospital birmingham (drmanish@hotmail.com)

**Aims:** To describe the new technique of four strand repair of FDP tendon-to-bone, it's cadaveric dissection study and biomechanical analysis of tendon-to-bone repair strength.

**Method:** The method is presented by photographs and a video. Ten cadaveric finger dissections were studied after repair. The tendon-to-bone repair was submitted to distraction on an Instron machine to determine the strength of the repair as compared to a four strand button tie-over repair in twenty fingers.

**Results:** Ten cadaveric fingers were repaired and assessed. All neurovascular bundles were found to be intact. The repair was assessed as 'satisfactory' in 6/10 and 'anatomically accurate' in 4/10. In 5/10 fingers, a branch of digital artery at the trifurcation was found to enter the pulp obliquely and all were intact. The detailed results of the strength of the repair are to be presented.

**Conclusion:** Totally internal tendon-to-bone repair with four or more strands is anatomically safe, causes no injury to the neurovascular bundles and yields a satisfactory repair. Biomechanical testing of repair strength is also presented.

## Orthopedic\_2 A150

### Totally internal technique of re-attachment of FDP without a pull out suture: A cadaveric dissection study and bio-mechanical analysis of tendon to bone repair

Sinha Manish<sup>1</sup>, Wearing Scott<sup>2</sup>, Nicol A C<sup>3</sup>, Vijn Vik<sup>4</sup>

<sup>1</sup>Canniesburn Plastic Surgery Unit Glasgow, UK, <sup>2</sup>wolfson bioengineering unit. strathclyde university glasgow, <sup>3</sup>wolfson bioengineering unit. strathclyde university glasgow, <sup>4</sup>selly oak hospital birmingham (drmanish@hotmail.com)

**Aims:** To describe the new technique of FDP reinsertion, it's cadaveric dissection study and biomechanical analysis of tendon-to-bone repair strength.

**Method:** Ten cadaveric finger dissections were studied after repair. The tendon-to-bone repair was submitted to distraction on an Instron machine to determine the strength of the repair as compared to a button tie-over repair in twenty fingers.

**Results:** All neurovascular bundles were found to be intact. In 7/10 fingers, a branch of digital artery at the trifurcation was found to enter the pulp obliquely and all were intact. The repair was assessed as 'anatomically accurate' in 7/10 and satisfactory in 3/10. The detailed results of the strength of the repair are to be presented.

**Conclusion:** The new technique is anatomically safe, causes no injury to the neurovascular bundles and produces an anatomically correct totally internal

tendon-to-bone repair. With no pull out sutures, repair is splinted during the collagen restructuring maintaining its tensile strength. Biomechanical testing of repair strength is also presented.

## Plastic\_1 A151

### Adaptation of the Hall-Findlay's technique for simultaneous contra-lateral reduction in delayed breast reconstruction with extended latissimus dorsi flap

Sinha Manish<sup>1</sup>, longhi paolo<sup>2</sup>, serra paola<sup>3</sup>

<sup>1</sup>Department of Plastic Surgery. Selly Oak Hospital, UK (drmanish@hotmail.com)

**Introduction:** In the past we have presented our independent results with Hall-Findlay's-technique. We now present our experience with adapting this technique for simultaneous contra-lateral breast-reduction in ELD flap breast-reconstruction.

**Method:** 23 consecutive patients underwent simultaneous contra-lateral balancing reduction. The modifications consisted of wider upper pole reduction with smaller thinner pedicle reducing the projection.

**Results:** All patients had an uneventful recovery with no haematoma, infection or seroma. 2 patients (8-69%) wished further reduction and 1 (4-34%) required dog ear revision.

**Conclusion:** The technique combines the safety of the supero-medial pedicle with advantages of a vertical scar in a quick but safe manner ensuring adequate resection and sound healing with less scars and faster recovery for the patient. The modifications allow the reduction of the contra-lateral breast with a lower projection to match the ELD reconstruction Superior aesthetic results are achieved with this approach because the corrected opposite breast becomes the model for the reconstruction rather than the corollary. We have found the modified technique to be reliable and versatile with a shorter operative and recovery time adding minimal morbidity of simultaneous contra-lateral reduction and effectively reducing the need of a delayed balancing reduction.

## Gastrointestinal\_1 A152

### Apoptotic signaling pathways respond to preoperative enteral nutrition

Ślotwiński Robert<sup>1</sup>, Olszewski Waldemar L<sup>2</sup>, Lech Gustaw<sup>3</sup>, Ślodkaowski Maciej<sup>4</sup>, Zaleska Marzanna<sup>5</sup>, Kędziora Sylwia<sup>6</sup>

<sup>1</sup>Dept. of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Dept. of Immunology and Nutrition, Medical University, Warsaw, Poland, <sup>3</sup>Dept. of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>4</sup>Dept. of General, Gastrointestinal Surgery and Nutrition, Medical University, Warsaw, Poland, <sup>5</sup>Dept. of Conservative Dentistry Medical University, Warsaw, Poland, <sup>6</sup>Dept. of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>6</sup>Ślotwińska Sylwia, Włuka Anna, Domaszewska Anna, Wójcik Zdzisław, Wojciech I. Krasnodębski (robert.slotwinski@yahoo.com)

The present study examined the effect of enteral nutrition and major surgical trauma on the apoptotic signaling pathways (Bcl-2, Bax, caspase 3, 6, 9, NF, PARP 1, TNFR1/CD120a and CD95/Fas expressions assessed by Western-blot and flow cytometry) of peripheral blood lymphocytes in pancreatic cancer patients. The prospective, randomized studies were performed in 29 patients with pancreatic cancer after pancreaticoduodenectomy with and without preoperative enteral standard or enteral immunonutrition. Ten healthy volunteers were subjected to the control group. Blood samples were collected before surgery and on day 1, 3, 7 thereafter. In the whole group of patients before and after surgery the expressions of Bcl-2, Bax and PARP were markedly higher as compared with NF, caspase 3, 6, 9 and TNFR1. Preoperative enteral immunonutrition increased Bcl-2, NFB and decreased Bax or caspases (3, 6, 9) expressions after pancreatic surgery. In pancreatic cancer patients the preoperative percentage of CD95 + cells (CD95 + /CD3- and CD95 + /CD3 + subsets) was significantly higher ( $11.4 \pm 9$  versus  $3.6 \pm 2\%$ ,  $p = 0.02$  and  $55.2 \pm 9$  versus  $41.6 \pm 13.4$ ,  $p = 0.01$  respectively) in comparison with control group. There was a significant down-regulation of Bcl-2 expression on



day 1 after surgery ( $95.7 \pm 4$  versus  $92.7 \pm 6\%$ ,  $p = 0.002$ ), but insignificant in patients with preoperative immunonutrition. In conclusion, results of our study suggest that preoperative enteral nutrition has an modulative effect on apoptotic signaling pathways after pancreas resection and possesses anti-apoptotic properties. In majority of patients changes in signaling cascades of peripheral blood lymphocytes involved CD95 receptor-mediated extrinsic and mitochondrial-mediated Bcl-2 intrinsic pathways.

## BRENDEL A153

### Erythropoietin in skin wound healing: is less more?

Sorg Heiko<sup>1</sup>, Krueger Christian<sup>2</sup>, Schulz Torsten<sup>3</sup>, Vollmar Brigitte<sup>4</sup>

<sup>1</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,

<sup>2</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,

<sup>3</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,

<sup>4</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany (beiko.sorg@med.uni-rostock.de)

Erythropoietin (EPO) is reported to act as a pleiotropic substance. Because skin wound healing depends on well-balanced cellular interactions, the present study aimed to determine the impact of EPO on dermal regeneration. A full dermal thickness wound was created in skin fold chambers of hairless SKH1-mice. Animals received daily either low dose EPO (LD-EPO; 400 U/kgxd), high dose EPO (HD-EPO; 5.000 U/kgxd) or at the day of wounding a single EPO-boost (EPO-boost; 5.000 U/kg). Additional animals were given the pan-caspase inhibitor zVAD-fmk to specify as to whether EPO affects wound healing by its anti-apoptotic properties. Using intravital microscopy wound re-epithelialization and microhemodynamic parameters were analyzed over 12 days. Skin regeneration was characterized by histology. In-vitro assays assessed the effects of EPO on cellular functions. Wounds of animals treated with an EPO-boost showed a significant increase of re-epithelialization when compared to saline-controls and HD-EPO. Kinetics of neovascularization within the wounds of LD-EPO and EPO-boost were similar to controls, while HD-EPO exhibited newly formed vascular networks with higher vessel density and an expansion in vessel-caliber over time, implying a failure in vessel maturation. Interference of wound tissue maturation was further supported by an increased cellularity in wound-tissue specimen of HD-EPO-animals, indicating a delay in the resolution of the early granulation tissue. As zVAD-treatment showed some comparable effects as HD-EPO, anti-apoptotic mechanisms of EPO might account for the delay in skin wound regeneration. In-vitro cell assays showed an enhanced rate of migration and proliferation in fibroblasts and keratinocytes which were treated with continuous low dose or a single EPO-dose, whereas treatment with high dose EPO presented with a marked loss of cellular functions. Continuous LD-EPO but especially single EPO-boost could be of great benefit for damaged skin resulting in a fast and functional dermal regeneration. Repetitive HD-EPO-administration impairs wound healing and must therefore be carefully considered if there is need for cutaneous regeneration.

## Cardiovascular, Thoracic\_2 A154

### Hydrogen sulfide (H2S) delays microvascular thrombus formation by inhibiting platelet P-selectin expression

Sorg Heiko<sup>1</sup>, Hoffmann Julius O<sup>2</sup>, Vollmar Brigitte<sup>3</sup>

<sup>1</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,

<sup>2</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany,

<sup>3</sup>Institute for Experimental Surgery, University of Rostock, Rostock, Germany (beiko.sorg@med.uni-rostock.de)

Hydrogen sulfide (H2S) plays an important role as signalling molecule in vascular biology and is increasingly recognized for its anti-inflammatory and anti-adhesive properties. Since there is considerable evidence for inflammation predisposing to blood clotting, we studied the effect of H2S on platelets in vitro and on vessel occlusion in vivo. In a light/dye-injury model of microvascular thrombosis in the ear of the hairless mouse, kinetics of thrombus formation

in venules were quantitatively assessed by 50% vessel diameter reduction and complete vessel occlusion (CVO) using intravital fluorescence microscopy. Animals received either a continuous intravenous infusion of a H2S-donor (Na2S; 15 µmol/kg/h;  $n = 7$ ) or a single intravenous bolus of a H2S-inhibitor (propargylglycine (PAG); 100 mg/kg;  $n = 7$ ). Control animals received equivalent volumes of physiologic saline ( $n = 10$ ). Flow cytometry was used to evaluate the effect of H2S on TRAP (thrombin receptor activating peptide)-induced human platelet activation. In Na2S-pretreated animals venular thrombus formation was significantly delayed (CVO:  $726 \pm 66$  s;  $p < 0.001$ ) as compared to saline-controls ( $552 \pm 24$  s), while application of the H2S-inhibitor PAG significantly ( $p < 0.001$ ) accelerated thrombus kinetics ( $346 \pm 21$  s) as compared to both other groups. Moreover, persistent venular patency upon continuous epi-illumination was found in 50% of all vessels studied in Na2S-treated animals, while saline- and PAG-administration could not prevent vessel occlusion at all (0% patency). Concomitantly, bleeding time was markedly prolonged in Na2S-versus control- and PAG-animals. TRAP-induced platelet P-selectin expression ( $70 \pm 18\%$ ), as assessed by flow cytometry, was almost completely abolished by concomitant Na2S-exposure ( $8 \pm 5\%$ ), whereas PAG slightly enhanced the fraction of P-selectin expressing platelets ( $72 \pm 21\%$ ). Our results clearly demonstrate that H2S effectively prevents venular thrombus formation. This antithrombotic effect is associated with a downregulation of P-selectin expression on platelets. In summary, application of H2S-donors could represent a potential preventive strategy in diseases associated with thromboembolism.

## BRENDEL A155

### Vitamin B6 as an effective chemopreventive agent against colorectal cancer – experimental study based on Azoxymethane induced carcinogenesis in F344 rats

Spychalski Michał<sup>1</sup>, Dzik Łukasz<sup>2</sup>, Buczyński Jarosław<sup>3</sup>, Kulig Andrzej<sup>4</sup>, Sporny Stanisław<sup>5</sup>, Dzik Adam<sup>6</sup>

<sup>1</sup>Department of General and Colorectal Surgery, Medical University of Lodz, Poland,

<sup>2</sup>Department of General and Colorectal Surgery, Medical University of Lodz, Poland,

<sup>3</sup>Department of General and Colorectal Surgery, Medical University of Lodz,

Poland, <sup>4</sup>Department of Clinical Pathology of Polish Mother's Memorial Hospital Research Institute, <sup>5</sup>Department of Dentist's Pathology, Medical University of Lodz,

<sup>6</sup>Department of General and Colorectal Surgery, Medical University of Lodz, Poland (nik@toyota.net.pl)

Colorectal cancer (CRC) is still an unresolved problem of oncology. Apart from the constant improvements being made through the development of novel treatments, much attention has been paid to the chemoprevention of CRC. In our study we assessed vitamin B6 efficiency and mechanism of preventive activity against colorectal cancer. We compared its potential to well known chemopreventive agent – selective Cyclooxygenase-2 (COX-2) inhibitor – celecoxib. Materials: 70 male F344 rats were randomized into 6 groups. In groups 1 to 5 colorectal carcinogenesis was induced by 2 subcutaneous injections of Azoxymethane (20 mg/kg). Rats from group 1 and 2 were treated with vitamin B6 (respectively 0,3 and 0,7 mg/day). Rats from group 3 and 4 were treated with celecoxib (respectively 10 and 30 mg/day). After 26 weeks all the animals were sacrificed large intestines were removed and assessed. The total number of the premalignant lesions–Aberrant Crypt Foci (ACF) was counted. Additionally immunoeexpression of COX-2, Vascular Endothelial Growth Factor (VEGF) and c-myc was assessed.

**Results:** Both celecoxib and vitamin B6 reduced the number of ACF. Median number of ACF per field of vision in groups treated with celecoxib was respectively 1.7 and 0.75. For vitamin B6 the results were respectively 1.42 and 1.5. The observed reduction was statistically significant, comparing to the control group ( $p < 0.001$ ). Immunohistochemical studies: VEGF, COX-2 and c-myc immunoeexpression indexes were increased in AOM treated rats. Celecoxib and vitamin B6 in lower dose reduced the VEGF immunoeexpression. Celecoxib treatment did not influence COX-2 and c-myc immunoeexpression. Vitamin B6 reduced COX-2 and c-myc immunoreactivity. The observed reduction was statistically significant ( $p < 0.001$ ).

**Discussion:** To our knowledge our experiment is the first one, which directly compares chemopreventive potential of vitamin B6 and celecoxib.

We demonstrated that vitamin B6 is a potent chemopreventive agent with multi directional activity against colorectal carcinogenesis.

## Gastrointestinal\_2 A156

### Sacral Nerve Stimulation(SNS) : Is it a boon in chronic constipation(CC) ?

Srinivasaiah Narasimhaiah<sup>1</sup>, Waudby Phillip<sup>2</sup>, Duthie Graham<sup>3</sup>

<sup>1</sup>Academic Surgical Unit Castle Hill Hospital, University of Hull, Cottingham, UK. (simba\_anu@yahoo.com)

**Introduction:** Chronic-constipation can be extremely difficult to treat affecting one's QOL. SNS has been tried when other treatments have failed. However, reports of this procedure are limited, so we reviewed our experience in order to determine whether it is a worthwhile procedure.

**Methods:** Patients with chronic-constipation who were referred for SNS between Aug 2005–Oct 2007 were identified. This study is a retrospective-review of a prospectively maintained SNS-database with clinical-notes review.

**Results:** There were 12 female patients with chronic-constipation who were referred to be considered for SNS. The mean age was 39 years with a median follow-up of 6 months (Range 1–16 months). Majority were idiopathic slow transit constipation, with 2(16%) of them secondary to spinal traumatic neuropathy. Symptoms included one or more of abdominal discomfort, pain, bloating, lack of motivation, embarrassment and depression impacting on their QOL and making them socially isolated. The average frequency of bowel movements were 3–5/month assisted with enormous amounts of one or more of the following measures (laxatives, bulking agents, suppositories, enemas, biofeedback, rectal irrigation and ante grade continent enema). Out of the 12 patients who were referred for SNS, there were 9(75%) temporary and 6(50%) permanent procedures performed. 3(25%) of them are awaiting a temporary SNS procedure. All the 6(50%) who had permanent SNS have had success. There was failure in 1(8%) following 2 temporary, refusal in 1(8%) without trial SNS and return to normal bowel habit in 1(8%) after a failed temporary. Assessment of the bowel diaries among successful patients, showed an improvement in bowel movements to once/day – 3 times/week. They also demonstrated improvement in abdominal symptoms and QOL. One (8%) patient had pain on urination as a complication.

**Conclusions:** SNS for chronic constipation in our experience offers an option, when other treatments have failed.

## Wound healing A157

### Hyperbaric Oxygen For Chronic Anal Fissure – Long Term Outcome

Srinivasaiah Narasimhaiah<sup>1</sup>, Cundall Jeremy<sup>2</sup>, Chapple Keith<sup>3</sup>, Duthie Graham<sup>4</sup>, Laden Graham<sup>5</sup>

<sup>1</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK, <sup>2</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK, <sup>3</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK, <sup>4</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK, <sup>5</sup>Hyperbaric Unit, Classic Hospital, Anlaby, Hull, United Kingdom (simba\_anu@yahoo.com)

**Introduction:** Optimal treatment of the patient with a chronic anal fissure (CAF) is unclear. Medical therapy has poor long-term outcome whilst surgery may have significant associated morbidity. We have previously shown, in a small pilot study, that hyperbaric oxygen (HBO) is an effective treatment for CAF. Since long-term outcome is unknown, we investigated a cohort of CAF patients at least 5 years after HBO therapy.

**Methods:** Patients with CAF who had failed both medical and surgical management underwent HBO therapy (fifteen 90 minute treatments of 100% oxygen at 2.4 atmospheres). Peri-anal symptoms were assessed at least 5 years after HBO therapy using a patient questionnaire.

**Results:** 8 patients (4 male, 4 female, median age 58 [range 27–82] years) were identified. Median symptom duration prior to HBO treatment was 2.5 (IQR 1.3–4.6) years. A single patient required further surgery (Rotation flap) and

another patient has occasional pain and bleeding. One patient died from unrelated causes. The remaining five patients have required no further treatment and are totally asymptomatic.

**Conclusion:** HBO therapy has long-term effectiveness in the treatment of CAF unresponsive to conventional therapy.

## Sepsis, Infection, Immunity\_1 A158

### Immunoregulatory disorders in patients with burn injury

Stankiewicz Wanda<sup>1</sup>, Dąbrowki Marek<sup>2</sup>, Witkowski Wojciech<sup>3</sup>, Szymański Paweł<sup>4</sup>, Feliga Marcin<sup>5</sup>, Maruszyński Marek<sup>6</sup>

<sup>1</sup>Military Institute of Hygiene and Epidemiology, Warsaw, Poland, <sup>2</sup>Military Institute of Hygiene and Epidemiology, Warsaw, <sup>3</sup>Military Medical Institute, Warsaw <sup>4</sup>Military Medical Institute, Warsaw, <sup>5</sup>Military Medical Institute, Warsaw, <sup>6</sup>Military Medical Institute, Warsaw (infero@poczta.fm)

**Introduction:** The assessment of functional efficiency of immune system in patients with burn injury may contribute for better understanding the pathomechanisms responsible for failed healing the wounds. The diagnostic procedure extended by immunological tests may also indicate how to improve the results of routine treatment of the patients.

**The aim of the study:** Determination of immunoregulatory and immunogenic properties of immune system in patients with burn injury.

**Patients and methods:** In the group of 12 patients with burn injury the immunological examinations were performed in the microculture system of mononuclear cells isolated from the blood (PBMC), comprising the estimations of: a/immunoregulatory ability and immunocompetence of T lymphocytes (response to PHA and Con A, saturation of IL-2 receptors, T cell suppressive activity – SAT index) b/immunogenic activity of monocytes (LM index reflecting the ratio of IL-1b/IL-1ra, and production of chosen cytokines: IL-1b, IL-1ra, IL-10, TGF b). c/determination by flow cytometry the quantities of CD3, CD4, CD8, CD19, CD16/56 cellular phenotypes in PBMC population.

**Results:** The immunological examinations showed that in patients with burn injury the immunoregulatory functions of T lymphocytes are deficient, the response of T cells to mitogens decreased, the ratio of TCD4/TCD8 is lowered and the production of IL-10 and TGFb decreased. In contrast to that, the immunogenic activity of monocytes was considerably excessed (high LM value, deficit of the production of IL-1ra).

**Conclusion:** It can be suggested that introduction of appropriate immunocorrective therapy into the routine anti-infective and anti-inflammatory treatment may improve the therapeutic results in patients with burn injury.

## Oncology\_2 A159

### Is there a correlation between lymphangiogenetic potential and lymphangiogenesis in colon cancer

Stańczyk Marek<sup>1</sup>, Olszewski Waldemar L<sup>2</sup>, Gewartowska Magdalena<sup>3</sup>, Rutkowska Joanna<sup>4</sup>, Cąkała Marta<sup>5</sup>, Maruszyński Marek<sup>6</sup>

<sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgery, Central Military Hospital, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>4</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>5</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>6</sup>Department of Surgery, Central Military Hospital, Warsaw, Poland (cdo@cndik.pam.pl)

Presence of lymphatics facilitate formation of cancer metastases. High level of permeability of tumor blood capillaries but not the putative cancer-produced VEGF C may be responsible for more lymphatics seen around cancer than in normal tissue. Are there morphologic and functional differences between newly

formed and pre-existing intra-or peritumoral lymphatics? The aim of our study was to visualize tissue space and initial and collecting lymphatics in and around gastric and colon cancer foci, and correlate their presence with expression of VEGFC and VEGFR2, VEGFR3. Samples of human gastric and colon cancer and normal gastric and colon tissue, were obtained from 12 patients. Tissue samples were injected with Patent Blue in chloroform suspension to visualize interstitial space and lymphatic capillaries. Another fragment was sectioned and stained with monoclonal antibodies for CD68, CD3, elastase, LYVE1, Prox1, podoplanin, CD31, ICAM1, VCAM1. The number, topography and morphology of lymphatic vessels were evaluated in the peri- and intratumoral areas. Using real time PCR we analyzed expression of VEGFC and VEGFR2, VEGFR3 in the tumor and surrounding normal tissue. Specimens of gastric and colon cancer revealed presence of peri-tumoral but not intra-tumoral lymphatics. These vessels stained positively with mAbs against LYVE1 and CD31 but not Prox1, podoplanin, ICAM1 and VCAM1. In the intratumoral areas thousands of minute "lakes" could be visualized what is usually seen in tissues with lymphedema. We speculate that increased production of lymph in the tumor tissue brings about dilatation but not lymphangiogenesis of peritumoral lymphatics.

## Wound healing A160

### Radiation-induced tissue fibrosis

Stene Christina<sup>1</sup>, Mihaescu Andrada<sup>2</sup>, Johnson Louis Banka<sup>3</sup>, Palmquist Ingrid<sup>4</sup>, Jeppsson Bengt<sup>5</sup>

<sup>1</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden, <sup>2</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden, <sup>3</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden, <sup>4</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden, <sup>5</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden (Andrada.Mihaescu@med.lu.se)

**Introduction:** Radiation-induced normal tissue toxicity is a major contributor to long-term complications after rectal cancer treatment. Pathophysiologic mechanisms are not fully understood, but an excessive fibrotic reaction following excessive inflammation and activation of proteinases has been suggested. In this study we therefore studied MMP:s, inhibitors (TIMP), TGF-beta and fibrosis in rectal tissue in patients following short-term or long-term preoperative radiotherapy and rectal cancer surgery.

**Material and methods:** 46 patients with rectal cancer underwent preoperative radiotherapy, either 25 Gy during 1 week or 50 Gy during five weeks. 33 patients with rectal cancer situated above 15 cm without radiotherapy served as control. Tissue biopsies were taken from tumor and normal mucosa before and after radiotherapy for analysis of MMP-2, MMP-9 and TIMP-1, as well as serum for analysis of IL-6 and peritoneal tissue for analysis of TGF beta.

**Results:** There were increased tissue levels of MMP-2 and consequently TIMP-1 after radiotherapy of 25 Gy. MMP-9 was depressed after long-term radiotherapy with 50 Gy, but with normal TIMP. IL-6 and TGF-beta did not show any significant changes. Peritoneal tissue exhibited a markedly increased fibrosis after long radiotherapy.

**Conclusion:** These alterations may be involved in the tissue remodeling that occur after radiotherapy leading to excessive deposition of collagen. Early intervention with inhibition of proteinases in patients undergoing radiotherapy may be one way of reducing the occurrence of excessive collagen deposition.

## Orthopedic\_1 A161

### Studies on inflammatory etiology of heterotopic ossification (HO) after total hip replacement

Stolarczyk Artur<sup>1</sup>, Nagraba Lukasz<sup>2</sup>, Deszczyński Jarosław<sup>3</sup>, Mitek Tomasz<sup>4</sup>, Ploski Rafał<sup>5</sup>

<sup>1</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>2</sup>Dept. Clin. Rehab., Medical University, Warsaw, Poland, <sup>3</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>4</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>5</sup>Department of Clinical Genetic, Warsaw Medical University of, Poland (jdeszcz@o2.pl)

HO is a frequent complication following a major orthopedic surgery such as total hip arthroplasty. The inflammatory etiology of HO is supported by a recent report of association of this condition with HLA-A\*02 and B\*18. Our purpose was to study the distribution of HLA class I (A and B) and class II (DRB1) alleles among Polish patients with and without HO who underwent THR. DNA was isolated from peripheral blood and HLA typing was performed using the PCR-SSP kit (OneLambda). Distribution of selected HLA alleles I studied groups is shown in Table. We observed a strong association between HO and advanced age (mean age 72.6 y *versus* 64.6 y, among those with *versus* without HO, respectively,  $p = 0.0001$ ) and male sex (54.0% *versus* 21.6%, respectively,  $p = 0.004$ ) whereas we could not confirm the association between HO and A\*02 and B\*18. However, we observed that DRB1\*01 might have a protective role since it showed a trend for a decrease among patients with HO *versus* those without HO (Table). Interestingly, we noted that the decrease of DRB1\*01 was particularly pronounced among older (> 70 years) patients (Table). We conclude, that HLA genotype may have a role in HO but further studies on larger cohorts of patients are indicated.

## Wound healing A162

### A rat muscle injury model of different severities to evaluate skeletal muscle regeneration capacity after open blunt crush trauma

Stratos Ioannis<sup>1</sup>, Graff Johannes<sup>2</sup>, Rotter Robert<sup>3</sup>, Mittlmeier Thomas<sup>4</sup>, Vollmar Brigitte<sup>5</sup>

<sup>1</sup>Department of Traumatology and Reconstructive Surgery, University of Rostock, Rostock, Germany, <sup>2</sup>Institute for Experimental Surgery, University of Rostock, Rostock, <sup>3</sup>Department of Traumatology and Reconstructive Surgery, University of Rostock, Rostock, <sup>4</sup>Department of Traumatology and Reconstructive Surgery, University of Rostock, Rostock, <sup>5</sup>Institute for Experimental Surgery, University of Rostock, Rostock (john.stratos@gmail.com)

**Background:** Insufficiency of skeletal muscle regeneration often impedes the healing process with functional deficiencies and scar formation. The goal of our study was to evaluate the regeneration capacity of peripheral muscle upon injury of different severity.

**Methods:** Blunt injury of the soleus muscle in Wistar rats was induced by means of an instrumented clamp. The injury severity was stepwise increased by increasing the locking level of the clamp, resulting in three different groups (1× locking; 2× locking; 3× locking;  $n = 30$  animals per group). After assessment of the fast twitch and tetanic contraction capacity of the soleus muscles at days 1, 4, 7, 14 and 42 post-injury, sampling of muscle tissue served for analysis of cell proliferation (BrdU-immunohistochemistry), cell apoptosis (TUNEL-analysis) and leukocyte infiltration (CAE-analysis).

**Results:** Contraction force analysis demonstrated significantly higher values of relative muscle strength in the 1× group compared to the 2× and 3× group over 42 days. Calculation of the twitch-to-tetanic force ratio revealed significantly higher mean values at days 1, 7 and 14 in the animals of group 2× and 3× compared to group 1× animals. Moreover, cell proliferation during the first 4 days was found significantly dependent on the severity of muscle injury, in that the higher the severity, the higher the proliferation. At the same time, however, cell apoptosis was found increased in the group 3× compared to the 1× group. Local leukocyte infiltration was significantly and comparably increased at day 1 after trauma in all groups regardless the severity of injury.

**Conclusion:** Severe muscle injury causes incomplete restoration of the muscle force and is accompanied with a higher twitch-to-tetanic force ratio, indicating the transient switch to a fast twitching phenotype of muscle. In addition, the degree of injury determines the increase of both proliferating cell activity and cell apoptosis, but is not relevant for the degree of leukocyte infiltration.



## Sepsis, Infection, Immunity\_1 A163

**Fungal infections in patients hospitalized in Intensive Medical Care Unit**

Swoboda-Kopec Ewa<sup>1</sup>, Blachnio Sylwia<sup>2</sup>, Sulik-Tyszka Beata<sup>3</sup>, Stelmach Ewa<sup>4</sup>, Kanski Andrzej<sup>5</sup>, Luczak Mirosław<sup>6</sup>

<sup>1</sup>Microbiological Laboratory of Central Clinical Hospital Medical University of Warsaw, Poland, <sup>2</sup>Microbiological Laboratory of Central Clinical Hospital Medical University of Warsaw, <sup>3</sup>Microbiological Laboratory of Central Clinical Hospital Medical University of Warsaw, <sup>4</sup>Microbiological Laboratory of Central Clinical Hospital Medical University of Warsaw, <sup>5</sup>Dept. of Critical and Intensive Care Central Clinical Hospital Medical University of Warsaw, <sup>6</sup>Microbiological Laboratory of Central Clinical Hospital Medical University of Warsaw (dkawecki@o2.pl)

**Introduction:** Fungal infections in patients hospitalized in Intensive Medical Care Unit are a serious clinical problems.

**Aim of study:** In our study we analyzed the occurrence of fungal strains and their susceptibility to antifungal agents in samples of clinical material taken from patients hospitalized in Intensive Medical Care Unit of Central Clinical Hospital in Warsaw in 2007.

**Material and methods:** In total 1697 samples of clinical materials from hospitalized patients were tested in Microbiological Laboratory. From Intensive Care Unit the most common clinical specimens were taken from respiratory tract – 22 (30%), digestive tract (stool) – 15 (21%), urine samples – 14 (19%), blood – 13 (18%), wound swabs – 5 (7%) and other – 4 (5%). Specimens were cultured on Sabouraud medium plates supplemented with gentamicine and chloramphenicol (Becton Dickinson). Isolated strains were identified using CHROMagar Candida agar and automatic test ID32 C (bioMérieux). Susceptibility tests were done with E-tests (AB Biodisk) for Amphotericin B, Fluconazole, Itraconazole and Voriconazole. Results In total number of 1697 microbiological examination, 73 samples (4,3%) were positive. We cultured 88 of fungal strains. 86 (97,7%) of them were yeastlike fungi and 2 were moulds (2,3%). Yeastlike fungi isolated from clinical materials belonged to ten species: *C. albicans* – 41 (47,6%), *C. glabrata* – 16 (18,6%), *C. tropicalis* – 11 (12,8%) and *C. parapsilosis* – 9 (10,5%), other – 9 (10,5%). The isolated molds 2 strains (2,3%) were *Aspergillus niger* and *Aspergillus fumigatus*. We cultured  $n = 31$  (35%) fungal strains from respiratory tract samples and  $n = 14$  strains (16%) from blood. The major etiological factors of fungemia in our study were: *C. parapsilosis* – 5 strains, *C. albicans* – 4, *C. tropicalis* – 4. All fungal strains were sensitive to Amphotericin B and Voriconazole, 30% of the *C. glabrata* were resistant to Itraconazole. *C. albicans* strains were sensitive to Fluconazole. The moulds were sensitive to Amphotericin B and Voriconazole (100%).

**Conclusions:** 1. *C. albicans* species was dominated pathogen cultured from Department of Medical Intensive Care Unit. 2. *Candida glabrata* was resistance to Itraconazole in 30%. 3. Amphotericin B and Voriconazole were the most active in vitro antifungal agents against isolated fungal strains.

as a preliminary operation before the neoplastic renal removal or as a palliative procedure in the case of the large, inoperative renal tumors. The implementation of the modern investigative methods make it possible to better understand the influence of ERA on the functions of immune system.

**The aim of the study:** Determination of the expected immunomodulatory influence of the embolization of renal artery in patients suffering from renal cancer.

**Patients and methods:** In the group of 38 patients with RCC (diagnosis confirmed by CT or MNR) embolization of renal artery has been performed. In 12 of them in time of 2–6 weeks after ERA the nephrectomy was performed (group N), the remaining 26 patients were left without nephrectomy (group E). In the all patients the samples of mononuclear cells were isolated from the blood and tested immunologically. The tests comprised quantitative determination of cellular phenotypes (CD4, CD8, CD4/CD8) in flow cytometry and in the system of microcultures estimations of T-cell functions (response to PHA and to Con A, saturation of IL-2 receptors, T-lymphocyte suppressive activity – SAT index) and monocyte immunogenic activity (LM index). The immunological tests were done three times: in the group E before ERA, 2–6 weeks and 12 weeks after ERA, in the group N before ERA, 2–6 weeks and 12 weeks after surgery.

**Results:** In the group N T lymphocyte response to PHA, initially lower than normal, increased significantly 12 weeks after nephrectomy ( $p < 0,01$ ), similarly, in the group E response to PHA after transitional decrease increased also at 12 weeks after ERA. In the group N T cell response to Con A increased after ERA but, in contrast to that, the response decreased to the value of  $27,2 \times 10^3$  dpm in the group E after ERA. The saturation of IL-2 receptors, initially lower than normal in the both groups, reached the normal values ( $>90\%$ ) 12 weeks after the surgery. The T cell suppressive activity (index SAT), which represents immunoregulatory ability of T lymphocytes, initially lower than normal, improved to the normal values ( $>30\%$ ) in the both groups after surgical procedures. The immunogenic activity of monocytes (index LM) increased considerably in the group N directly after ERA and decreased thereafter. In the group E the value of LM index, initially and 6 weeks after ERA higher than normal, decreased to the normal value (6,03) 12 weeks after ERA. Determinations of the T cell phenotypes showed decreased values of TCD4 and increased values of TCD8 cells in the both groups of patients. After performed surgical procedures the ratio of TCD4/TCD8 improved in the both groups.

**Conclusions:** The immunological examinations indicated that the patients with renal cancer demonstrate both quantitative (ratio of TCD4/TCD8) and functional immunoregulatory deficits of T lymphocytes (lower than normal values of SAT, IL-2 receptor saturation and, partially, lower response to mitogens) Embolization of the renal artery (ERA) introduces strong immunostimulatory element In these patients, increasing immunogenic activity of monocytes and improving the parameters characterizing the immunological competence of T lymphocytes. The observed immunotropic effects of ERA in patients with renal cancer can be estimated as a valuable therapeutic element, beneficial for the further course of the disease.

## Wound healing A164

**Immunotropic influence of embolization of renal artery in patients with renal cancer**

Syrýło Tomasz<sup>1</sup>, Stankiewicz Wanda<sup>2</sup>, Zieliński Henryk<sup>3</sup>, Dąbrowski Marek<sup>4</sup>, Feliga Marcin<sup>5</sup>, Maruszyński Marek<sup>6</sup>

<sup>1</sup>Clinic of Urology, Military Medical Institute, Warsaw, Poland, <sup>2</sup>Military Institute of Hygiene and Epidemiology, Warsaw, <sup>3</sup>Clinic of Urology, Military Medical Institute, Warsaw, <sup>4</sup>Military Institute of Hygiene and Epidemiology, Warsaw, <sup>5</sup>Military Institute of Hygiene and Epidemiology, Warsaw, <sup>6</sup>Military Medical Institute, Warsaw (infero@poczta.fm)

**Introduction:** Renal tumors consists 2–4% of the all neoplasms in adults. The most frequent malignant renal tumor is renal cell carcinoma (RCC). In 25–30% of patients the distant metastases are present at the time of the first diagnosis. RCC is chemo- and radiotherapy resistant and belongs to the most immunogenic neoplasms in man. The embolization of the renal artery (ERA) results in a strong stimulation of immune system and represents valid element of therapeutic strategy in patients suffering from RCC. ERA can be performed

## Unusual observations, strange ideas A165

**Hospital acquired pneumonia risk factor in surgical ICU patients**

Szczepanik Antoni<sup>1</sup>, Kubisz Aldona<sup>2</sup>, Kruszyna Tomasz<sup>3</sup>, Kulig Jan<sup>4</sup>

<sup>1</sup>1st Department of Surgery, Jagiellonian University, Medical College, Krakow, Poland, <sup>2</sup>1st Department of Surgery and Institute of Physiotherapy, Jagiellonian University Medical College, Krakow, Poland, <sup>3</sup>1st Department of Surgery, Jagiellonian University, Medical College, Krakow, Poland, <sup>4</sup>1st Department of Surgery, Jagiellonian University, Medical College, Krakow, Poland (anszczep@poczta.onet.pl)

**Objective:** Hospital acquired pneumonia (HAP) remains the leading infection in ICU patients and contributes significantly to overall morbidity and mortality. The purpose of this study was to identify the risk factors for hospital-acquired pneumonia in surgical ICU patients and to stratify them based on their prognostic significance.

**Patients:** In all, 233 consecutive patients admitted to the ICU of the 1st Department of General and Gastrointestinal Surgery, Jagiellonian University Medical College, between May 2003 and April 2004 were eligible for participation.

**Intervention:** The cohort was divided into two groups. The study group included 92 ICU patients who developed HAP while in ICU. The control

group consisted of 141 ICU patients without HAP. In both groups the following risk factors for HAP were analysed: demographical data (age, sex); nutritional status with BMI as a surrogate marker; neoplastic *versus* non-neoplastic primary disease; type of intervention (endoscopic *versus* surgical); duration of ICU stay, duration of artificial ventilation, the presence of a gastrointestinal tube, accompanying systemic and localized infections as well as blood glucose control.

## Education A166

### Computed assessment of coordination skills in surgical staff and medical students – Is this a valuable tool?

Szczepanik Antoni<sup>1</sup>, Spieszny Michał<sup>2</sup>, Szczepanik Maciej<sup>3</sup>, Kubisz Aldona<sup>4</sup>, Kłoczek Tomasz<sup>5</sup>

<sup>1</sup>1st Department of Surgery, Jagiellonian University, Medical College, Krakow, Poland, <sup>2</sup>Department of Theory and Methodology of the Team Games, Academy of Physical Education, Krakow, Poland, <sup>3</sup>Department of Theory and Methodology of the Team Games, Academy of Physical Education, Krakow, Poland, <sup>4</sup>1st Department of Surgery, Jagiellonian University, Medical College, Krakow, Poland, <sup>5</sup>Department of Theory and Methodology of the Team Games, Academy of Physical Education, Krakow, Poland (anszczep@poczta.onet.pl)

Coordination skills belong to the most important elements of human motoric ability. These skills influence the quality and results of sport performance and some professions. In numerous situations coordination skills limit the effectiveness of motoric processes. Surgery is the area in which the final result of procedures depends on the combination of knowledge, concentration and motoric ability. The implementation of new techniques such as surgical endoscopy, laparoscopy, imaging-guided surgery requires new type of coordination skills in comparison to open surgery. Therefore proper training of surgical residents is the key to safe and effective surgery. The new branch of training is based on sophisticated computerized simulators, however the final training must take place on the patient site. The aim of this study was to assess several coordination skill in surgical staff and medical students. The results between the group of residents, fully trained surgeons, and medical students were compared. All subjects (9 residents, 7 fully trained surgeons, and 20 medical students) were tested using the standard computerized protocol. The test was divided into 5 parts: –simple eye-hand reaction, combined eye-hand reaction, Piorkowski aptitude test, concentration – diversity test and orientation-perception test. The mean ratios of the results ( $\pm$  SD) were calculated for each tests.

**Results:** The level of coordination measured by each of the tests was in the upper 1/2 of the general population results. The simpler the test was, the results of residents tend to be higher than fully trained surgeons. Medical students results were more diffused. The group of older surgeons achieved significantly better results in most complicated orientation-perception test. The results showed that simple coordination tests probably correlate with the age, but more complicated skills are higher in more advanced group. The overall coordination skills may be the marker of predisposition for surgical profession.

## Unusual observations, strange ideas A167

### Bacteriology of callus of closed fractures of tibia and femur

Szczęsny Grzegorz<sup>1</sup>, Interewicz Bożenna<sup>2</sup>, Swoboda-Kopec Ewa<sup>3</sup>, Olszewski Waldemar L<sup>4</sup>, Górecki Andrzej<sup>5</sup>, Wasilewski Piotr<sup>6</sup>

<sup>1</sup>Dept. Surg. Res.&Transplantol., Med. Res. Center, Pol. Acad. Sci, Warsaw, Poland, <sup>2</sup>Dept. Orthop.&Traumatol., Med. Univ., Warsaw, Poland, <sup>3</sup>Dept. Surg. Res.&Transplantol., Med. Res. Center, Pol. Acad. Sci., Warsaw, Poland, <sup>4</sup>Dept. Microbiol., Med. Univ., Warsaw, Poland, <sup>5</sup>Dept. Surg. Res.&Transplantol., Med. Res. Center, Pol. Acad. Sci., Warsaw, Poland, <sup>6</sup>Norwegian Radium Hospital, Oslo, Norway, <sup>5</sup>Dept. Orthop.&Traumatol., Med. Univ., Warsaw, Poland, <sup>6</sup>Dept. Orthop.&Traumatol., Med. Univ., Warsaw, Poland (g.szczesny@cmdik.pan.pl)

More than 1% of closed fractures of lower limbs and 6% of implanted materials are complicated by inflammation despite all efforts to avoid infection. The

question arises whether this clinical complication is not caused by bacteria dwelling in limb tissues. Skin, subcutaneous fat, muscle and fracture gap callus were obtained from 71 adult patients operated on due to closed comminuted fractures of tibia or femur, 28 because of non-alignment of bone axis and 43 due to delayed fracture healing. Aerobic bacteria were isolated from gap callus of 14% healing and 35% non-healing fractures. No isolates were found in subcutis and only in 3% in muscles. No anaerobic bacteria were detected. PCR amplifications of 16s rRNA were found positive in 42% of callus specimens proving presence of bacterial DNA even when no isolates were found. The 95% similarity of the genetic pattern of some strains from foot skin and callus, estimated with RAPD technique, suggested their foot skin origin. Taken together, the colonizing bacterial cells and their DNA were detected in fracture callus but not other deep tissues. Contamination was precluded by lack of isolates in disinfected cutis, subcutis, muscles and materials used for sampling cultured after surgery. We suggest that certain strains of bacteria dwell in normal tissues of lower limbs and may cause inflammation upon stimulation by trauma. Their source may be tissue fluid, superficial and deep lymphatics, and lymph serving the physiological transport to the regional lymph nodes of microorganisms penetrating foot skin during microinjuries.

## Extremities A168

### Immune response of the limb lymphatic system to trauma

Szczęsny Grzegorz<sup>1</sup>

<sup>1</sup>Dept. Surg. Res.&Transplantol., Med. Res. Center, Pol. Acad. Sci, Warsaw, Poland, <sup>2</sup>Dept. Orthop.&Traumatol., Med. Univ., Warsaw, Poland (g.szczesny@cmdik.pan.pl)

Mechanical injuries of the lower extremity evoke changes in local immune system. In our previously reported lymphoscintigraphic (LSG) studies closed fractures of lower limbs caused dilatation of lymphatics (Ly) draining the site of fracture and enlargement of inguinal lymph nodes (LNs). In contrast, in long-lasting non-healing fractures draining Ly became obliterated and the LNs disappeared. Aim. The aim of study was to compare immunohistochemical pictures of the uneventfully healing and non-healing fracture gap specimens with limb LSG pictures.

**Methods:** Observations were performed in 38 patients (group A. uneventfully healing  $n = 10$ , and group B. delayed healing,  $n = 28$ ) with closed fracture of tibia without traumatic skin changes. In each patient LSG of lower extremities was performed and tissue specimens from fracture gaps were taken during operation.

**Results:** Group A. LSG showed enlargement of regional LNs and dilated Ly, which coincided with histological pictures of immune cell infiltrates and foci of ossification. Group B. Non-healing fractures revealed lack of cellular reaction in the fracture gap and concomitant decrease of Ly and LN mass.

**Conclusions:** We suggest a functional link between the healing bone fracture and surrounding soft tissue wound with the response of the regional immune system. Active response of the regional lymph nodes seems to correlate with healing of fracture, whereas, depletion of lymphoid tissue is either cause or effect of the prolonged non-healing process.

## Extremities A169

### Evaluation of clinical effectiveness of two-and four-layer compression in venous leg ulcer treatment–randomized study

Szewczyk Maria T<sup>1</sup>, Jawień Arkadiusz<sup>2</sup>, Mościcka Paulina<sup>3</sup>, Cierznikowska Katarzyna<sup>4</sup>, Cwajda Justyna<sup>5</sup>

<sup>1</sup>Surgical Nursing Department Collegium Medicum UMK Bydgoszcz, Poland, <sup>2</sup>Department of Surgery Collegium Medicum UMK Bydgoszcz, Poland, <sup>3</sup>Surgical Nursing Department Collegium Medicum UMK Bydgoszcz, Poland, <sup>4</sup>Surgical Nursing Department Collegium Medicum UMK Bydgoszcz, Poland, <sup>5</sup>Surgical Nursing Department Collegium Medicum UMK Bydgoszcz, Poland (ajawien@ceti.com.pl)

The aim of the study was to assess clinical effectiveness and dynamics of venous leg ulcer healing after applying two-or four-layer compression.

**Material and methods:** The study was performed between 2000 and 2005 among 112 patients with 121 venous ulcers treated in Venous Ulcers Outpatient Clinic, Bizioł Memorial Hospital in Bydgoszcz. Patients were randomized to two groups treated with two- and four-layer systems. The treatment program included holistic assessment, high multilayer compression and additional activities. Healing dynamics were assessed by planimetry. Maximal time of observation was 48 weeks.

**Results:** In primary statistical analysis cumulative healing rate showed significant predominance of two-layer system ( $p = 0.007$ , log-rank test) but after reaching randomization balance in terms of starting surface of venous ulcer the difference among them were not found. ( $p = 0.249$ , log-rank test). Values of Kaplan-Meier test showed that among patients with medium and high degree of physical activity, the probability of higher healing rate was found in the group of patients with two-layer system ( $p = 0.089$ , log-rank test).

**Conclusions:** Systematic multilayer compression with initial pressure of 40 mmHg is an effective method in treating conservatively the venous leg ulcer. Two- and four-layer systems have similar clinical effectiveness but healing rate in two-layer system increases with the increased patient's physical activity.

## Cardiovascular, Thoracic\_1 A170

### Endovascular treatment of posttraumatic aortic lesions

Szmidt Jacek<sup>1</sup>, Rowiński Olgierd<sup>2</sup>, Gałazka Zbigniew<sup>3</sup>, Jakimowicz Tomasz<sup>4</sup>, Grygiel Katarzyna<sup>5</sup>, Solonyko Bohdan<sup>6</sup>

<sup>1</sup>Department of General, Vascular and Transplant Surgery Medical University of Warsaw, Poland, <sup>2</sup>Second Department of Radiology Medical University of Warsaw, Poland, <sup>3</sup>Department of General, Vascular and Transplant Surgery Medical University of Warsaw, Poland, <sup>4</sup>Department of General, Vascular and Transplant Surgery Medical University of Warsaw, Poland, <sup>5</sup>Department of General, Vascular and Transplant Surgery Medical University of Warsaw, Poland, <sup>6</sup>Department of General, Vascular and Transplant Surgery Medical University of Warsaw, Poland (tomj@amw.edu.pl)

Traumatic aortic rupture can be the reason of sudden symptoms or, when self-limiting, can be responsible for long-lasting, asymptomatic pseudoaneurysm. In the acute cases, but also in persistent ones open surgery is a procedure significantly burdened with high risk of morbidity and significant mortality. In our Department between June 2002 and February 2008 endovascular repair of posttraumatic descending thoracic injury was performed in 20 patients. The group consisted of 17 males and 3 female aged between 16 and 54 years. In 18 cases the trauma was a result of a automobile accident and in two cases a fall from a height. Eleven patient were admitted directly after the accident with multi-organ trauma and shock. The remaining patients were admitted after a varying amount of time after injury due to pseudoaneurysm presence. Initial diagnosis in these patients was made during routine chest x-ray examination or echocardiogram. Pre-operative assessment consisted of spiral computed tomography and in 4 cases preoperative angiography. In 19 cases thoracic lesion was placed below the ostium of the left subclavian artery. All patients underwent endovascular repair using straight tube commercial stentgrafts – Zenith (13), Talent (6) and Relay (1). The procedure was conducted under regional epidural anaesthesia except two cases with local and two with general. Upon completion we observed no surgical or neurological complications. Mean follow-up of 23 months was uneventful with CT-surveillance postoperatively, in 6-th, 12-th month and annually thereafter in all cases. Stentgraft implantation is the method of choice in treating patients with post-traumatic, thoracic aortic rupture. Minimal invasion during this procedure allows to avoid severe complications which can burden open thoracotomy and clamping of the thoracic aorta. In long-time follow-up it is a safe and effective technique.

## Extremities A171

### Current non-surgical treatment of lymphedema (CPT, pneumatic compression)

Szuba Andrzej<sup>1</sup>

<sup>1</sup>Department of Internal Medicine, Wrocław University of Medicine, Poland (szubaa@yahoo.com)

Lymphedema is a chronic disabling condition which continues to be a challenge for treating physicians. Various forms of physiotherapy are advocated as the treatment of choice in lymphedema. Combined physical therapy (CPT) – treatment which includes manual lymphatic drainage (a specialized form of massage), compressive bandaging and exercises, recommended by the International Society of Lymphology is proven to be an effective way to reduce lymphedema volume in majority of treated patients. The effectiveness of the CPT is documented by numerous published studies, however the role of specific components of the CPT remains controversial. The manual lymphatic drainage – a method based on stimulation of lymphatic flow by gentle touch of the skin seems to have some effect in early stages of lymphedema, while in advanced stages it probably can be neglected. Compressive bandaging is without a doubt the most effective part of the CPT. It requires usually a multiple layer, short stretch bandage application, however there is a little evidence from controlled trials on efficacy of other types of bandaging. Pneumatic compression therapy developed in 50's by Dr. Jobst, criticized for low effectiveness and higher risk of complications is recently coming back as a valid and safe therapeutic option along with new, technologically improved compression devices. Several studies documented satisfactory therapeutic outcomes of pneumatic compression therapy in patients with lymphedema. Newer pneumatic compression pumps offer larger selection of compression sequence programs and pneumatic sleeves with increased number of chambers. Still the effectiveness of new devices remain to be proven in clinical studies

## Extremities A172

### Chronic leg enlargement – differential diagnosis of lymphedema in angiologist's experience

Szuba Andrzej<sup>1</sup>

<sup>1</sup>Department of Internal Medicine, Wrocław University of Medicine, Poland (szubaa@yahoo.com)

Chronic symmetric or asymmetric leg enlargement is one of frequent causes of angiologist's consultation. Usually patients are referred as suspected lymphedema. Diagnostic approach in such cases obviously should include careful medical history (time course, onset, related symptoms, family history, concomitant disorders) and physical exam (edema: pitting, non-pitting; lack of edema; Stemmer's sign, tenderness, skin changes, distribution of edema/enlargement, varicose veins/collateral skin circulation, vascular bruits, increased pulsation, bony abnormalities). Imaging studies among others should include lymphoscintigraphy, ultrasound examination, magnetic resonance imaging (or CT scan), occasionally arteriography or phlebography. Differential diagnoses include systemic diseases (congestive heart failure, hypoproteinemia, autoimmune/collagen diseases, Cushing's disease, myxedema) and a variety of common and rare disorders usually confined to legs: 1) vascular disorders: chronic venous insufficiency, postthrombotic syndrome, inferior vena cava syndrome, May-Thurner syndrome, hemangiomas, arteriovenous fistula, Parkes-Weber and Klippel-Trenaunay syndromes, arterial aneurysms, 2) lipomatosis: lipedema, Dercum's disease, post-traumatic pseudolipoma, simple obesity, 3) primary neurogenic: neurogenic muscle hypertrophy, complex regional pain syndrome, 4) mixed origin and others: Baker's cyst ruptured or compressing popliteal vein, pelvic and leg tumors malignant or benign, post-traumatic edema, chronic osteomyelitis, hemihypertrophy, Proteus syndrome, factitious edema including Munchausen syndrome, cyclic idiopathic edema. The diagnosis might be not straightforward and one should not forget basic imaging studies including lymphoscintigraphy and magnetic resonance even in seemingly obvious cases. One patient may have more than one problem (e.g.



postthrombotic syndrome and lymphedema secondary to prostate cancer) and a thorough diagnostic process is always necessary.

## Hepatobiliary\_2 A173

### Comparing different haemostatic devices to stop severe liver bleedings—an animal

Takács Ildikó<sup>1</sup>, Wegmann Jürgen<sup>2</sup>, Sándor Ferencz<sup>3</sup>, Andrea Ferencz<sup>4</sup>, Szabolcs Horváth<sup>5</sup>, György Weber<sup>6</sup>

<sup>1</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs, Hungary, <sup>2</sup>BBraun Aesculap AG&Co. KG, Am Aesculap-Platz, 78532 Tuttlingen, Germany, <sup>3</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs, Hungary, <sup>4</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs, Hungary, <sup>5</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs, Hungary, <sup>6</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs, Hungary (takacsildi@yahoo.com)

**Background:** The correct haemostasis in liver surgery is still a big challenge for surgeons because of the continuous oozing of blood from vessels that are too small to be ligated. The aim of this study was to compare the potential of a newly developed compress to two haemostatic compresses available in the market.

**Methods:** Sangustop<sup>®</sup>, TachoSil<sup>®</sup> and Surgicel<sup>®</sup> haemostatic devices were investigated in a randomised study in 20 pigs. A standardized resection was performed on three liver lobes. The diffuse liver bleedings were treated by applying the different haemostatic felts in a randomised order, then the bleeding time until haemostasis was measured. Handling of the fleeces was a subjective sensation of the surgeons. Tissue sampling for histopathological investigations was carried out after 21 days.

**Results:** The bleeding time of Sangustop<sup>®</sup>, TachoSil<sup>®</sup>, and Surgicel<sup>®</sup> was  $140 \pm 88$ ,  $243 \pm 140$  ( $p < 0.002$  versus Sangustop<sup>®</sup>) and  $352 \pm 70$  sec ( $p < 0.0001$  versus Sangustop<sup>®</sup>) respectively. The number of the used fleeces of Sangustop<sup>®</sup>, TachoSil<sup>®</sup> and Surgicel<sup>®</sup> was 1.4, 2.0 and 3.2 in average. Surgicel<sup>®</sup> was the best to handle in surgeons' ranking. As a complication in 9 cases out of the 20 animals a perigraft cyst was present near TachoSil<sup>®</sup>. The microscopic evaluation of the TachoSil<sup>®</sup> implantation zone presented fibrosis and significant inflammation, whereas in case of Sangustop<sup>®</sup> and Surgicel<sup>®</sup> respectively only fibrosis was found in the wound area.

**Conclusion:** Sangustop<sup>®</sup> showed significant better haemostatic effect than TachoSil<sup>®</sup>, and Surgicel<sup>®</sup>. Sangustop<sup>®</sup> seems to be a competitive haemostatic device in this trial, which will be proven in a clinical human trial.

## Plastic\_1 A174

### Aesthetic and Functional Reduction of Labia Minora with the Maas and Hage

Tejero-Trejuque Ricardo<sup>1</sup>, Kumiponjera Devor<sup>2</sup>, Stevens-King Angela<sup>3</sup>, Malata Charles<sup>4</sup>

<sup>1</sup>Plastic Surgery Department, Addenbrooke's University Hospital Cambridge, UK, <sup>2</sup>Plastic Surgery Department, Addenbrooke's University Hospital Cambridge, UK, <sup>3</sup>Plastic Surgery Department, Addenbrooke's University Hospital Cambridge, UK, <sup>4</sup>Plastic Surgery Department, Addenbrooke's University Hospital Cambridge, UK (cmalata@hotmail.com)

**Introduction:** Enlarged labia minora cause functional, aesthetic and psychosocial problems. There is a plethora of reported techniques for their surgical correction in both the gynaecological and surgical literature suggesting that none of them is superior to the others. The problem is compounded by the infrequent request for surgery; hence an individual surgeon's experience is likely to be small. It is, therefore, important that, rather than describing yet another variation, existing techniques are validated by independent surgeons.

**Methods:** A retrospective review of patients who underwent surgical reduction of the labia minora from 2001–2007 was therefore conducted. All cases were performed by the same surgeon, under general anaesthetic, using the Maas & Hage (1999) technique with interdigitating w-plasties.

**Results:** Ten consecutive patients aged from 13 to 47 years (mean = 30 yrs) underwent reduction labiaplasty for idiopathic hypertrophy. All the resections except one were bilateral with mild asymmetry. One patient developed a painful haematoma two hours after surgery necessitating surgical evacuation. Another developed immediate postoperative retention of urine relieved by catheterisation. Both patients made uneventful recoveries. The rest had no dehiscences or wound infections. All patients were satisfied with their natural-looking cosmetic results and total disappearance of their presenting symptoms. They are all back to their normal activities and none have required revisional surgery.

**Discussion & Conclusion:** The Maas and Hage technique was found to be an easy and effective method of reducing the labia minora by an independent single operator in a small series of cases. This independent review demonstrated the reproducibility of this technique and the favourable aesthetic and functional outcomes for the patient.

## Wound healing A175

### Effects of extracorporeal shock waves on bowel anastomosis healing

Tekin Sakir<sup>1</sup>, Pekin Ceyhan<sup>2</sup>, Kartal Adil<sup>3</sup>, Tekin Ahmet<sup>4</sup>, Sahin Mustafa<sup>5</sup>, Tavli Lema<sup>6</sup>

<sup>1</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya Turkey, <sup>2</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya Turkey, <sup>3</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya Turkey, <sup>4</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya Turkey, <sup>5</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya Turkey, <sup>6</sup>Selcuk University, Meram Medical Faculty, Department of Pathology, Konya Turkey (sahinmu@hotmail.com)

**Purpose:** We planned to investigate the effects of extracorporeal shock waves on bowel anastomoses.

**Material and methods:** In study 30 Wistar Albino female rats were divided in to three equal groups. Group I (Control group) underwent only laparotomy. Group II (Study group) underwent laparotomy, right colon segmented resection bowel anastomose. Group III (Study group II) underwent laparotomy right colon segmented resection, bowel anastomose and ESW (in postoperative 3,5, and 7 Days, 14 kV with 400 impulses in each application, totally 1200 impuls 0,12 mJ/mm<sup>2</sup>). Specimens consisting anastomose lines of study groups and control groups were investigated histopathologically, fibroblast, collagen, angiogenesis and inflammation cells were examined. Results were analysed with student t test and ANOVA for all values  $p < 0.05$  were considered meaningful.

**Findings:** Average anastomose burst pressures were  $272 \pm 7.89$  in group III and  $220 \pm 6.83$  in group II. This difference was found meaningful statistically ( $p < 0.05$ ). Fibroblast/collagen numbers were found  $14.50 \pm 5.56$  in Group I,  $274 \pm 66.21$  in group II and  $416 \pm 52.44$  in group III. Vessel numbers were found  $5.80 \pm 3.19$  in group I,  $51.20 \pm 10.76$  in group II and  $75.10 \pm 13.80$  in group III. The number of fibroblast/collagen and vessels were higher in group III than group II and group I ( $p < 0.05$ ), with these findings inflammation cells in group III were found much more dense than in group II.

**Conclusion:** According to our study results ESW encounters strength of bowel anastomoses. Anastomose burst pressures in individuals which were applied ESW (group III) were higher than group II also angiogenesis, fibroblast/collagen were dominant in group III. These findings are the evidence of our results.

## Orthopedic\_2 A176

### The use of barbed sutures in the repair of the rotator cuff

Thompson Simon<sup>1</sup>, Emery Roger<sup>2</sup>, Reilly Peter<sup>3</sup>, Amis Andrew<sup>4</sup>

<sup>1</sup>St Marys Hospital, Paddington, UK, <sup>2</sup>St Marys Hospital, Paddington, <sup>3</sup>St Marys Hospital, Paddington, <sup>4</sup>Imperial College, London (s.m.thompson@ic.ac.uk)

**Introduction:** Tears to the rotator cuff are common, some are repaired surgically. There are problems associated with repair and arthroscopic knot tying, and re-tear rates can be as high as 94%. It is known that surgical knots can slip, break, split, dehisce, and cause ischaemia and infection, affecting the biology of the healing process and tendon repair.

**Methodology:** A new design for a patented barbed suture was developed. Using an Instron machine, the pull out strength of the sutures was measured in the sheep infraspinatus tendon. Four groups of eight infraspinatus tendons were tested, using one, two, three or four sutures for repair. The maximum pull out strength was recorded.

**Results:** One suture had an average pull out of 38.9N, two sutures 82.3N, three sutures 138.8N, and four sutures 176.6N. Discussion Under low cyclical loading barbed sutures may offer an alternative to current rotator cuff repair methods, being technically easier, quicker, and with less biological complications.

**Conclusion:** The use of barbed sutures may be used in the repair of the rotator cuff. Further testing is required.

## Education A177

### Evaluation of Intercollegiate Surgical Curriculum Project (ISCP) critical care competencies in surgical training: a questionnaire survey

Touqan Nader<sup>1</sup>, Paringe Vishal<sup>2</sup>, Kumar BhasKAR<sup>3</sup>, Shaikh Faisal<sup>4</sup>, Hemadri Makan<sup>5</sup>, Moore Peter<sup>6</sup>

<sup>1</sup>Scunthorpe General Hospital, UK, <sup>2</sup>Scunthorpe General Hospital, <sup>3</sup>Scunthorpe General Hospital, <sup>4</sup>Scunthorpe General Hospital, <sup>5</sup>Scunthorpe General Hospital, <sup>6</sup>Scunthorpe General Hospital (bbASKARGOPAKUMAR@DOCTORS.ORG.UK)

**Introduction:** The introduction of the Intercollegiate Surgical Curriculum Project (ISCP) made it mandatory for surgical trainees to complete procedural based assessment as objective evidence to support the achieved competencies. The aim of this study was to investigate skills of surgical trainees (ST1–ST2) with regard to critical care procedures of direct relevance to care of the critically ill surgical patient.

**Methods:** Selection of the procedures was based on the necessary minimum criteria for ST1–ST2 as outlined by ISCP, which included insertion of central lines (CL) arterial lines (AL), intercostal chest drains (ICD), suprapubic catheterisation (SC) and mini-tracheostomy (MT). The study was based on an anonymous questionnaire survey including 15 consultants and 30 trainees in different surgical specialties. The purpose of the consultant questionnaire was to gauge the skill expectancy level for the trainees. The trainee survey aimed to assess whether they received formal training in the above procedures, and the number of procedures actually performed unsupervised.

**Results:** Procedure % trainees received % trainees with % trainers expecting received formal training > 5 unsupervised competency Central Line insertion 47 37 100 Arterial Line insertion 46 33 60 Intercostal chest drain 83 47 100 Suprapubic catheter 50 30 80 Mini tracheostomy 57 20 10.

**Conclusion:** This survey shows that trainers expect a high level of competency in these procedures but formal training in these procedures needs to improve. This may explain why relatively small numbers of trainees were performing these procedures unsupervised.

## Gastrointestinal\_2 A178

### Comparing Postoperative pain and patient's satisfaction between Conventional Hemorrhoidectomy and Doppler Guided-Hemorrhoidal Artery Ligation (DG-HAL)

Towliat Kashani Seyed Mohsen<sup>1</sup>, Mohebbi Hassan Ali<sup>2</sup>, Panahi Farzad<sup>3</sup>, Mehrvarz Shaban<sup>4</sup>

<sup>1</sup>Department of Surgery, Baqiyatallah University of Medical Science, Tebran, Iran, <sup>2</sup>Associate professor of thoracic surgery-Department of Surgery, Baqiyatallah University of Medical Science, Tebran, I.R. Iran, <sup>3</sup>Associate professor of surgery-Department of Surgery, Baqiyatallah University of Medical Science, Tebran, I.R. Iran, <sup>4</sup>Associate professor of surgery-Department of Surgery, Baqiyatallah University of Medical Science, Tebran, I.R. Iran (mohebbi@yahoo.co.in)

**Introduction:** Hemorrhoidal disease is a common anorectal condition and may need surgery. Postoperative pain is a common and important complaint following conventional hemorrhoidectomy (CH). Doppler Guided-Hemorrhoidal Artery Ligation (DG-HAL) is based on selective ligation of the arteries supplying blood to the piles.

**Materials and Methods:** In a randomized clinical trial, we compared the post-operative pain, return to usual daily activities and patient's satisfaction between DG-HAL ( $n = 25$ ) and CH ( $n = 26$ ) groups. Post-operative pain assessed by Visual Analog Scale scored between 0–10. Data analyzed for parametric and nonparametric variables by SPSS.13 software.

**Results:** Among 51 cases, 42 were male and the mean age was 42.29 years. The average pain scores in the 1st, 2nd and 3rd post-operative day were 1.92, 1.08 and 0.3 in DG-HAL but 6.54, 6.31 and 5.81 in CH groups. In DG-HAL, 80% of cases returned to daily activities in third days but in CH only 15.4% ( $P$  value < 0.05). Complete satisfaction in DG-HAL and CH groups were 76% and 50% respectively ( $P$  value < 0.05). Conclusion: Less postoperative pain, early return to usual daily activities and better patient's satisfaction were seen within DG-HAL group. This technique can be a good alternative for CH.

## Unusual observations, strange ideas A179

### Is donor DNA incorporated into recipient lymphoid cells genome?

Tyszka Joanna<sup>1</sup>, Rutkowska Joanna<sup>2</sup>, Olszewski Waldemar L<sup>3</sup>

<sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, 2Norwegian Radium Hospital, Oslo, Norway (wlo@cmdik.pan.pl)

**Introduction:** Processing and incorporation of fragments of DNA and oligonucleotides by mammalian and bacterial cells is a continuing physiological process. It is strongly intensified in inflammation, cancer and after tissue and organ transplantation. The outcome of DNA transfer between mammalian cells remains not well understood. It has been suggested that donor DNA may play a role in rejection or creating partial tolerance.

**Aim:** To study whether donor DNA may be identified in recipient immune cells and if so, whether it locates in cytoplasm or penetrates into nucleus.

**Methods:** In sex-mismatched combination male rat DNA was injected i.v. into 10 female rats. Recipient blood (PBM), lymph node (LN) and spleen (SPL) mononuclear cells were examined 24 hr later for the presence of SRY gene characteristic for Y-chromosome. SRY was detected using polymerase chain reaction (PCR) method and real-time PCR. The PCR products was analyzed by electrophoresis in 12.5% polyacrylamide gel (PAGE; Phast System, Amersham Pharmacia Biotech) and silver stained (Silver Staining Kit; Amersham Pharmacia Biotech).

**Results:** SRY gene was detected in female PBM, LN and SPL cell cytoplasm in 2 out of 10 rats. Moreover, it was detected in PBM nuclei in 4 out of 10 rats and in LN cell nuclei also in 4 out of 10 rats. Location of the incorporated fragments is studied.

**Conclusion:** Detection of donor male DNA in nuclei isolated from female cells suggests its spontaneous transport into recipients cells and their nuclei. The question remains open whether this finding may have any relevance to the rejection or tolerance process.

## Hepatobiliary\_2 A180

### A rabbit model for portal vein embolization and/or hepatic artery embolization

van den Esschert Jacomina<sup>1</sup>, Graaf Wilmar<sup>2</sup>, van Lienden Krijn<sup>3</sup>, van Gulik Thomas<sup>4</sup>

<sup>1</sup>Department of Surgery, University of Amsterdam, Amsterdam, The Netherlands,

<sup>2</sup>Department of Surgery Academic Medical Center Amsterdam, the Netherlands,

<sup>3</sup>Department of Radiology Academic Medical Center Amsterdam, the Netherlands,

<sup>4</sup>Department of Surgery Academic Medical Center Amsterdam, the Netherlands (j.w.vandenesschert@amc.uva.nl)

**Introduction:** Portal vein embolization (PVE) is now an established method to increase future remnant liver (FRL) in liver surgery. A potential risk of using the technique is increase of tumor growth in the time between PVE and partial liver resection. Sequential embolization of the hepatic artery and portal vein could offer a solution to tackle this problem. In order to study the phenomena involved in PVE, a reliable animal model of VPE is needed. We describe a new model of portal vein and hepatic artery embolization in rabbits.

**Methods:** Ten female New Zealand White rabbits of approximately 3kg were anesthetized using ketamin 0,25mg/kg body weight + medetomidin 0,2mg/kg body weight and isoflurane. The portal vein branches to the left medial, left lateral and right liver lobes were embolized, which accounts for  $\pm 75\%$  of the liver. After laparotomy, the catheter and wire were introduced into the portal vein via a colonic mesenteric vein. The hepatic artery was cannulated via an ear artery. Polyvinylalcohol particles and metal coils were used for embolization. Liver regeneration of the non-embolized lobes was measured using CT-volumetry. To determine the regeneration speed in rabbits after PVE, a 4-phase CT-scan was performed on the day before PVE in all rabbits under anesthesia. This imaging procedure was repeated after 3 and 7 days (group 1,  $n = 5$ ) and after 10 and 14 days (group 2,  $n = 5$ ), respectively after which the rabbits were sacrificed. Liver weight and liver volume were measured.

**Results:** Both portal vein embolization and hepatic artery embolization were successful in this rabbit model. The volume increase of the non-embolized lobes was almost doubled after 1 week. The correlation between CT-volumetry and liver weight was strong (Pearson  $r = 0.943$ ).

**Conclusion:** This rabbit model is useful to study the optimal technique and underlying mechanisms following portal vein embolization and/or hepatic artery embolization.

## Hepatobiliary\_2 A181

### Regeneration of the remnant liver after major liver resection and prior portal vein embolization

van den Esschert Jacomina<sup>1</sup>, de Graaf Wilmar<sup>2</sup>, van Lienden Krijn<sup>3</sup>, van Gulik Thomas<sup>4</sup>

<sup>1</sup>Department of Surgery, University of Amsterdam, Amsterdam, The Netherlands,

<sup>2</sup>Department of Surgery Academic Medical Center Amsterdam, the Netherlands,

<sup>3</sup>Department of Radiology Academic Medical Center Amsterdam, the Netherlands,

<sup>4</sup>Department of Surgery Academic Medical Center Amsterdam, the Netherlands (j.w.vandenesschert@amc.uva.nl)

**Introduction:** Portal vein embolization (PVE) has been widely accepted as an effective means to increase the future remnant liver (FRL) volume in patients requiring extensive liver resection. It is believed that liver regeneration after partial liver resection or PVE depends largely on the same mechanisms. The dramatic increase in portal blood flow after partial liver resection is considered an important trigger for liver regeneration. In that case one might speculate that post-hepatectomy regeneration after prior PVE is less effective than post-hepatectomy regeneration without prior PVE. Aim of this study was to evaluate the effect of preoperative portal vein embolization (PVE) on postoperative liver regeneration after major liver resection. Method: Retrospective case-control study. Data were collected of patients who underwent PVE prior to (extended) right hemihepatectomy and of control patients who underwent the same resection without prior PVE between January 2005 and November 2007. A CT-scan was obtained 3 months after hemihepatectomy. Liver volumes were measured by CT volumetry before PVE, before liver resection and 3 months after liver resection.

**Results:** In 10 patients who underwent PVE prior to liver resection a CT-scan was obtained 3 months after liver surgery. A total of 13 patients were included in the control group. Groups were comparable for gender, age, preoperative FRL volume and number of patients with a compromised liver. Three months after liver resection the mean remnant liver volume in the PVE group was not significantly different from the control group ( $82.6 \pm 8.2\%$  SD and  $79.4 \pm 11.0\%$  SD of initial total functional liver volume, respectively).

**Conclusion:** There is no significant difference in remnant liver growth in patients who underwent (extended) right hemihepatectomy with or without prior PVE. The assumption that postoperative liver regeneration is hampered by PVE prior to partial liver resection is therefore not valid.

## Minimally invasive A182

### Intraoperative parathyroidhormone monitoring, experience of a Dutch peripheral

van Ginhoven TM<sup>1</sup>, Morks A<sup>2</sup>, Smit PC<sup>3</sup>, de Graaf PW<sup>4</sup>

<sup>1</sup>Erasmus Medical Center, Rotterdam, The Netherlands, <sup>2</sup>Reinier de Graaf Gasthuis,

<sup>3</sup>Reinier de Graaf Gasthuis, The Netherlands, <sup>4</sup>Reinier de Graaf Gasthuis (t.vanginhoven@erasmusmc.nl)

Primary hyperparathyroidism is most often due to one parathyroid adenoma secreting parathyroid hormone. The standard of care for primary hyperparathyroidism is surgical removal of all hyperfunctional parathyroid tissue. In experienced hands, parathyroidectomy is successful in 95–99% of the cases with a very low complication rate. The introduction of radionuclide parathyroid localization studies and, more recently, intraoperative parathyroidhormone (ioPTH) monitoring has fueled a trend towards the minimally invasive parathyroidectomy. The aim of this study was to investigate whether ioPTH monitoring has an additional value in the treatment of hyperparathyroidism mainly using the minimally invasive approach. From January 2002 until January 2008, in a Dutch peripheral hospital, 79 patients were included of whom four patients underwent a second operation several months later due to persistent hyperparathyroidism. Measuring series of ioPTH levels was achieved in 83% ( $n = 66$ ) of the primary operations, five patients were evaluated twice during the same operation. A decrease greater than 50% between the preoperative PTH level and a PTH level drawn approximately 10–12 minutes after excision of the abnormal gland is interpreted as a curative (positive) result. This result was obtained in 55 (83%) patients, of which 54 were cured. One patient is currently waiting for her second operation. Eleven patients had an inadequate decrease of the ioPTH levels. Eight patients were cured in a second attempt, one patient remained ill and two patients were, in contrast with the ioPTH levels, cured. To summarize, the ioPTH monitoring could prevent a re-operation and re-admittance in 8 (12%) patients. Although there were 2 (3%) false negative results and one (1.5%) false positive, we believe that ioPTH monitoring provides useful information to optimize the minimal invasive approach.

## Gastrointestinal\_2 A183

### Risk prediction in complex colorectal patients

Vasas P<sup>1</sup>, Raptis D<sup>2</sup>, Windsor A<sup>3</sup>, Cohen R<sup>4</sup>

<sup>1</sup>University College London Hospitals NHS Foundation Trust, London, UK,

<sup>2</sup>University College London Hospitals NHS Foundation Trust, London, UK,

<sup>3</sup>University College London Hospitals NHS Foundation Trust, London, UK,

<sup>4</sup>University College London Hospitals NHS Foundation Trust, London, UK (vasasdr@gmail.com)

**Background:** Enhanced recovery pathways are increasingly common in routine colonic surgery. Most rely on post operative protocols to improve patient outcomes and allow for early, safe, discharge home. Working in a tertiary referral practice with complex colorectal patients, we sought to define a



method of 'stratifying surgical risk' in order to appropriately apply such protocols to these sort of patients. In this study we aimed examine the efficacy of cardiopulmonary exercise (CPX) testing as a method of determining cardiopulmonary reserve, thus allowing us to triage patients to the appropriate level of post operative care (Ward, HDU, ITU). The ultimate goal being to minimise the morbidity and mortality in complicated surgical population.

**Method:** From 1 May 2006 till 31 Dec 2006 104 consecutive patients enrolled into our Enhanced Surgical Treatment and Recovery programme (ESTReP) were prospectively analysed. All patients had CPX testing attempted prior to surgery. In addition, all patients had Possum scores measured to calculate expected morbidity and mortality data as a benchmark. All patients were managed in a standardised fast track protocol. The primary outcome measure was mortality, with secondary measures morbidity, return of gastrointestinal function, hospital stay, and readmission.

**Results:** The average POSSUM score was 24.12, indicating an expected 15.4% morbidity and 2.4% mortality. The average anaerobic threshold was 13.2 ml/kg/min measured by CPX, (11 ml/kg/min being the reference level). The observed mortality was 0.96% and the morbidity rate 12.5%. Conclusion: CPX appears to allow appropriate triage of complex colorectal patients, thus reducing their expected morbidity and mortality. Its routine use in surgical practice needs better defining but these early results are

## Wound healing A184

**The effect of ascitic media formed by glycerin on the prevention of peritoneal adhesions: are there less peritoneal adhesions with abdominal ascites**

Vatansev Celalettin<sup>1</sup>, Tekin Ahmet<sup>2</sup>, Pamukcu Ahmet<sup>3</sup>, Küçükkartallar Tevfik<sup>4</sup>, Sahin Mustafa<sup>5</sup>, Yılmaz Hüseyin<sup>6</sup>

<sup>1</sup>Selçuk University Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>2</sup>Selçuk University Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>3</sup>Selçuk University Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>4</sup>Selçuk University Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>5</sup>Selçuk University Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>6</sup>Private Konya Hospital Department of Surgery, Konya Turkey (sabinmu@hotmail.com)

**Aim:** We aimed to investigate whether or not artificial ascites media formed using glycerin are effective in the prevention of intraperitoneal adhesions.

**Material and Method:** 36 Wistar albino male rats were used in the study. The rats were divided into three groups as: Group I: control group; Group II (isotonic group) – 3 ml of 0.9% NaCl was injected into the peritoneal cavity; and Group III (glycerin group) – 0.5 ml of liquid glycerin and 3 ml of 0.9% NaCl was injected into the peritoneal cavity. The same substances were re-administered to the rats in Groups II and III on postoperative days 3, 6 and 9. Rats were sacrificed on the 10th postoperative day. Tissue samples were taken from the abdominal wall and intestinal wall, and level of adhesion was examined using light microscopy.

**Findings:** There were serious adhesions in the control group. Adhesion rates were lower in the isotonic group compared with the control group, but the difference was not statistically significant ( $p > 0.05$ ). When adhesion rates of the glycerin group were compared with control and isotonic groups, significant differences were determined, especially between the glycerin and control groups ( $p < 0.05$ ).

**Results:** According to the results of our study, use of isotonic solution and liquid glycerin decreases postoperative adhesions. We suggest that glycerin was more effective as it has the chemical ability to draw water to its media. As such, formation of adhesions may be decreased by increasing the amount of physiological liquid inside the abdomen.

## Minimally invasive A185

**Laparoscopy assisted obstructed/incarcerated Femoral hernia repair-A novel, easy to learn and easy to teach technique**

Venkatasubramaniam Arcot

Royal Victoria Infirmary, Newcastle, UK (akvenkat2@yahoo.co.uk)

**Background:** Femoral hernia commonly presents as an emergency with incarceration and/or obstruction and strangulation. The low operation (Lockwood) and High operation (McEvedy) are the popular techniques. However not all surgeons, specially the trainees are comfortable to perform the McEvedy approach. It is impossible to rule out strangulated bowel without exploration. While the low approach is technically easy, it carries the risk of reducing a Richter's type hernia with ischaemic knuckle of bowel. Laparoscopic repair is an attractive option. However it needs high level of skill and always involves mesh placement which is debatable in the presence of ischaemic bowel. We describe a novel technique which is easy to learn, safe and is also associated with less pain and quicker recovery time.

**Procedure:** Our technique involves performing a diagnostic Laparoscopy under General Anaesthesia for all Patients who present with incarcerated femoral hernia. The first port (10mm) is placed supra or per or infra umbilical as open technique (modified Hassan' technique). Following CO2 inflation a second port (5mm) is inserted on the side of the hernia approximately four finger breadth lateral to the umbilicus (taking care to avoid the inferior epigastric artery). A head down tilt is applied to the operating table to enable the small bowel loop to slide off the pelvis, exposing the femoral hernia. This step may be aided if necessary by insertion of the second 5mm port on the opposite side (four finger breadth lateral to the umbilicus, avoiding the epigastric artery). Once the femoral hernia is exposed, if the sac contains incarcerated bowel loop it would be revealed. If the sac does not contain bowel loop, once confirmed the ports can be removed and hernia repaired locally from the groin with a small incision. If the sac contains a knuckle of bowel, this loop of bowel can be reduced easily with gentle traction with help of soft laparoscopic graspers (Yohan's or bowel graspers). If necessary counter pressure could be applied externally from the groin. In authors practice it is felt unnecessary to cut the femoral hernia ring to reduce the bowel. Once the bowel is reduced, if the viability is doubtful, the soft grasper is gently applied to the adjacent fat in the mesentry to mark the segment of bowel, and with ports in place the pneumoperitoneum is decompressed, patient position neutralised and the femoral hernia is repaired through a 4 to 6 cm groin incision. In our technique we prefer simple repair with 1-0 PDS on a J needle taking care to avoid injury or narrowing of femoral vein. The groin wound is closed and pneumoperitoneum is re-created to inspect the segment of bowel. By now if the blood supply is adequate the bowel would have pinked up and peristalsis could be seen. If the bowel is still ischaemic, umbilical port is extended to about 5cm and ischaemic bowel exteriorised, and excised. Once anastomosed the bowel is returned into the peritoneal cavity and the defect in the abdomen closed with 1-0 pDS. This technique has been successfully practised and has been found to be technically easy, and has been found to be associated with minimal discomfort to the patient. The main advantage we feel with this technique is that it is easy to perform with basic laparoscopic skills. We feel this technique is probably the easiest technique to repair incarcerated femoral hernia which is also safe and can be easily taught.

## Orthopedic\_2 A186

**Blood Loss During Orthopaedic Surgery in Patients with Paget's Disease of Bone: A Pilot Study**

Willder Jennifer M<sup>1</sup>, Langston Anne L<sup>2</sup>, Gaston Paul<sup>3</sup>, Ralston Stuart H<sup>4</sup>

<sup>1</sup>University of Edinburgh, UK, <sup>2</sup>University of Edinburgh, <sup>3</sup>New Royal Infirmary of Edinburgh, <sup>4</sup>University of Edinburgh (J.M.Willder@Sms.ed.ac.uk)

**Abstract Background:** PRISM (ISRCTN 12989577) is a randomised controlled trial comparing the effects of symptomatic therapy and intensive bisphosphonate treatment in Paget's Disease of Bone (PDB). Of the PRISM trial cohort 103 participants underwent orthopaedic surgery during the trial period, 53% in the symptomatic arm and 47% in the intensive arm. Reported increased operative blood loss in PDB is thought to be related to disease

activity, measured by serum total alkaline phosphatase (sALP). 2.3 Preoperative suppression of disease activity with bisphosphonates is considered to minimise intraoperative bleeding. 4.5 The PRISM cohort provides a unique opportunity to explore this controversial indication for bisphosphonate intervention. A pilot study in a non-pagetic population was undertaken in order to direct the conduction of the Blood Loss PRISM Sub-study. Aims: Assess and identify predictors of operative blood loss in a non-pagetic population. Provide a control population with which to compare operative blood loss variables in PDB.

**Methods:** **Operative:** Blood loss data was collected on 101 elective non-pagetic hip and knee arthroplasty patients. Variables studied were age, gender, BMI, diabetes, preoperative haemoglobin, serum creatinine (sCr) and sALP, postoperative haemoglobin, type of operation, length of operation and grade of operating surgeon. Study outcomes were length of hospital stay, total estimated intraoperative blood loss and postoperative blood transfusion. Categorical variables were analysed using Chi-Squared and Fisher's Exact tests. Continuous variables were analysed using the Independent Samples T-test, Kruskal Wallis and Mann Whitney U tests.

**Results:** Female gender ( $p = 0.037$ ), low BMI ( $p = 0.031$ ), low preoperative haemoglobin ( $p = 0.003$ ), low preoperative sCr ( $p = 0.014$ ) and low postoperative haemoglobin ( $p = 0.000$ ) were associated with postoperative blood transfusion (14%). The type of operation performed ( $p = 0.000$ ), lower grade of operating surgeon ( $p = 0.008$ ), longer length of operation ( $p = 0.000$ ) and low postoperative haemoglobin ( $p = 0.006$ ) were associated with higher estimated intraoperative blood loss (mean 239.9ml). Mean length of hospital stay was 6.2 days and was not related to any of the study variables.

**Conclusion Results:** Are consistent with previous work and provide a control population with which to compare data from PDB patients. Preoperative sALP, age and bisphosphonate treatment are postulated to influence operative blood loss in PDB. The results of the Blood Loss PRISM Sub-study will provide objective evidence on the effects of disease activity and preoperative bisphosphonate therapy on operative blood loss during orthopaedic surgery in PDB patients, helping to define future surgical and clinical management of these patients. 1. Langston AL, Campbell MK, Fraser WD, MacLennan GS, Selby PL, Ralston SH. A Randomised Trial of Intensive Bisphosphonate Therapy *versus* Symptomatic Treatment for Paget's Disease of Bone: PRISM Trial Group, 2007. 2. Stauffer RN, Sim FH. Total hip arthroplasty in Paget's disease of the hip. *J Bone Joint Surg Am* 1976;58(4):476-8. 3. Walton KR, Green JR, Reeve J, Wootton R. Reduction of skeletal blood flow in Paget's disease with disodium etidronate therapy. *Bone* 1985;6(1):29-31. 4. Parvizi J, Frankle MA, Tieg RD, Sim FH. Corrective osteotomy for deformity in Paget disease. *J Bone Joint Surg Am* 2003;85-A(4):697-702. 5. Merkow RL, Pellicci PM, Hely DP, Salvati EA. Total hip replacement for Paget's disease of the hip. *J Bone Joint Surg Am* 1984;66(5):752-8.

## Oncology\_2 A187

### Gastrointestinal stromal tumors – clinical and imaging spectrum of disease

Wronski Marek<sup>1</sup>, Słodkowski Maciej<sup>2</sup>, Cebulski Włodzimierz<sup>3</sup>, Krasnodebski Ireneusz<sup>4</sup>

<sup>1</sup>Department of General and Gastroenterological Surgery and Nutrition, Medical University, Warsaw, Poland, <sup>2</sup>Department of General and Gastroenterological Surgery and Nutrition, Medical University of Warsaw, ul. Banacha 1a, 02-097 Warsaw, <sup>3</sup>Department of General and Gastroenterological Surgery and Nutrition, Medical University of Warsaw, ul. Banacha 1a, 02-097 Warsaw, <sup>4</sup>Department of General and Gastroenterological Surgery and Nutrition, Medical University of Warsaw, ul. Banacha 1a, 02-097 Warsaw (mrwronski@coris.com.pl)

**Purpose:** To analyze clinical manifestations of primary gastrointestinal stromal tumors and their appearance in the imaging investigations.

**Materials and Methods:** The study included 34 patients with a primary GIST treated between 1989 and 2006. Mean age of the patients was 64 years. The primary gastrointestinal stromal tumors were located in the stomach (53%), small intestine (41%), large intestine (3%) and mesentery (3%). Analysis of clinical picture and diagnostic investigations was performed. Medical records reports and photographic documentation were reviewed.

**Results:** 35% of the primary GISTs were asymptomatic and found incidentally at operation. The patients with a symptomatic GIST presented with abdominal

pain (64%), chronic anemia (32%), gastrointestinal bleeding (32%), palpable abdominal mass (23%), weight loss (14%), gastrointestinal perforation (9%) and ileus (4%). 20% of all the GISTs occurred synchronously with other gastrointestinal neoplasm. Average delay in diagnosis was 3.8 months (range: 0 days – 8 years). GISTs appeared ultrasonographically as an oval well-defined hypoechoic mass located extramurally. Large tumors (>100 mm) had an intratumoral central area of lower echogenicity corresponding to necrosis and hemorrhage. In CT, gastrointestinal stromal tumors were visualized as well-defined submucosal mass of with heterogeneous contrast enhancement. Similarly to ultrasonography, large tumors had a hypodense intratumoral area which did not enhance with contrast. In endoscopy, GISTs visualized as a submucosal sessile polyp or smooth tumor or the wall was modelled from outside. The endoscopy was normal in some tumors that were mainly situated outside the gastrointestinal wall. Two gastrointestinal stromal tumors had an intratumoral fluid cavity opening into the gastrointestinal lumen through a internal fistula. The submucosal location of the tumor was recognized in 3 cases upon computed tomography and in 1 case upon endoscopy.

**Conclusions:** Gastrointestinal stromal tumors often cause mild and inspecific symptoms resulting in delayed diagnosis. The appearance of GISTs in the imaging studies reflects their typical macroscopic features such as submucosal and extramural location, narrow attachment to the gastrointestinal wall and well-defined tumor margins.

## Transplantation, Organ preservation\_1 A188

### Continuous Pulsatile Hypothermic Perfusion (CPHP) of kidneys prior to transplantation limits ischemia/reperfusion injury

Wszola Michał<sup>1</sup>, Kosieradzki Maciej<sup>2</sup>, Kwiatkowski Artur<sup>3</sup>, Bieniasz Monika<sup>4</sup>, Kaminska Agnieszka<sup>5</sup>, Chmura Andrzej<sup>6</sup>

<sup>1</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>2</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>3</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>4</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>5</sup>Transplantation Institute, Medical University of Warsaw, <sup>6</sup>Department of General and Transplantation Surgery, Medical University of Warsaw (pdomaga@mp.pl)

Histopathological analysis undertaken in our center revealed significantly lower incidence of chronic rejection, interstitial fibrosis/tubular atrophy in kidneys preserved by CPHP. Ischemia/reperfusion injury (I/R-I) is thought to play a role in explaining these findings. The aim of the present study was to assess activation of genes associated with I/R-I depending on the method of preservation of grafts prior to transplantation.

**Patients and method:** Between 2005 and 2006, sixty-nine kidney biopsies from 69 allografts were obtained. Kidneys prior to transplantation were preserved by CPHP ( $n = 26$ ) or cold storage (CS;  $n = 36$ ). 7 kidneys were donated by living related donors (LRD group). Deceased donors in the CPHP and CS groups did not differ regarding age, gender, hemodynamic status. Cold ischemia time (CIT) was similar: 23.6 h in CS vs 28.7 h in CPHP ( $p = NS$ ), in both groups. There were no significant differences between the recipients as to age, gender, duration of ESRD treatment, PRA titres, HLA incompatibility and immunosuppressive treatment. Biopsies were obtained 30 min after reperfusion and snap frozen at 750C. Expression of genes for IL-1b, VEGF, hemoxygenase 1 (HO-1) and hypoxia inducible factor 1 (HIF-1) was analyzed by real-time PCR.

**Results:** Mean Ct for m-RNA expression for HIF-1 in kidney biopsies 30 min after reperfusion were: 0.63, 1.54, 1.70, 1.08 and 2.11, 1.84 for CS, CPHP and LRD group respectively ( $p = 0.001$  for CS vs CPHP;  $p = 0.001$  for CS vs LRD;  $p = NS$  for MP vs LRD). Mean m-RNA expression for IL-1b, VEGF and HO-1 did not differ significantly between the groups.

**Conclusions:** Mean m-RNA expression for hypoxia inducible factor 1 is significantly higher in group of kidneys preserved by CS in comparison to MP and LRD. There is no difference between CPHP and LRD group regarding expression of HIF-1. Ischemia/reperfusion injury, which can affect early and long-term graft survival is reduced by machine perfusion preservation of cadaveric kidneys.

## Orthopedic\_1 A189

### Protein Interaction with a Nanostructured Bone Grafting Substitute – Early Stage In Vivo Rat Study

Xu Weiguo<sup>1</sup>, Holzhüter Gerd<sup>2</sup>, Vollmar Brigitte<sup>3</sup>, Gerber Thomas<sup>4</sup>

<sup>1</sup>Institute for Experimental Surgery, University of Rostock, Germany, <sup>2</sup>Institute of Physics, University of Rostock, Germany, <sup>3</sup>Institute for Experimental Surgery, University of Rostock, Germany, <sup>4</sup>Institute of Physics, University of Rostock, Germany (dlxuweiguo@yahoo.com)

**Background:** The bone substitute NanoBone® consists of nanocrystalline hydroxyapatite embedded in a highly porous matrix of silica gel. It promotes the healing of bone defects and is degraded by osteoclasts during bone remodelling. The biomaterial has a high inner surface of 80m<sup>2</sup>/g caused by nanopores with a mean diameter of 20nm. The present study investigates the interactions of proteins with this structure representing the key step in osteoblast-osteoclast induced bone remodelling.

**Methods:** 25 pentobarbital-anesthetized male Wistar rats (300–400g) were used. A 2cm neck skin incision was made to expose the fat tissue for implantation of the biomaterial (80mg) mixed with 0.2ml venous blood. The animals were sacrificed after 3, 6, 9, 12, and 42 days. Decalcified 5µm thin tissue sections were stained with periodic acid schiff and haematoxylin-eosin. The composition of the implanted granules was analysed by means of scanning electron microscopy and energy dispersive spectroscopy (EDX).

**Results:** After 3 days the biomaterial blood mixture is surrounded by granulation tissue penetrating the defect like a closed front line with a rate of 300µm/d. The defect with a mean diameter of 7mm is completely pervaded with vascularised granulation tissue after 12 days. Histology revealed osteoclast-like giant cells covering the granules. EDX demonstrated that the silica gel was degraded with a rate of 0.5atom%/d in the granulation tissue and a rate of 0.25atom%/d in the inner hematoma and replaced by an organic matrix.

**Conclusion:** In vivo, the silica gel of NanoBone® is replaced by bone matrix glycoproteins with known functions in attraction, adhesion, and differentiation of bone cells as osteoblasts and osteoclasts. The deposition of these molecules supports the NanoBone® degradation by osteoclasts. This project is supported by the BMBF 01EZ0729.

## Hepatobiliary\_1 A190

### The effects of L-arginine on heme oxygenase-1 expression in rats acute pancreatitis resulting from normothermic ischemia reperfusion injury

Yüksel Osman<sup>1</sup>, Gülbahar Özlem<sup>2</sup>, Kurukahvecioğlu Osman<sup>3</sup>, Akyürek Nalan<sup>4</sup>, Bostancı Hasan<sup>5</sup>, Tezel Ekmel<sup>6</sup>

<sup>1</sup>Gazi University Medical School Department of Surgery Ankara, Turkey, <sup>2</sup>Gazi University Medical School Department of Biochemistry Ankara, Turkey, <sup>3</sup>Gazi University Medical School Department of Surgery Ankara, Turkey, <sup>4</sup>Gazi University Medical School Department of Pathology Ankara, Turkey, <sup>5</sup>Gazi University Medical School Department of Surgery Ankara, Turkey, <sup>6</sup>Gazi University Medical School Department of Surgery Ankara, Turkey (osmanyuksel1971@yahoo.com.tr)

**Aim:** Ischemia-reperfusion (I/R) is a causative factor in the pathogenesis of acute pancreatitis. L-arginine plays a key role in the relationship between microcirculatory disorders and ischemia reperfusion injuries. Heme oxygenase-1 (HO-1) has been identified as a stress protein induced in many cell types by various stimulants such as oxidative stress. Oxidative stress has been implicated in the pathophysiology of pancreatitis. In the present study it is aimed to investigate the effects of L-arginine on HO-1 in pancreatitis that resulted from ischemia and reperfusion.

**Materials and Methods:** Pancreatic arterial vessels (gastroduodenal, splenic,

pancreaticoduodenal and left gastric arteries) were prepared and clamped for 1 hour and then 3 hours released. Animals were divided into 5 groups ( $n = 8/\text{group}$ ): (1) sham, (2) L-arginine + ischemia without reperfusion, (3) saline + ischemia without reperfusion, (4) L-arginine + ischemia with reperfusion, and (5) saline + ischemia with reperfusion. Blood was collected for amylase, myeloperoxidase, superoxide dismutase (SOD), malondialdehyde (MDA), total protein and HO-1. Tissue samples were collected for histopathologic analysis.

**Results:** The levels of amylase, MPO, SOD, MDA and total protein in the L-arginine + ischemia without reperfusion and the L-arginine + ischemia with reperfusion group were lower than the saline + ischemia without reperfusion and the saline + ischemia with reperfusion group ( $p < 0.05$ ). In the L-arginine + ischemia with reperfusion group; these parameters were lower than the L-arginine + ischemia without reperfusion group ( $p < 0.05$ ). In the saline + ischemia without reperfusion group; MPO, SOD and MDA levels were significantly higher when compared to the saline + ischemia with reperfusion group ( $p < 0.05$ ). HO-1 expression was significantly higher in the L-arginine treated groups; especially highest in the L-arginine + ischemia with reperfusion group ( $p < 0.05$ ). Histopathological findings also support the protective role of L-arginine ( $p < 0.05$ ).

**Conclusion:** Our data suggest that L-arginine, which induced HO-1 expression, could be useful in preventing oxidative damage associated with I/R induced pancreatitis.

## Extremities A191

### Selected rheological properties of the red blood cells in chronic venous insufficiency

Zagalski Krzysztof<sup>1</sup>, Wystrychowski Wojciech<sup>2</sup>, Heitzman Marek<sup>3</sup>, Caban Artur<sup>4</sup>, Oczkiewicz Grzegorz<sup>5</sup>, Cierpka Lech<sup>6</sup>

<sup>1</sup>Dept. of General, Vascular and Transplant Surgery, Medical University of Silesia, Katowice, Poland, <sup>2</sup>Dept. of General, Vascular and Transplant Surgery, Medical University of Silesia, Katowice, Poland, <sup>3</sup>Dept. of General, Vascular and Transplant Surgery, Medical University of Silesia, Katowice, Poland, <sup>4</sup>Dept. of General, Vascular and Transplant Surgery, Medical University of Silesia, Katowice, Poland, <sup>5</sup>Dept. of General, Vascular and Transplant Surgery, Medical University of Silesia, Katowice, Poland, <sup>6</sup>Dept. of General, Vascular and Transplant Surgery, Medical University of Silesia, Katowice, Poland (wwystrych@gmail.com)

**Aim:** Pathophysiology of CVI includes among others endothelial dysfunction and generation of various mediators potentially influencing red blood cells (RBC) rheology. Deformability beside aggregability is one of the most important factors of RBC flow in high shear rate areas. The aim of this study was to compare erythrocytes' deformability of patients with CVI to healthy controls.

**Methods:** Patients with CVI ( $n = 29$ , age:21–81, female:  $n = 22$ , C3:  $n = 21$ , C6:  $n = 8$ —CEAP classification) and healthy controls ( $n = 21$ , age:28–72, female:  $n = 16$ ) were examined. Blood was withdrawn from an antecubital vein (both groups) and varicose vein above medial malleolus (patients with CVI). Deformability was measured by RheodynSSD at shear stress 0.3–60Pa and expressed as Elongation Index (EI). Basic hematological parameters as well as CRP level, fibrinogen concentration and lipid profile were analyzed.

**Results:** There were no changes in basic hematological parameters. Also there was no significant difference in lipid profile among groups and homocysteine level, known as prothrombotic factor. Erythrocytes obtained from varicose veins revealed an increase in EI at 1.2, 3.0 and 6.0Pa comparing to blood collected from antecubital vein and from healthy controls (U Mann-Whitney test). Patients with C6 had significantly higher fibrinogen concentration in comparison to C3 group (blood from antecubital vein). There was no difference in CRP level among these groups.

**Conclusion:** Our data suggest presence of mechanisms promoting deformation of erythrocytes within varicose veins.



## Sepsis, Infection, Immunity\_1 A192

**Human skin tissue fluid cytokines and growth factors—their role in skin homeostasis**Zaleska Marzanna<sup>1</sup>, Cąkała Marta<sup>2</sup>, Olszewski Waldemar L<sup>3</sup><sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland (wlo@cmdik.pan.pl)

Tissue fluid creates humoral environment for parenchymatous cells in tissues and organs. It is composed of plasma proteins filtered to the interstitial space and own cellular products. Tissue fluid flows into lymphatics and along them to the regional lymph nodes. Foreign (e.g. bacteria) and own (cellular debris) antigens are transported with lymph stream to the nodes where recognition, processing and elimination take place. Depending upon type of penetrating foreign or own free antigens, an immune reaction develops in the tissue with recruitment of immune cells. Taken together, tissue fluid contains a composition of cytokines, chemokines and growth factors originating from blood, parenchymatous and infiltrating cells. These proteins do not only regulate the local immune processes but also influence the cellular events in the lymph nodes draining the inflammatory tissues.

**Aim:** To measure the concentration of pro- and anti-inflammatory cytokines and chemokines in human lower limb skin tissue fluid/lymph in normal subjects and patients with rheumatoid arthritis, obstructive lymphedema without and with dermatitis. Methods. Tissue fluid was collected either from the cannulated or incised skin superficial lymphatics in the lower leg. The level of cytokines in tissue fluid/lymph and serum was measured with ELISA.

**Results:** Cytokines, chemokines and growth factors were cumulated in 3 groups: 1) pro- and anti-inflammatory (IL1 $\beta$ , TNF $\alpha$ , IL1 $\alpha$ , MIP1 $\alpha$ , MCP1, IL6, IL12, TGF  $\beta$ ), 2) regulating epidermal and dermal cellular (KGF, MMP9, TIMP 1 and 2, PDGF BB) and 3) lymphatic structure (VEGF, VEGF C, CCL21 and 27). Patients were divided into 4 groups: A) without any dermal conditions (N), B) rheumatoid arthritis (RA), C) lymphedema without dermatitis (LD), D) lymphedema complicated by dermatitis (L). 1) The level of proinflammatory cytokines was highest in RA. In all patients groups it was higher than in N. IL10 and 12 levels were low. 2) KGF, MMP9 and TIMPS concentration was significantly higher than in N in all groups, 3) VEGFs and CCL21 and 27 were much elevated in lymphedema but not so much in RA.

**Conclusions:** The concentration of different humoral factors in tissue fluid/lymph varies depending on the type of pathological processes in skin. Most of cyto- and chemokines are produced locally and their level exceeds that of serum. Measuring the level of humoral factors in tissue fluid/lymph gives an insight into the tissue events that is not possible with measuring serum concentrations.

## Sepsis, Infection, Immunity\_1 A193

**Simvastatin inhibits pulmonary infiltration of neutrophils by reducing Mac-1 expression and CXC chemokines formation in abdominal sepsis**Zhang Su<sup>1</sup>, Asaduzzaman Muhammad<sup>2</sup>, Rahman Milladur<sup>3</sup>, Lavasani Shahram<sup>4</sup>, Thorlacius Henrik<sup>5</sup><sup>1</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden, <sup>2</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden, <sup>3</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden, <sup>4</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden, <sup>5</sup>Department of Surgery, Malmö University Hospital, Lund University, Malmö, Sweden (Andrada.Mibaescu@med.lu.se)

**Background:** Simvastatin has been reported to exert anti-inflammatory actions. Herein, we hypothesized that simvastatin may protect against lung damage in abdominal sepsis.

**Methods:** Male C57Bl/6 mice underwent cecal ligation and puncture (CLP). Animals were pretreated with simvastatin (0–0.2 mg/kg). Bronchoalveolar fluid and lung tissue were harvested for analysis of leukocyte recruitment, edema formation and CXC chemokine formation. Blood was collected for flow cytometric analysis of Mac-1 expression and neutrophil-platelet aggregates.

**Results:** Simvastatin decreased CLP-induced neutrophil infiltration (82%), CXC chemokine formation (75%) and edema formation (80%) in the lung. Moreover, Mac-1 expression was increased on circulating neutrophils, which was significantly attenuated by simvastatin administration. Lastly, simvastatin decreased the number of circulating neutrophil-platelet aggregates by more than 50% in septic mice.

**Conclusions:** Our data suggest that simvastatin inhibits pulmonary accumulation of neutrophils by reducing the production of CXC chemokines in the lung and Mac-1 expression on circulating neutrophils in abdominal sepsis. In addition, simvastatin not only reduced neutrophil infiltration but also protected against sepsis-induced lung edema and tissue destruction. Interestingly, simvastatin effectively decreased formation of neutrophil-platelet aggregates which may contribute to lung injury in sepsis. Thus, statins, such as simvastatin, may represent a novel therapeutic approach to prevent lung damage in abdominal sepsis.

## P001–P151

### Cardiovascular\_Thoracic\_1 P001

#### Intraluminal thrombus has a selective influence on matrix metalloproteinases (MMPs) and their inhibitors (TIMPs) in the wall of abdominal aortic aneurysms (AAAs)

Abdul Rahman MNA<sup>1</sup>, Greenman J<sup>2</sup>, McCollum PT<sup>3</sup> and Chetter IC<sup>4</sup>

<sup>1</sup>Academic Vascular Surgical Unit, Hull Royal Infirmary, <sup>2</sup>Biological Sciences Department, University of Hull, <sup>3</sup>Academic Vascular Surgical Unit, Hull Royal Infirmary, <sup>4</sup>Academic Vascular Surgical Unit, Hull Royal Infirmary (bisbami.abdulrahman@bey.nhs.uk)

**Background:** The influence of intraluminal thrombus on the proteolytic environment within the wall of an abdominal aortic aneurysm is unknown. We aimed to assess the influence of intraluminal thrombus on the expression and activity of MMPs and TIMPs within the adjacent AAA wall.

**Methods:** Thirty five patients, twenty six men, median age 73 (range 66–82) years undergoing elective repair of AAAs were studied. A full thickness AAA wall specimen was taken from each patient and the exact position was noted. All samples were snapped frozen and analysed for MMP 2, 8 and 9 and TIMP 1 and 2 using ELISA. Statistical analysis was performed using SPSS v14. Thrombus thickness at specimen's sites, was measured on the pre operative CT scan.

**Results:** Active concentration of MMP 9 and TIMP 1 were significantly positively correlated with thrombus thickness with Pearson correlation coefficient,  $r$  of 0.45 and 0.42 respectively. MMP 2 (active and total) and TIMP 2, showed a positive correlation although not statistically significant. MMP 8 (active and total) showed a non significant negative correlation with thrombus thickness.

**Conclusion:** Intraluminal thrombus thickness has a significant positive correlation with active MMP 9 (elastase) and TIMP 1 and a negative correlation with MMP 8 (collagenase). This may have some implication for AAA expansion and rupture.

### Hepatobiliary\_2 P002

#### Comparison of The Effect of Ischaemic Preconditioning vs Chemical Preconditioning on Ischaemia-Reperfusion Injury and Apoptosis

Akcan Alper<sup>1</sup>, Tuna Ömer<sup>2</sup>, Sozuer Erdogan<sup>3</sup>, Akyildiz Hızir<sup>4</sup>, Akgun Hulya<sup>5</sup>, Muhtaroglu Sabahattin<sup>6</sup>

<sup>1</sup>Erciyes University Medical Faculty, Department of General Surgery, Erciyes, Turkey, <sup>2</sup>Erciyes University Medical Faculty, Department of General Surgery, <sup>3</sup>Erciyes University Medical Faculty Department of General Surgery, Kayseri, Turkey, <sup>4</sup>Erciyes University Medical Faculty, Department of General Surgery, <sup>5</sup>Erciyes University Medical Faculty, Department of Pathology, <sup>6</sup>Erciyes University Medical Faculty, Department of Biochemistry (acakkan2002@yahoo.com)

**Aim:** Comparison of the effect of ischaemic preconditioning (IPC) versus chemical preconditioning (CPC) on ischaemia-reperfusion (I-R) injury and apoptosis in liver ischaemia-reperfusion model in rats.

**Material and Method:** We used 40 Wistar-Albino female rats. All of these rats were between 200–275 gram weight. We composed 5 groups each containing 8 rats. Ketamine and xylazine were used for anaesthesia. We placed jugular venous catheter to all of the rats except sham group and infused serum physiologic for one hour before surgery. We performed midline incision for laparotomy. Rats in sham group were sacrificed after portal dissection. Ninety minutes reperfusion was performed following 90 minutes ischaemia in control group. Ischaemic

preconditioning was performed in one group. We performed CPC by bolus administration of 1000 µg/kg adenosine intravenously. In last group IPC + CPC was performed together in same way with other groups. We sacrificed all of rats by taking blood samples from vena cava inferior for evaluation of AST, ALT, LDH after resection of 2/3 of the liver.

**Results:** Serum AST, ALT and LDH levels were significantly higher in control and study groups compared to sham group ( $p < 0.001$ ). In study groups these levels were significantly lower than control groups ( $p < 0.001$ ), but there was no statistically significant difference among study groups ( $p > 0.5$ ). We also had same results in hepatic MDA and p53 levels. We detected severe cellular damage in control group. In contrast; we found that the damage was lower in study groups than the control group. But there was no statistically significant difference among study groups ( $p > 0.5$ ).

**Conclusion:** Both IPC and adenosine induced CPC reduces I-R injury and apoptosis in liver. But usage of these two methods together have no effect on reducing I-R injury and apoptosis.

### Wound healing\_1 P003

#### The comparison of phospholipid and sodium hyaluronate and carboxy-methylcellulose based antiadhesive membrane intraperitoneal adhesions

Akyildiz Hızir<sup>1</sup>, Akcan Alper<sup>2</sup>, Sozuer Erdogan<sup>3</sup>, Kucuk Can<sup>4</sup>, Yilmaz Namik<sup>5</sup>, Deniz Kemal<sup>6</sup>

<sup>1</sup>Erciyes University Medical Faculty Department of General Surgery, <sup>2</sup>Erciyes University Medical Faculty Department of General Surgery, <sup>3</sup>Erciyes University Medical Faculty Department of General Surgery, Kayseri, Turkey, <sup>4</sup>Erciyes University Medical Faculty Department of General Surgery, <sup>5</sup>Erciyes University Medical Faculty Department of General Surgery, <sup>6</sup>Erciyes University Medical Faculty Department of Pathology (acakkan2002@yahoo.com)

**Aim:** The aim of this experimental study is to compare the preventive effect of the sodium hyaluronate and carboxy-methylcellulose-based antiadhesive membrane (seprafilm) and phospholipid on adhesion formation after abdominal operation.

**Materials and methods:** Forty two 4 month old female Wistar-Albino rats were subjected to standardized lesions by cauterization of the cecum and uterine horn. They were divided randomly into 3 groups containing 14 rats each: group 1 (control) = operative procedure without further treatment, group 2 (sepra-film) = operative procedure with an antiadhesive membrane; 2x1 cm of seprafilm was interposed beneath the peritoneal incision, and group 3 (phospholipid) = operative procedure with intraabdominal phospholipid administration. The extent and severity of adhesions at the operative site were evaluated. Light microscopic examination was performed to determine the degrees of inflammation and fibrosis. These two histologic parameters were scored semiquantitatively by a pathologist who was blinded to the treatment regimen.

**Results:** Rats in the control group formed extensive adhesions. In comparison with the control group, the adhesion scores were significantly less in the 2 other groups. The semiquantitative scores of the degree of inflammation and fibrosis correlated closely with the total adhesion scores and were less in groups 2 and 3 ( $p < 0.005$ ).

**Conclusions:** Intraabdominal administration of phospholipid and seprafilm appears to significantly decrease rates, extents, and severity of postoperative intraperitoneal adhesions.

## Hepatobiliary\_1 P004

### The Effects of Melatonin and N-Acetylcysteine on Obstructive Jaundiced Rats

Aritas Yucel<sup>1</sup>, Akcan Alper<sup>2</sup>, Ekici Fatih<sup>3</sup>, Akyildiz Hizir<sup>4</sup>, Saraymen Recep<sup>5</sup>, Deniz Kemal<sup>6</sup>

<sup>1</sup>Erciyes University Medical Faculty, Department of General Surgery, Erciyes, Turkey, <sup>2</sup>Erciyes University Medical Faculty, Department of General Surgery, <sup>3</sup>Erciyes University Medical Faculty Department of General Surgery, Kayseri, Turkey, <sup>4</sup>Erciyes University Medical Faculty, Department of General Surgery, <sup>5</sup>Erciyes University Medical Faculty, Department of Biochemistry, <sup>6</sup>Erciyes University Medical Faculty, Department of Pathology (acakan2002@yahoo.com)

**Aim:** The aim of this experimental study is to investigate the effects of N-acetylcysteine and melatonin on the cholestasis and their protective effects on liver and renal injury.

**Materials and Methods:** Forty eight rats were used in the study. Rats were divided into three main groups as sham, main control, and study groups. Control and study groups have also been divided into subgroups. Main control group divided early sacrifice group, control group, study group is divided melatonin, N-acetylcysteine and melatonin & N-acetylcysteine groups. In study and control groups, a laparotomy was performed and the common bile duct was ligated and divided. Five days after the first operation, from early sacrifice group blood samples, and liver and renal tissues were collected. For study groups from the fifth day to day 10 melatonin, N-acetylcysteine, melatonin & N-acetylcysteine solutions were applied subcutaneous, saline to the sham and control group. At the day ten from the all groups blood samples, and liver tissues and renal tissues were collected.

**Results:** Bilirubin, AST, ALT, BUN, creatinine, total bilirubin levels were significantly higher in jaundiced rats than sham group rats. AST, ALT, total bilirubin, BUN, creatinine levels were significantly higher in the control group at the end of day 10. Among the melatonin group, N-acetylcysteine group and melatonin & N-acetylcysteine group all biochemical parameters were not different. Also the values of MDA and NO for control group were higher than study groups. On the other hand, MDA and NO values were not different between the melatonin group, N-acetylcysteine group and melatonin & N-acetylcysteine group at the end study. Histopathologic findings were also similar as NO and MDA values.

**Conclusion:** Use of melatonin and N-acetylcysteine in obstructive jaundiced rats, prevents damages of free oxygen radicals on liver and renal tissue.

## Plastic P005

### Assessment of the influence of vomer flap surgery on maxillary growth in the infant cleft population

Azzawi Khayam<sup>1</sup>, Shah Amit<sup>2</sup>, Ahmad Tariq<sup>3</sup>

<sup>1</sup>Addenbrooke's Hospital, UK, <sup>2</sup>Addenbrooke's Hospital, <sup>3</sup>Addenbrooke's Hospital (khl31@cam.ac.uk)

**Background:** Vomer flap (VF) procedure is a controversial type of palatoplasty surgery that uses the mucoperiosteal tissue of the vomer to cover a cleft hard palate. The controversy is related to the argument that vomer flap surgery possibly interferes with mid-facial growth. However, there have been no studies to date documenting actual long-term growth problems. Moreover, the aetiology, if any, of this effect is not clear.

**Aim:** To study the influence of the vomer flap in primary repair of complete cleft lip and palate on maxillary growth using dental impressions.

**Methods:** A retrospective study, using an objective reproducible method of comparison, by way of dental impressions. All children included in the study had complete cleft lip and palate which was subsequently surgically repaired. Each child had two dental impressions, one pre-and one post-operatively. Each child was randomly assigned to one of two groups, those treated with the vomer flap procedure and those treated by alternative methods of surgical correction. Suitable comparable measurements of the dimensions of the dental impression—intertuberosity distance, antero-posterior distance, depth, and cleft gap—were taken.

**Results:** The only measurement that showed a significant difference between the two groups was the anteroposterior distance. Those children who had undergone the VF procedure had significantly shorter mid-facial lengths when compared to those children who had had alternative corrective surgery.

**Conclusion:** The vomer flap procedure could have an adverse affect on maxillary growth. Furthermore, this affect seems to be related to the orientation of the resultant scar.

## Plastic P006

### A new minimal access facelift technique: the platysma-smas plication (PSP)-LIFT

Berry MG<sup>1</sup>, Davies Dai<sup>2</sup>

<sup>1</sup>Institute for Cosmetic & Reconstructive Surgery, London, UK, <sup>2</sup>Institute for Cosmetic & Reconstructive Surgery, London (miles.berry@curie.net)

**Introduction:** Myriad different facelift techniques have been described and the current vogue is one of minimal access whilst aiming to preserve the effects of more invasive procedures. Tonnard's MACS (minimal access cranial suspension) is well-established, but has certain limitations, particularly with respect to its vectors and effect on the neck. A novel evolution, the 'platysma-SMAS plication' lift, is a combination 'half-way house' that seeks to balance procedural invasiveness with recovery time and aesthetic outcome.

**Material and Methods:** The initial 117 consecutive patients to undergo platysma-SMAS plication have been followed prospectively with assessment of complications and aesthetic results. The outcomes have also been analysed with respect to patient and surgeon satisfaction using a linear analogue scale from 1 to 5 (poor to excellent). Key

**Results:** Overall the haematoma rate was 3.4% ( $n = 4$ ) as was transient facial nerve dysfunction ( $n = 4$ ). 5 patients experienced a delay in wound healing, which had entirely resolved by 8 weeks. Satisfaction scores of 4.43 and 4.45, were obtained from patients and surgeons respectively. Conclusions: platysma-SMAS plication has been found to give good, and reproducible, results, particularly for jowling and cheek regeneration. As the SMAS is plicated rather than being elevated, it is a safe procedure with regard to the facial nerve, which has furthermore been shown to be easily taught to less experienced aesthetic surgeons.

## Oncology P007

### Integrins as prognostic indicators in human breast cancer

Berry MG<sup>1</sup>, Nitch-Smith H<sup>2</sup>, Gui GPH<sup>3</sup>, Carpenter R<sup>4</sup>

<sup>1</sup>St Bartholomew's, London, UK, <sup>2</sup>St Bartholomew's, London, <sup>3</sup>Royal Marsden, London, <sup>4</sup>St Bartholomew's, London (miles.berry@curie.net)

**Introduction:** Integrins are the cell surface heterodimers fundamental to cell proliferation, migration and survival. Altered levels of certain integrin subunits have been found to influence tumour cell invasion and metastasis. The aim of this study was the correlation of long-term survival in a group of patients with their original breast cancer integrin profile that have been under surveillance for 10 years.

**Patients and methods:** Integrin expression on samples from 95 consecutive patients was assessed using monoclonal antibodies to the subunits,  $\alpha 1, 2, 3, 5, 6$  and  $\beta 1, 3, 4$  and 5. Survival analysis was performed with Kaplan-Meier statistical evaluation.

**Results:** Analysis of our data showed statistically significant relationships between increased  $\alpha 6$  ( $p = 0.016$ ) subunit expression and decreased survival. Additionally, decreased  $\beta 1$  ( $p = 0.020$ ) and  $\alpha v$  ( $p = 0.024$ ) expression correlated with reduced survival.

**Conclusion:** The importance of various integrin subunits to tumour cell invasion and metastasis in-vitro has been documented in numerous publications: this study translates that research into a clinically-relevant setting. It is apparent from our study that the original integrin subunits expressed by a patient's tumour can provide important long term prognostic data and allow refined



stratification of management strategies. In breast cancer, the  $\alpha 6$ ,  $\beta 1$  and  $\alpha v$  subunits appear to have most influence on prognosis.

## Oncology P008

### Primary Small Bowel Tumours – a series study

Bhattacharjee Mr Santanu, Bhattacharjee Mr Atanu, Bhattacharya Mr Sayantan, Chowdhury Mr A

Blackpool Victoria Hospital, Blackpool, UK (bhattacharjee.santanu@hotmail.com)

**Objective:** To carry out a systematic review of all the cases of primary tumours of small bowel that has been treated over the last ten years in our hospital. We wanted to find out how these tumours were diagnosed, as majority of them present late and have vague symptoms.

**Method:** A retrospective study of patients who were treated between 1996 and 2006 was carried out. The presenting complaint and the investigations carried out were reviewed. The delay between first presentation of symptoms and definitive diagnosis noted, and this effect of the delay on final outcome documented. Tumours arising from Periapillary area, pancreas and common bile duct were excluded.

**Results:** 34 patients had primary tumours of which 19 had adenocarcinoma, 9 had villous adenoma, 2 had GIST and 1 had leiomyoma. Mean age at diagnosis was 75 years and there was a female preponderance of 1.2:1.0. Presentation was with iron deficiency anaemia in 52% of the patients and 26% presented with acute abdomen from obstruction or perforation. 21 patients had malignant tumours and of them 13 had liver metastasis. Half of all the tumours were in the second part of the duodenum and majority of tumours with distant spread were in duodenum.

**Conclusion:** Since majority of these tumours are in duodenum, the most common and effective way of diagnosis was by endoscopy. Prompt investigation of vague abdominal symptoms can often give an early diagnosis of these tumours and significantly improve outcome. Fast track access by General practitioners will improve chances of diagnosis.

## Gastrointestinal P009

### Colorectal cancers – a new approach to care pathways

Bhattacharjee Dr Atanu<sup>1</sup>, Bhattacharjee Mr Santanu<sup>2</sup>, Bhattacharya Mr Sayantan<sup>3</sup>, Ravi Mr S<sup>4</sup>

<sup>1</sup> Blackpool Victoria Hospital, Blackpool UK, <sup>2</sup> same as above, <sup>3</sup> same as above, <sup>4</sup> same as above (bhattacharjee.santanu@hotmail.com)

**Objective:** To evaluate the impact of nurse-led rehabilitation units on hospital stay for patients operated for primary colorectal cancers in a district general hospital.

**Method:** We undertook a retrospective audit of 165 patients (91 cases from 2006 and 74 cases from 2005) operated for primary colonic malignancy electively. Hospital stay of these patients was compared for two consecutive years to represent the impact of nurse led rehabilitation units introduced in 2006. Average durations of hospital stay for different operative procedures (excluding abdomino-perineal resection) among various age groups were compared with national guidelines.

**Result:** The mean length of hospital stay was 10-16 days in 2006 and 15-46 days in 2005. Maximum duration of hospital stay was observed in cases of high anterior resection-a mean of 16-25 days in 2005, reduced to 11-25 days in 2006. Maximum reduction of duration of stay was observed among patients undergoing left hemicolectomy-from a mean of 16 days in 2005 to 6-33 days in 2006. Longest duration of stay was observed among patients aged above ninety years-a mean of 21 days in 2005 and 17 days in 2006.

**Conclusion:** There is a significant reduction of the length of hospital stay for all operative procedures and age groups. This is achieved by implementing transitional care pathways between secondary care and community. In future, it will increase turnover of cancer surgery leading to a more efficient health care system.

## Transplantation, Organ preservation P010

### Assessment of residual kidney function after living donor nephrectomy

Bieniasz Monika<sup>1</sup>, Domagala Piotr<sup>2</sup>, Kwiatkowski Artur<sup>3</sup>, Gozdowska Jolanta<sup>4</sup>, Ostrowski Krzysztof<sup>5</sup>, Chmura Andrzej<sup>6</sup>

<sup>1</sup> Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>2</sup> Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>3</sup> Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>4</sup> Department of Transplantology and Nephrology, Medical University of Warsaw,

<sup>5</sup> Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>6</sup> Department of General and Transplantation Surgery, Medical University of Warsaw (pdomagal@mp.pl)

**Background:** The number of patients on the waiting list for kidney transplantation is increasing as a result of cadaveric donor shortage. One of the ways to expand the donor pool is living donor transplantation. However, only 2% of kidney transplants in Poland come from living related donors. The aim of this study was to assess residual renal function, incidence of hypertension and proteinuria in living kidney donors.

**Patients and methods:** Between 2004 and 2007, 46 living donor open nephrectomies were performed. Physical examination, blood and urine tests and ultrasonography were performed prior to nephrectomy and at every follow-up visit (1, 3, 12 and 24 months post-op). All donors underwent psychological assessment before donation. Donor mean age was 39 years (range 25–57). The donors were predominantly female (61%). Mean hospitalization time was 8 days (range 4–22 days). Nine donors did not report for follow-up visits. Observation period ranged from 1 to 24 months.

**Results:** Mean creatinine concentration was higher 3 months after nephrectomy ( $p < 0.05$ ). Mean creatinine clearance according to Cockcroft-Gault formula and mean creatinine clearance according to abbreviated modification of diet in renal disease equation (aMDRD) decreased after donation by 30% ( $p < 0.05$ ). No cases of proteinuria were observed. Hypertension occurred in one donor (2.7%).

**Conclusion:** Living kidney donation results in a reduced creatinine clearance in the donor. Follow-up of living kidney donors is essential in determining risk factors for deterioration of residual kidney function.

## Orthopedic P011

### Myofibroblastic Sarcoma of the Thumb Presenting as Unhealed Paronychia

Bijju KV<sup>1</sup>, Paringe Vishal<sup>2</sup>, Shafqat Syed<sup>3</sup>

<sup>1</sup> Scunthorpe General Hospital, Scunthorpe, UK, <sup>2</sup> Scunthorpe General Hospital,

<sup>3</sup> Scunthorpe General Hospital (vishalparinge@doctors.org.uk)

Myofibroblastic tumours are soft tissue neoplasms arising from myofibroblasts, which are ubiquitous cells sharing ultrastructural features of muscular and fibroblastic cells. High grade myofibroblastic sarcoma has been reported in both children and adults. In children these tumours are located usually in head and neck region. In adults, they present as a slowly growing painless mass in hands or feet. Both sexes are equally affected. We report a 47 year old male patient who presented to the orthopaedic department in November 2001 with an unhealing paronychia of the thumb. He had a wedge resection of the thumb nail 3 months before for the same problem. On surgical debridement, a friable mass was curetted out from the cavity of distal phalanx. Histopathological examination of the curettings showed features of myofibroblastic sarcoma. Patient further underwent a partial amputation of the involved thumb in February 2002 with surgically clear margins confirmed on histological examination. He was not given any chemotherapy and radiotherapy. He had been regularly followed-up with chest X ray to look for pulmonary metastasis and clinically for local recurrence. At the last follow-up in October 2007 there was no evidence of local recurrence or pulmonary metastasis. This case is unusual with its presentation as an unhealed paronychia in a healthy individual and no similar instances of myofibroblastic sarcoma has been reported in the literature with similar presentation.

## Transplantation, Organ preservation.1 P012

### Exotic autogenous arteriovenous fistula on forearm – is it really efficacious?

Bojakowski K<sup>1</sup>, Mazurkiewicz A<sup>2</sup>, Dratwiczki M<sup>3</sup>, Andziak P<sup>4</sup>

<sup>1</sup>Department of General and Vascular Surgery, CSK MSWiA, <sup>2</sup>Department of General and Vascular Surgery, CSK MSWiA, <sup>3</sup>Department of General and Vascular Surgery, CSK MSWiA, <sup>4</sup>Department of General and Vascular Surgery, CSK MSWiA (wlo@cmdik.pan.pl)

**Background:** Efficient vascular access is necessary for successful dialysis of patients with end-stage renal disease. Distal forearm AVF between radial artery and cephalic vein is of first choice site for AVF creation. Accessible results of AVF for dialysis between other native vessels on forearm are very limited.

**Material and Methods:** We compared outcome of regular radio-cephalic AVF ( $n = 70$ ) with nonstandard forearm AVF ( $n = 7$ ). Nonstandard forearm native vessel fistulas included AVF between ulnar artery and basilic vein (2), transposed basilic vein anastomosed to distal part of radial artery ( $n = 2$ ), or proximal part of radial artery ( $n = 2$ ), or short fragment of cephalic vein anastomosed to distal radial artery ( $n = 1$ ). All vessels used for AVF creation fulfilled ultrasonography criteria – diameter exceeding 2 mm, no stenosis or occlusion.

**Results:** Early, intraoperative success was achieved in all nonstandard AVF (100%), and 97.1% of standard AVF. Complications in exotic AVF were observed in 6 of 7 patients (85.7%). Primary patency of nonstandard AVF was 42.8%, 14.3% after 12 and 24 months respectively, secondary patency was 57.2% and 14.3% after 12 and 24 months respectively. 2 patients underwent PTFE reconstruction of stenosis in basilic vein. Extensive and numerous stenoses in vein were main cause of disqualification from AVF reconstruction. Primary (71.4%, 58.6%) and secondary (78.5%, 61.4%) patency were significantly better in standard AVF group after 1 and 2 years ( $p > 0.05$ ).

**Conclusions:** Nonstandard AVF is an option for vascular creation which bears some benefits for patients but it should not be recommended for routine application. Some patients do benefit from arm fistula or implantation of a prosthetic graft for AVF more than numerous re-do operation of malfunctioned AVF on forearm. Patients with AVF dysfunction risk factors, such as diabetes mellitus, history of previous malfunctioning AVF, should be qualified to arm AVF rather than nonstandard forearm AVF.

## Hepatobiliary.1 P013

### Management and mid-to long-term results of early referred bile duct injuries during laparoscopic cholecystectomy

Can Mehmet Fatih<sup>1</sup>, Yagci Gokhan<sup>2</sup>, Ozturk Erkan<sup>3</sup>, Sahin Mutlu<sup>4</sup>, Cetiner Sadettin<sup>5</sup>, Tufan Turgut<sup>6</sup>

<sup>1</sup>Gulbane School of Medicine, Department of Surgery, Ankara, Turkey, <sup>2</sup>Gulbane School of Medicine, Department of Surgery, <sup>3</sup>Gulbane School of Medicine, Department of Surgery, <sup>4</sup>Gulbane School of Medicine, Department of Surgery, <sup>5</sup>Gulbane School of Medicine, Department of Surgery, <sup>6</sup>Gulbane School of Medicine, Department of Surgery (mfcan@superonline.com)

**Background/Aim:** Bile duct injuries (BDI) usually need operative repair and remain as a challenge even for surgeons who specialize in hepatobiliary surgery. The objective of this study was to define the presentation, in-hospital management, and mid-to long-term outcome of BDIs during laparoscopic cholecystectomy (LC) referred to a tertiary center in their early period.

**Methods:** From January 1996 to January 2006, 31 patients with BDI sustained during or after LC were treated at our institution. Patients were referred to our center from 18 community hospitals in their first 15 postoperative days. Patients' charts were retrospectively reviewed; presentation, management, and follow-up details recorded at the primary hospitals and at our institution were documented.

**Results:** There were 5 patients with type-A and one with type-C injury, according to Strasberg classification. The remainders had a major BDI. The mean time to referral was 3.45 (median 2) days. Treatment methods chosen after referral were as follows: drainage-observation in 2 patients (6.5%), nasobiliary drainage in 4 (12.9%), endoscopic sphincterotomy plus biliary

stenting in 1 (3.2%), and surgical intervention (duct-to-duct anastomosis or biliary-enteric reconstruction) in 24 patients (77.4%). Although a success rate of 83.3% was achieved in the early period, 10 patients (32.3%) had late postoperative complications (stricture and cholangitis), and of these, 3 required endoscopic stent placement, and 7 patients underwent a biliary diversion with Roux-en-Y Hepaticojejunostomy. One out of 24 patients with long-term follow-up developed biliary cirrhosis, and one patient with malignancy expired.

**Conclusions:** Minor BDIs can be satisfactorily treated with endoscopic interventions. Extended lateral injuries, complete CBD transections, and long segment stenosis usually require surgical therapy. Duct-to-duct anastomosis may be an option as the first-line therapy in selected patients after early referral, though many patients eventually require a Roux-en-Y hepaticojejunostomy.

## Transplantation, Organ preservation.2 P014

### In-111-OXINE vs Tc-99m-MIBI as a marker for transplanted myoblasts

Castedo Evaristo<sup>1</sup>, de Haro Javier<sup>2</sup>, Santos Martin<sup>3</sup>, Chaparro Dolores<sup>4</sup>, Maganto Paloma<sup>5</sup>, Escudero Cristina<sup>6</sup>

<sup>1</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>2</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>3</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>4</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>5</sup>Hospital Universitario Puerta de Hierro. Madrid, SPAIN, <sup>6</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain (cescudero.bptb@salud.madrid.org)

**Introduction:** Regenerative medicine is growing as it allows the replacement of impaired cell populations to recover organ function. We study autologous myoblast transplantation into heart.

**Aim:** Comparison of Tc-99m-MIBI and In-111-oxine as markers to locate transplanted myoblasts.

**Methods:** In a first part of the study, cultured myoblasts from NZW rabbit femoral biceps were labelled with either Tc-99m-MIBI (half life: 6 hours) or In-111-oxine (half life: 72 h). The procedure did not affect cell viability, and the labelling efficiency was similar in both cases. Therefore, In-111-oxine was chosen to continue the study, due to its longer half life. The myoblast suspensions were incubated with 23.5 MBq of In-111-oxine for 30 minutes at 37°C. (labelling efficiency 30–40%). NZW rabbits received autologous transplants of myoblasts into lateral side of left ventricle (20–25 million, viability: 97–99%), through left thoracotomy. Twenty-four hours post-transplant “in vivo” gammagraphy was performed. Next, the animals were sacrificed and the activity was assessed in blood, heart, lung, liver and kidney.

**Results:** Gammagraphic images showed that activity accumulates in the injection areas. Post-mortem study of the different organs confirmed this.

**Conclusions:** In-111-oxine can be used to follow transplanted myoblasts. It presents the same advantages and a longer half-life than Tc-99m-MIBI.

## Sepsis, Infection, Immunity P015

### Imaging of different cell types transplanted into thymus by nuclear medicine tools. Implications in induction of tolerance

Castedo Evaristo<sup>1</sup>, Mula Nieves<sup>2</sup>, de Haro Javier<sup>3</sup>, Santos Martin<sup>4</sup>, Escudero Cristina<sup>5</sup>, Maganto Paloma<sup>6</sup>

<sup>1</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>2</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>3</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>4</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>5</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>6</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain (cescudero.bptb@salud.madrid.org)

**Introduction:** Biodistribution of transplanted cells is not exactly known in many cases. Intrathymic cell injection could play a role in induction of tolerance to organ/cell transplants.

**Aim:** Use of a routine technique that allows locating the graft immediately after the implant.

**Methods:** NZW rabbits were divided into two groups and transplanted into thymus with either myoblasts (10 million) or hepatocytes (10–20 million) labelled with In-111-oxine. Two days post-transplant the animals were studied

“in vivo” in a gammacamera and afterwards the following organs were removed and the activity counted in them: blood, thymus, kidney, liver, heart, spleen, lung. Labelling: Isolated cells were incubated for 30 min. at 37°C, with In-111-oxine (17–25 MBq). The labelling efficiency was 10–12% for hepatocytes and 30–40% for myoblasts.

**Results:** The gammagraphic study showed an intense activity located in thymus in all animals. No other organ but kidney (excretion via) showed accumulation of activity. The counting of the different organs was compatible and confirmed the gammagraphic images.

**Conclusions:** Despite the low labelling efficiency, In-111-oxine is an adequate label for both hepatocytes and myoblasts, in order to confirm the location of these and other cell types that may induce tolerance upon interaction with thymic populations.

## Sepsis, Infection, Immunity\_2 P016

### Interruption of afferent lymphatics draining S.epidermis infected skin is accompanied by acute dermatitis but low response of regional lymph nodes

Cąkała Marta<sup>1</sup>, Zaleska Marzanna<sup>2</sup>, Olszewski Waldemar L<sup>3</sup>

<sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland (wlo@cmdik.pan.pl)

Dermatolymphangioadenitis is a common complication of interruption of afferent lymphatics by cancer surgery combined with partial lymphadenectomy. It seems that skin microbes normally penetrating epidermis during hand work or walking are retained in the skin and subcutis because of lack of lymph drainage and evoke host reaction.

**Aim:** To study lymph node cellular reaction to bacterial antigens before and after ligation of afferent lymphatics.

**Materials & Methods:** Group I. S. epidermidis was injected daily for 7 days into WIS rat paw web tissue in saline containing 7.5x10<sup>7</sup> cells. Group II. S.epidermis was injected as in group I after ligation of lymphatics below the popliteal lymph node. Nodes were isolated on day 8. They were weighed, the cell number was counted and cells were stained with mAbs for FACS and immunohistochemical analysis.

**Results:** Group I. Skin contained some His48 granulocytes and MHCII cells. The popliteal lymph nodes became enlarged on the bacteria injected side. There was an increase in lymph node weight and cell concentration per g of tissue, compared to controls by factors 2,23 and 3,91 respectively ( $p < 0.05$ ). Moreover, there was an increase in FACS analysis in percentage of OX6, OX7, CD54(ICAM-I) and ED1 (macrophages) subsets. Immunohistochemical pictures showed increase in percentage of OX62 (migrating dendritic cell), MHC II and His48 (granulocytes) cells in the subcapsular, follicle, paracortex and medullary areas. Group II. After ligation of afferent lymphatics the weight of nodes was not significantly increased. Skin showed presence of multiple granulocytes, MHC II, ED1 (macrophages) and OX62 cells. Popliteal lymph nodes contained evidently less of OX62, His48 and MHCII cells than in group I ( $p < 0.05$ ).

**Summary & conclusions:** Afferent lymphatics transport microbial cells and/or microbes phagocytized by dendritic cells and macrophages to the regional node. Local skin reaction is limited, whereas lymph nodes reveal acute reaction with mobilization of granulocytes from blood perfusing nodes. Interruption of lymphatics saves nodes but skin reaction is strong and long-lasting. These observations seem to explain why damage to lymphatics during mastectomy or groin dissection is followed by recurrent attacks of skin inflammation.

## Transplantation, Organ preservation\_2 P017

### Tracing of distribution of intrasplenic transplanted hepatocytes by nuclear medicine techniques

Chaparro Dolores<sup>1</sup>, Mula Nieves<sup>2</sup>, de Haro Javier<sup>3</sup>, Arahetes Rosa Maria<sup>4</sup>, Escudero Cristina<sup>5</sup>, Maganto Paloma<sup>6</sup>

<sup>1</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>2</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>3</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>4</sup>Universidad Complutense. Madrid, Spain, <sup>5</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain, <sup>6</sup>Hospital Universitario Puerta de Hierro. Madrid, Spain (cescudero.bpth@salud.madrid.org)

**Introduction:** One problem in hepatocyte transplantation is their possible migration that may result in embolism, infarction or inefficacy of the graft.

**Aim:** Use of an inoquous technique allowing to locate the graft after the implant and confirming that it does not give rise to any complications.

**Methods:** NZW rabbits were donors and recipients. They were transplanted into spleen with 111-In-labelled hepatocytes (200 million, viability: 79–95%). Two days later the animals were studied “in vivo” in a gammacamera and afterwards the following organs were removed and the activity counted in them: blood, kidney, liver, heart, spleen, lung. Procurement and labelling: Hepatocytes were isolated by collagenase perfusion and incubated for 30 min. at 37°C, with In-111-oxine (17–25 MBq; labelling efficiency: 10–12%).

**Results:** The gammagraphic study showed an intense activity located into the splenic-hepatic area, and some activity in kidneys (excretion via). No other organ showed accumulation of activity. The actual counting showed that the activity was accumulated in both liver and spleen.

**Conclusions:** In-111-oxine is an adequate label for hepatocytes and likely for other cells types, in order to confirm the location of cells recently transplanted. Intrasplenic transplanted hepatocytes migrate to liver within 48 hours and exhibit a homogeneous distribution. There is no embolism into lungs.

## Orthopedic P018

### Audit on failure rates of bone grafts and factors affecting it

Chauhan Rohit<sup>1</sup>, Broome Guy<sup>2</sup>

<sup>1</sup>S.H.O–Cumberland infirmary, Carlisle, UK, <sup>2</sup>Consultant Orthopaedics & trauma Cumberland infirmary, Newtown road Carlisle–CA2 7PH UK (rohitchauhan11@hotmail.co.uk)

**Background:** There are approximately 170,000 fractures in the United States that fail to heal each year that require some form of bone substitute to repair the fracture. Disability caused by graft failure is preventable in most cases.

**Objectives:** To assess the outcomes of various types of bone grafts, study the factors affecting the failure of the graft and to identify reasons for failure. We also assessed the donor site morbidity. Method Retrospective study. The types of grafts studied were Auto grafts, Allografts and Xenografts (Tuto bones). All the patients who had bone grafts done in the 6 month time period ranging from 01/07/04 to 31/12/04 were included. Data was collected from case notes, theatre records and X-Rays. Success rate was based on clinical and radiological findings Total of 32 patients, out of which 20 were considered for study; 8 auto grafts, 8 allografts and 4 tuto bones.

**Result:** There were 4 cases of graft failure, all of which were allograft. Half of all allograft failed, 75% of which were used in lower limbs. There was a 37.5% failure rate in > 50 yr age group; 75% of the cases of graft failure were in the age group of > 50. Significant failure rates were encountered in trauma patients (33.3%) compared to elective admissions (14.2%). There was no donor site morbidity.

**Discussion:** Higher failure rates were seen with allograft, patients in older age group, trauma patients and in lower limb bone grafts. Change in practice A copy of the audit was taken by the consultants with plans to assess practice and re-auditing. Reference Bone grafts, Derivatives & Substitutes – Urist MR, O'Connor BT, Burwell RG Clinical Orthopaedics and Related Research, No. 371 – Stevenson S, Gross AE Clinical Orthopaedics and Related Research, No. 197 – Malinin TI, Gross AE Campbell's Operative Orthopaedics.



## Plastic P019

### The Electrochondroplasty Technique for Prominent Ear Correction

Chen Yi-An<sup>1</sup>, Azzawi Khayam<sup>2</sup>, Cormack George<sup>3</sup>

<sup>1</sup>Plastic Surgery Department, Addenbrooke's Hospital, Cambridge University Hospitals, UK, <sup>2</sup>Plastic Surgery Department, Addenbrooke's Hospital, Cambridge University Hospitals, <sup>3</sup>Plastic Surgery Department, Addenbrooke's Hospital, Cambridge University Hospitals (yianc@hotmail.com)

Prominent ear is the most common congenital deformity of the external ear. The international literature describes various techniques for the correction of this deformity. A core part of the procedure is to mould the cartilage into a new folded shape. There are several methods of moulding the cartilage. Those techniques use weakening of the anterior surface, suturing of the unfolded antihelix, or suturing the concha to the mastoid. Some surgeons use a combination of different techniques. The authors have devised a new simple technique of using electrical diathermy to achieve the desired chondroplasty (Electrochondroplasty). This study audited the cases of 100 patients with bilateral ear correction using Electrochondroplasty performed by a single consultant in a tertiary plastic surgery department. The study demonstrated satisfactory results using this procedure. In this approach, the reconstruction of the anti-helix is safe, relatively easy to perform, with low complication rate, and good long term results.

## Transplantation, Organ preservation\_2 P020

### Kidney transplantation with an ileal conduit formation

Chmura A<sup>1</sup>, Borkowski A<sup>2</sup>, Rowiński W<sup>3</sup>, Radziszewski P<sup>4</sup>, Kwiatkowski A<sup>5</sup>, Trzebiecki J<sup>6</sup>

<sup>1</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>2</sup>Department of Urology, The Medical University of Warsaw, Poland, <sup>3</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>4</sup>Department of Urology, The Medical University of Warsaw, Poland, <sup>5</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>6</sup>Department of Anesthesiology and Intensive Care, The Medical University of Warsaw, Poland (wojciech.lisik@am.edu.pl)

Dialyzed patients with serious pathology of the lower urinary tract (LUT) had not been qualified for kidney transplantation in Poland till 1999, when the program of transplantation in such patients was begun in our institution.

**Aim:** Prospective study in the only Polish centre, performing this procedure, to compare the results to standard kidney transplantation.

**Patients and method:** Since 1999 we have performed 17 kidney transplants with an ileal conduit formation as urinary diversion, in 6 women and 11 men aged between 17 and 65 years. Out of 13 cadaveric and 4 living-related transplantations 2 ileal conduits had been performed prior to transplantation, 14 others at the time of procedure. 2 kidneys were placed on the left, 14 on the right, positioned up-side down, with ureter anastomosed to ileal loop, fashioned by dissecting 17 cm of ileum near from caecum; bowel was immediately anastomosed, restoring the digestive tract. The deep end of the conduit was closed while the other was brought out as a cutaneous stoma. The ureter was then anastomosed to the blind end of the conduit on a "pig tail" catheter brought out through the stoma for 10–14 days post transplantation. Immunosuppression protocol with CyA Prednisolone and MMF was used.

**Results:** During follow-up ranging from 1 to 9 years, all but one kidney survived with excellent function. One kidney was lost due to massive fibrosis of the urether in a patient with severe CMV infection. Severe complications like ileus, ureter or loop necrosis, wound infection, hematuria and UTI were treated successfully. Mean creatinine level was 1.2 mg% for living-related kidney grafts and 1.4mg% for cadaveric kidneys.

**Conclusions:** Kidney transplantation in patients with urinary diversion through an ileal conduit is a safe and effective procedure in patients with serious LUT pathology. Higher incidence of UTI does not influence graft function.

## Wound healing\_1 P021

### Perianal fistulae—own experiences in the treatment

Chrzan Barbara-Renata

Department of General and Orthopedic Surgery, Hammerfest Hospital, Norway (warienka@rambler.ru)

Perianal fistulae as a disease of recurrence course and difficult for treatment makes a serious problem in proctology. Despite of systematically improve method of operation procedure it is not possible to get complete successful results of healing. Now it is known, that efficient procedure in the treatment of perianal fistulae includes only operation procedure, what is not devoid of complications. To the frequent complication we include injury of sphincter function and risk of illness recurrence. Injury of sphincter function is really a serious problem and it induced to search new solutions in the treatment of perianal fistulae. New and very promising method seems to be fibrin glue treatment. The aim of the study is to evaluate the adequacy of various methods in the treatment of perianal fistulae.

**Material and methods:** The study was conducted on a group of 30 patients with perianal fistulae treated in the 2-end Department and Proctological Outpatient Department of Public Clinical Hospital Nr.1, Medical Academy in Wroclaw/Poland from 2003 to 2005.

**Results:** In the study the success rate is 48%. Rest of patients had a recurrence. We did not note injury of sphincter muscle function.

**Conclusions:** The most effective method of treatment is simple excision with leaving to develop of granulation tissue.

## Plastic P022

### The efficacy of Unilateral Spinal Anaesthesia In Unilateral Inguinal Surgery

Cicekci Faruk<sup>1</sup>, Yilmaz Hüseyin<sup>2</sup>, Balasar Mehmet<sup>3</sup>, Sahin Mustafa<sup>4</sup>

<sup>1</sup>Department of Anesthesiology, Konya Hospital, Konya Turkey, <sup>2</sup>Department of General Surgery, Konya Hospital, Konya Turkey, <sup>3</sup>Department of Urology, Konya Hospital, Konya Turkey, <sup>4</sup>Selcuk University Meram Medical Faculty, Department of General Surgery, Konya, Turkey (sabinmu@hotmail.com)

**Aim:** The purpose of this study is to compare the efficacy of the bilateral and unilateral spinal anesthesia in short duration inguinal operations such as inguinal hernioraphy.

**Material and Methods:** 40 patients candidate for unilateral inguinal hernia repair were included in this study. All the patients were given 0.1 mg/kg midazolam i.m. preoperatively. The patients were divided into two groups randomly. In two groups, 0.5% hyperbaric bupivacain 3 ml (5 mg/kg) + 0.2 ml morphine (0.1 mg) was given intratecal space via L 4–5 intervertebral disk. In Group I; the patients lied down in lateral decubitus position according to operation region. In Group II; The patients lied down supine position. After spinal anesthesia, the patients' sensorial blockage levels were tested with pin-prick test and motor blockage levels were tested with Bromage scale. Operation duration, the first analgesic application time and postoperative complications were recorded. Mann-Whitney U and Ki-Square tests were used for statistical analysis.

**Results:** In postoperative complications, there was no statistical differences between two groups ( $p > 0.05$ ). Duration of sensorial blockage to reach L1 level, T10 and T12 levels, and motor block Bromage scales were shorter in Group I and the differences were statistically significant ( $p < 0.05$ ). Recover of the blockages in two groups were similar ( $p > 0.05$ ). Hemodynamic parameters recorded intra-and postoperative period were also same ( $p > 0.05$ ).

## Hepatobiliary\_1 P023

**Histological grading of biliar fibrosis in microsurgical extrahepatic cholestasis in the rat**Cruz A<sup>1</sup>, Losada M<sup>2</sup>, Sánchez-Patán F<sup>3</sup>, Corcuera M.T<sup>4</sup>, Aller M.A<sup>5</sup>, Arias J<sup>6</sup><sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>3</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>4</sup>Pathology Service. Carlos III Hospital. Madrid, Spain, <sup>5</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>6</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain (manuellosadaruz@hotmail.com)

A new model of extrahepatic cholestasis, using a microsurgical technique, is performed as an alternative to the traditional model of the bile duct ligated-rat, in order to study the stage of fibrosis in the long-term. Male Wistar rats were divided into two groups: I (Sham-operated, n=9) and II (Microsurgical Cholestasis, n=10). After 4 weeks, portal pressure, types of portosystemic collateral circulation, mesenteric venous vasculopathy, hepatic function test and liver histopathology were studied by using the Knodell index and fibrosis was determined by reticulin and Sirius red stains. The animals with microsurgical cholestasis presented portal hypertension with extrahepatic portosystemic collateral circulation, associated with mesenteric venous vasculopathy and increased plasma levels of bilirubin ( $6.30 \pm 1.80$  versus  $0.22 \pm 0.37$  mg/dl;  $p=0.0001$ ), alkaline phosphatase ( $293.00 \pm 82.40$  versus  $126.30 \pm 33.42$  U/L;  $p=0.001$ ), AST ( $380.00 \pm 78.50$  versus  $68.33 \pm 11.74$  IU/L;  $p=0.0001$ ), ALT ( $87.60 \pm 22.32$  versus  $42.22 \pm 7.89$  IU/L;  $p=0.0001$ ) and LDH ( $697.76 \pm 75.13$  versus  $384.80 \pm 100.03$  IU/L;  $p=0.0001$ ). On the contrary, plasma levels of Albumin decreased ( $2.72 \pm 0.12$  mg/dl versus  $2.99 \pm 0.10$ ;  $p=0.001$ ). The microsurgical resection of the extrahepatic biliary tract in the rat produces an experimental model of hepatic inflammation, characterized by a high Knodell hepatic activity index (4), bile proliferation and fibrosis.

## Orthopedic P024

**Polymorphisms of il6 gene promoter is responsible for disturbances in fracture repair**Czapnik Żaneta<sup>1</sup>, Szczesny Grzegorz<sup>1,2</sup>, Olszewski Waldemar L<sup>3</sup>, Interewicz Bożenna<sup>3</sup>, Stachyra Emilia<sup>4</sup>, Rutkowska Joanna<sup>5</sup><sup>1</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Orthopedics and Traumatology, Medical University, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>4</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>5</sup>Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland (wlo@cmdik.pan.pl)

Despite improvement in operative technique, reduction of bacterial infections and improved pharmacotherapy, non-healing of fractures affects about 10–15% of patients. Genetic factors are reported to predispose to the delayed healing. The aim of study was to search for genetic factors predisposing to disturbances in bone union.

**Patients & methods:** Venous blood specimens were harvested from patients (n=27) treated due to disturbances in bone fracture repair (malunions, non-unions), diagnosed clinically and by standard X-ray and CT scans. DNA was isolated from blood cells for determination of polymorphism of IL-6 (G-174C), CRP (G1059C) and CD14 (C-159T) genes IL-6 5'-TGACTTCAGCTTTACTTTGT -3', 5'-CTGATTGGAACCTTATTAAG-3'; CRP 5' GATCTGTGTGATCTGA GAAACCTCT3', R 5' GAGGTACCAGACAGACAGACGTG3'; CD14 5' GTGCCAACAGATGAGGTTCA 3', r 5' CGCAGCGGAAATCTTCATC

3'. The obtained results were compared with those from 110 healthy blood donors without disturbances in wound healing or predisposition to infection in the past history.

**Results:** The obtained data showed significant differences in the frequency of mutations in IL6 in the patients group (CC15%, and GC37%; whereas GG48%) when compared with controls (CC4%, GC 0%, whereas GG96%). There were no significant differences in CRP and CD14 allele representation.

**Discussion:** Our observations points to the possibility of genetic predisposition to fracture non-healing in IL-6 gene. IL-6 is a proinflammatory cytokine participating in the activation of the immune response against infection. Since the mutations in IL-6 gene promoter were reported to correlate with lower serum IL-6 concentration. Our results suggest that this mutation may impair healing by predisposing to infection. This finding may be of interest, since our previously reported data showed the presence of bacteria using standard microbiological isolation technique in 24% and bacterial DNA in the callus specimens obtained from patients with delayed unions.

**Conclusions:** High frequency of mutations in the IL6 gene correlates with non-healing of bone fracture.

## Transplantation, Organ preservation\_1 P025

**Should we use anti-HCV(+) cadaveric donors in Poland in respect of risk factors not related to HCV infection**Czerwiński Jarosław<sup>1</sup>, Pszenny Anna<sup>2</sup>, Kasprzyk Tomasz<sup>3</sup>, Chmura Andrzej<sup>4</sup>, Małkowski Piotr<sup>5</sup>, Wałaszewski Janusz<sup>6</sup><sup>1</sup>Polish Transplant Coordinating Center Poltransplant, Department of Surgical and Transplant Nursing Warsaw Medical University, Warsaw, Poland, <sup>2</sup>Department of Surgical and Transplant Nursing Warsaw Medical University, <sup>3</sup>Department of General and Transplant Surgery Warsaw Medical University, <sup>4</sup>Department of General and Transplant Surgery Warsaw Medical University, <sup>5</sup>Department of Surgical and Transplant Nursing Warsaw Medical University, <sup>6</sup>Polish Transplant Coordinating Center Poltransplant (jczzerwinski@poltransplant.pl)

In Poland 2.5% referred cadaveric donors (CD) are anti-HCV(+). Kidneys from such CD are transplanted, hearts and livers are not due to safety principles. The analysis established, if anti-HCV(+) CD could be a source of livers in the matter of criteria other than anti-HCV(+). In period 2001–2006, 3750 potential CDs were referred. Organs were harvested in 3079(82%). In the remaining 671(18%) there was no retrieval due to families' refusal (365;10%) or medical contraindications (306;8%). In the number of CDs medically discarded, 283 were refused for factors not related to anti-HCV(+), 23 due HCV risk. In the number of actual kidney donors, 63 were anti-HCV(+). In the same period 952 liver transplantations(LTx) were performed. 86 anti-HCV(+) potential liver donors(LD) (23 discarded from donation, 63 kidney donors) were included to Group A, 952 anti-HCV(–) real liver donors to Group B. 12 risk factors (RF) were compared (age > 60, alcohol ingestion, ICU stay > 4 days, hypotension, dopamine > 10 µg/kg/min, sodium > 160 mmol/l, bilirubin > 2mg/dl, AST/ALT > 150U/l, INR > 1.5, anti-HBc(+) and anti-HCV(+). Each RF was scored for 1 point, points were summarized, an average score was calculated. In Group B an average score was 1.0, in Group A 2.6. For further analysis 71 of 86(83%) anti-HCV(+) CDs were excluded having ≥ 2 risk score (they had to be refused from LD even if they had been not anti-HCV(+). 15 anti-HCV(+) CDs with score < 2 were analyzed. In 3 cases liver pathology were found, for 4 there were not recipients. Only 8 anti-HCV(+) donors did not present other RF than HCV and probably would have been utilized. Anti-HCV(+) CD cumulate RFs for LD (2,6 per CD in comparison with utilized LD = 1.0). This would lead to refusal of such donors independently to the anti-HCV(+). Only 8(9%) anti-HCV(+) CDs could have potentially been utilized for LTx, what could increase the number of Tx of only 0,8%.

## Gastrointestinal\_3 P026

**The influence of local tumour perforation on survival following colonic cancer**David Jayne<sup>1</sup>, Amit Bishnoi<sup>2</sup><sup>1</sup>Royal College Of Surgeons, UK, <sup>2</sup>Royal College of Surgeons, Edinburgh (amit.bishnoi@gmail.com)

**Introduction:** Colonic cancers often present with perforation at the primary site. The influence of perforation on survival and therefore its relevance for adjuvant therapy are unknown. This study aimed to compare perforated with T-stage matched non-perforated colon cancers in terms of clinical presentation, operative findings, histological data, and survival.

**Methods:** Perforated colonic cancers and a T-stage matched cohort of non-perforated cancers were identified from a pathological database covering the period 1996 to 2003. Patient demographics, operative findings, histological data, and overall survival were entered into a statistical database (SPSS v12.01).

**Results:** Complete data was retrieved on 52 perforated and 82 T4 non-perforated colon cancers. At operation, 25/52 (48%) of the perforated cancers were associated with generalised peritonitis, 30/52 (58%) with local invasion, and 13/52 (25%) with distant metastasis. 12/52 of the cancers showed only microscopic evidence of perforation. No difference was detected between cancers with microscopic and macroscopic perforation in any of the clinical or histological parameters examined. Comparative analysis between the perforated and the T-stage matched non-perforated cancers showed that patients with perforated cancers were more likely to have a positive family history ( $p=0.04$ ), more likely to undergo emergency surgery ( $p < 0.001$ ), less likely to have nodal disease ( $p=0.02$ ), but more likely to have distant metastases ( $p=0.01$ ). The 30-day mortality was 17% for perforated and 8.5% for non-perforated cancers. 22/52 patients with perforated and 26/72 with non-perforated cancers received adjuvant chemotherapy ( $p=0.28$ ). Kaplan-Meier analysis revealed a trend towards worse overall survival in the perforated cancers ( $p=0.06$ ) with a median survival of 21 months (95% CI 0–43 months) as compared to 39 months (95% CI 23–55) for non-perforated cancers. This difference was most marked in the first months following surgery and disappeared if patients dying within 30-days of surgery were excluded. A Cox multivariate analysis revealed the only predictor of survival for perforated cancers to be the mode of surgery, with emergency surgery associated with a 16 times increased risk of death (95% CI 1.7–200,  $p=0.01$ ) compared to elective surgery.

**Discussion:** Perforated colonic cancers tend to have a worse prognosis compared to non-perforated T4 cancers. This may be explained by the increased need for emergency surgery and the higher 30-day mortality rate. If patients with perforated cancers survive surgery their prognosis is poor but similar to non-perforated T4 cancers. Tumour perforation per se is not an indication for adjuvant therapy.

**Aim:** The aim of the work is a retrospective evaluation of efficiency of the knee joint in patients after reconstruction and rehabilitation of the ACL with ipsilateral tendons of the semitendinosus and gracilis muscles.

**Materials and methods:** 39 patients after surgery and rehabilitation treatment were evaluated by means of measurement of the moment of force of flexor and extensor muscles in static angles of 20, 45 and 90 degrees with Biodex 3 system, and measurement of the force of stroke on tensometric platforms, separately for each limb. The knee joint was evaluated according to Lysholm scale, IKDC, dynamic functional tests/according to Kwiatkowski/and knee stability with Aircast Rolimeter.

**Results:** On the basis of acquired results we showed minimal differences of force moments for knee muscles/on the side of non operative limb/extensors 20 deg.  $-6.8$  Nm(0,76%), 45 deg.  $-13.9$  Nm (6,4%), 90 deg.  $-14.2$  (10,1%). In the subjective scale we had in the Lysholm scale 28 (73%) very good results, 4 (9%) good, 5 (14%) adequate, 2 (5%) bad. In the IKDC scale 24 (62%) group I, 7 (19%) group II, 5 (14%) group III, 2 (5%) group IV. In the functional outcome 37(95%) were very good results, 2(5%) adequate. In the stability Lachman stability test we had the mean 1,6 mm, the anterior drawer test, mean 0,8 mm.

**Conclusions:** considering the results, the procedure of reconstruction of the anterior cruciate ligament allows the return to full physical activity pre-injury.

## Gastrointestinal\_3 P028

**Determination of vitamin D receptor gene BsmI (C>T) polymorphisms in patients with type 2 diabetes mellitus using PCR-RFLP in a Turkish population**Dilmec Fuat<sup>1</sup>, Uzer Elmas<sup>2</sup>, Uzunkoy Ali<sup>3</sup><sup>1</sup>Harran University School of Medicine Departments of Medical Biology, Turkey,<sup>2</sup>Harran University School of Medicine Departments of Internal Medicine,<sup>3</sup>Harran University School of Medicine Departments of General Surgery (aliuzunkoy@yahoo.com)

**Background:** The etiology of type 2 diabetes mellitus (T2DM) is likely to involve defects of both insulin secretion and insulin signaling. One of the most important contemporary medical problems is an epidemic of T2DM.

**Aim:** We aimed to determine the relation to BsmI (C>T) polymorphisms of VDR gene with T2DM in a Turkish population. VDR gene was investigated as a candidate gene for type 2 diabetes mellitus (T2DM).

**Material and Methods:** Fifty-four patients with T2DM and 149 healthy individuals were recruited for this study. The VDR gene polymorphism was analyzed by using polymerase chain reaction (PCR) and endonuclease digestion with BsmI (RFLP).

**Results:** Our study findings pointed out that the frequency of VDR BsmI TT genotype in T2DM patients was significantly increased compared to healthy controls (31.8% versus 16.1%, respectively,  $p=0.030$ ). In contrast, the frequencies of the other genotypes and alleles in this polymorphic site were not significantly different between both study groups.

**Conclusion:** The determined TT genotype in VDR gene represents a major risk factor for T2DM in our population.

## Orthopedic P027

**Clinical results after reconstruction and rehabilitation patients with ruptured anterior cruciate ligament**Deszczynski Jarosław<sup>1</sup>, Bronikowski Adam<sup>2</sup>, Nagraba Lukasz<sup>3</sup>, Mitek Tomasz<sup>4</sup><sup>1</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>2</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>3</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>4</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland (jdeszcz@o2.pl)

**Introduction:** There are many methods of treatment and rehabilitation of the above mentioned lesion and this implicates a very thorough analysis of methods of treatment.

## Wound healing\_1 P029

**Determination of CTLA-4 and CD28 gene polymorphisms in patients with diabetes mellitus type 2 using PCR-RFLP in a Turkish population**Dilmec Fuat<sup>1</sup>, Uzer Elmas<sup>2</sup>, Uzunkoy Ali<sup>3</sup><sup>1</sup>Harran University School of Medicine Department of Medical Biology, Turkey,<sup>2</sup>Harran University School of Medicine Department of Internal Medicine,<sup>3</sup>Harran University School of Medicine Department of General Surgery (aliuzunkoy@yahoo.com)



**Background:** Noninsulin-dependent diabetes mellitus (NIDDM), or type 2 diabetes (T2DM), is a disorder of late onset with appreciable genetic basis. A several polymorphisms in the various genes, including CTLA-4 and CD28 genes regulate T cell function, and have an association with diabetes mellitus. Aim: We aimed to determinate whether specific polymorphisms in cytotoxic T-lymphocyte antigen 4 (CTLA-4) and CD28 gene were associated with T2DM susceptibility.

**Material and Methods:** EDTA-Bloods were taken from 216 subjects (54 patients with T2DM and 162 healthy controls), and DNA was isolated. We used a PCR-RFLP method to detect the rates of +49(A>G) and -318(C>T) of CTLA-4, and IVS3+17T>C of CD28 gene polymorphisms in T2DM patients.

**Results:** Our results suggested that the frequency of CTLA-4 +49 G allele in T2DM patients was significantly increased compared to healthy subjects (29.6% versus 20.1%, respectively,  $p=0.046$ ). In contrast, the frequencies of the other polymorphic sites of CTLA-4 and CD28 genes were not significantly different between both study groups.

**Conclusion:** The studied polymorphisms in CTLA-4 and CD28 do not represent a major risk factor for T2DM.

## Hepatobiliary\_2 P030

### Examination of Glycogen synthase 2 (liver) gene and its product using Bioinformatics tools

Dilmec Fuat<sup>1</sup>, Atas Ali<sup>2</sup>, Uzunkoy Ali<sup>3</sup>

<sup>1</sup>Harran University School of Medicine Department of Medical Biology, Turkey,

<sup>2</sup>Harran University School of Medicine Department of Pediatrics, <sup>3</sup>Harran University School of Medicine Department of General Surgery (aliuzunkoy@yahoo.com)

**Background:** The GYS2 gene, which encodes for the glycogen synthase 2 (liver) (GS), is an enzyme responsible for the synthesis of 1,4-linked glucose chains in glycogen. Aim: We aimed to investigate the structure of the GYS2 gene and its products using bioinformatics tools.

**Material and Methods:** We investigated the homology, conserved domain, promoter and expression profiles of human GYS2 gene among various vertebrate species using bioinformatics tools, such as NCBI blast, EBI ClustalW, DigiNorthern, Mega4, and Genomatix software.

**Results:** Our results revealed that GS proteins are conserved among all organisms investigated. They have fully one conserved domain (Glycogen-syn) and a several truncated sub-domains. We noted that the human Glycogen-syn domains have been more conserved among the investigated species. The comparative screening of the promoters demonstrated that GYS2 genes do not seem to have any common conserved transcription factor binding sites.

**Conclusion:** This study demonstrated that the GS molecules in various species, except *Ornithorhynchus anatinus* (*O. anatinus*) and *Danio rerio* (*D. rerio*), are well conserved throughout evolution. Comparative screening of the promoter sequences of the human GYS2 gene and its homologues found in the NCBI database revealed that there was no the common transcription factor-binding sites

## Gastrointestinal\_2 P031

### Detection of VDR gene ApaI (G>T) and TaqI (T>C) polymorphisms in patients with type 2 diabetes mellitus using PCR-RFLP in a Turkish population

Dilmec Fuat<sup>1</sup>, Uzer Elmas<sup>2</sup>, Uzunkoy Ali<sup>3</sup>

<sup>1</sup>Harran University School of Medicine Departments of Medical Biology, Turkey,

<sup>2</sup>Harran University School of Medicine Departments of Internal Medicine,

<sup>3</sup>Harran University School of Medicine Departments of General Surgery (aliuzunkoy@yahoo.com)

**Background:** Type 2 diabetes mellitus (T2DM) is by far the most common type of diabetes, and characterized by insulin resistance resulting from defects in the action of insulin on its target tissues, but complicated by varying degrees

of insulin secretion insufficiency as well. Some genes, such as VDR involved in its metabolic pathway have been regarded as good candidates for T2DM.

**Aim:** We aimed to investigate whether there was the association of ApaI (G>T) and TaqI (T>C) polymorphisms of VDR gene with T2DM in a Turkish population.

**Results:** We collected blood samples from 203 individuals (54 patients with T2DM and 149 healthy individuals), and DNA was isolated. Polymorphisms of the VDR gene were analyzed by DNA amplification with polymerase chain reaction (PCR) and endonuclease digestion with ApaI and TaqI.

**Results:** The rate of VDR ApaI TT genotype in T2DM patients was not significantly increased compared to healthy subjects (37.2% versus 36.2%, respectively). Although the VDR TaqI CC genotype in T2DM patients (20.4%) was higher than that in healthy individuals (10.4%), there was no significant difference. In the same way, there was no difference between the groups in allele frequencies.

**Conclusion:** Our data did not provide evidence for the association of two examined VDR polymorphisms with T2DM in a Turkish population.

## Transplantation, Organ preservation\_1 P032

### A comprehensive programme of care for live kidney donors – experience and plans in one centre

Domagala Piotr<sup>1</sup>, Bieniasz Monika<sup>2</sup>, Kwiatkowski Artur<sup>3</sup>, Gozdowska Jolanta<sup>4</sup>, Ostrowski Krzysztof<sup>5</sup>, Chmura Andrzej<sup>6</sup>

<sup>1</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>2</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>3</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>4</sup>Department of Transplantology and Nephrology, Medical University of Warsaw,

<sup>5</sup>Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>6</sup>Department of General and Transplantation Surgery, Medical University of Warsaw (pdomaga@mp.pl)

Donorship carries a risk associated with surgery and further life with one kidney, thus renal transplantation from live donors may only be performed if the donor risk is low. The aim of the paper is to present our own experience in introducing a pioneering complex program of live donor care in Poland.

**Patients and method:** Between 1996 and 2007 our transplantation team performed ninety-one live donor nephrectomies. Beginning in 2005 we introduced a system of control assessments of the donors (group A). Medical examinations are carried out at 1, 3, 6 and 12 months following surgery and every 12 months thereafter. Beginning at the end of 2007, medical assessments of donors nephrectomized prior to 2005 were commenced (group B).

**Results:** Majority of group A donors responded to invitations for control assessments. A one-day hospitalization included medical history, physical examination, abdominal US, chest X-ray, urine microscopy and culture and functional tests of the remaining kidney. Most group B donors had not been followed up before the commencement of the program. The first program visit, a 2–3 day hospital stay consisted of various tests and consultations, including blood and urine tests, abdominal US, chest X-ray, renal isotope scan, ophthalmological and nephrology consultation. Donors in both groups had significantly raised serum creatinine and creatinine clearance decreased by 25–35 mlkg/1.73 m<sup>2</sup>. About 30% of group B donors had previously undiagnosed hypertension. 15% of donors presented abnormal body weight or obesity, as well as disturbances in lipid profiles. Both groups of donors were subjected to quality of life and pro-health behavioral assessment of by standard questionnaires.

**Conclusions:** A comprehensive system of care for live kidney donors with regular multidisciplinary health check-ups and, if necessary, appropriate treatment provides the donors with a feeling of safety and is aimed at decreasing the number of long-term complications of donorship.

## Transplantation, Organ preservation\_1 P033

### Complications of living donor nephrectomy of living – one center experience

Domagala Piotr<sup>1</sup>, Bieniasz Monika<sup>2</sup>, Kwiatkowski Artur<sup>3</sup>, Trzebiecki Janusz<sup>4</sup>, Durlik Magdalena<sup>5</sup>, Chmura Andrzej<sup>6</sup>

<sup>1</sup> Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>2</sup> Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>3</sup> Department of General and Transplantation Surgery, Medical University of Warsaw,

<sup>4</sup> Department of Anaesthesiology and Intensive Care, Medical University of Warsaw,

<sup>5</sup> Department of Transplantology and Nephrology, Medical University of Warsaw,

<sup>6</sup> Department of General and Transplantation Surgery, Medical University of Warsaw (pdomagal@mp.pl)

**Background:** Kidney transplantation from living donors is associated with excellent graft and patient survival. The attention of transplantation teams is focused on the graft and its recipient, as well as on the safety and well-being of healthy donors and is directed at minimizing the number of donor complications. The aim of this study was to analyze the perioperative complications of living donor nephrectomies in our center.

**Patients and method:** The records of 46 live kidney donors operated on between 2004 and 2007 were reviewed. Mean donor age was 39 years (range 25–57). The donors were predominantly female (61%). Mean hospitalization time was 8 days (range 4–22 days). Open nephrectomy was performed in all cases, usually left-sided (78%). Donors were followed up during hospital stay to assess perioperative complications. Ultrasonography was performed prior to discharge.

**Results:** Twenty complications were diagnosed in 18 (39%) donors. There were no deaths or thromboembolism. We noted no hemorrhage in the postoperative period. There was one intraoperative hemorrhage. Wound infection and urinary tract infection occurred in 6 (13%) and 3 (6%) cases, respectively.

**Conclusion:** Nephrectomy in living kidney donors is a safe procedure burdened however by a range of predictable surgical complications.

## Minimally invasive P034

### Selective uterine artery embolization as a method of treatment of symptomatic uterine fibroids

Durczyński Andrzej<sup>1</sup>, Rodzoch Radosław<sup>2</sup>, Grzybowski Wojciech<sup>3</sup>, Jakimiuk Artur<sup>4</sup>

<sup>1</sup> Department of Obstetrics, Women's Diseases and Oncologic Gynecology Central Clinical Hospital, Warsaw, Poland, <sup>2</sup> Department of Obstetrics, Women's Diseases and Oncologic Gynecology Central Clinical Hospital, Ministry of Interior and administration, Warsaw, <sup>3</sup> Department of Obstetrics, Women's Diseases and Oncologic Gynecology Central Clinical Hospital, Ministry of Interior and administration, Warsaw, <sup>4</sup> Department of Obstetrics, Women's Diseases and Oncologic Gynecology Central Clinical Hospital, Ministry of Interior and administration, Warsaw, Medical Research Center, Polish Academy of Sciences (rrodzoch@gazeta.pl)

**Introduction:** Uterine fibroids (uterine myomas) are the most common benign tumor of the female genital tract. They occurs in above 30% women age between 40 and 60. About 20% are symptomatic, including: menorrhagia, metrorrhagia, pelvic pain, compression of urine tract and intestines and pregnancy complications.

**Aim:** The aim of study was evaluation selective uterine artery embolization as a method of treatment of symptomatic uterine fibroids. Volume of the myomas and time of menstrual bleeding before and three months after embolization were compared. Hospitalization time was also evaluated.

**Metod:** From January 2005 to January 2006 there were performed 8 selective embolization of the uterine artery due to uterine myomas. MRI, USG, endometrial biopsy, hormonal tests (FSH, LH, estradiol, progesterone) and biochemical analysis were carried out in all patients before procedure. Three months later was performed control MRI, USG and hormonal tests.

**Results:** The average age of the patients was 42,8 yr (38–47). Total myomas volume according to USG was estimated to 736,37 cm<sup>3</sup> before procedure and to 220,38 cm<sup>3</sup> three months after embolization. Total myomas

volume was reduced to 515,99 cm<sup>3</sup> (70%). Total myomas volume by MRI was estimated to 506,75 cm<sup>3</sup> before procedure and to 376,58 cm<sup>3</sup> three months after procedure. Total myomas volume measured during MRI was reduced to 130,17 cm<sup>3</sup> (25,68%). Maximal myomas volume reduction was 95-75%, minimal 9-1%. Time of menstrual bleeding was shorter after embolization. Menstrual bleeding lasted 8 days before procedure and was reduced to 5,2 days. Mean time of hospitalization was 1,5 days.

**Conclusions:** Selective uterine artery embolization is alternative method of treatment symptomatic uterine myomas. This procedure do not disturb menstrual cycle and do shorten time of menstrual bleeding. Time of hospitalization during procedure is relative short.

## Sepsis, Infection, Immunity\_2 P035

### Gene polymorphism of TLR receptors and cytokines and postoperative septic complications in cancer patients

Durlik Marek<sup>1</sup>, Rutkowska Joanna<sup>2</sup>, Interewicz Bożenna<sup>3</sup>, Czapiński Zdzisław<sup>4</sup>, Waldemar L<sup>5</sup>

<sup>1</sup> Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup> Department of Surgery, Central Hospital of Ministry of Internal Affairs, Warsaw, Poland, <sup>3</sup> Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>4</sup> Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>5</sup> Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland (wlo@cmdik.pan.pl)

**Objectives:** Most published studies on infections and genetic polymorphisms are dealing with sepsis. Only few analyze the correlation between less fulminant inflammatory processes as circumscribed organ or tissue infections or infections causing delayed wound healing. There seems to be only a quantitative difference between these three conditions whereas the basic mechanism remains the same.

**Aim:** This prompted us to study the polymorphisms of selected allele of cytokines and TLRs in patients displaying sepsis or local response to infection without septic symptoms.

**Methods:** Two hundred fifty patients were included into the study comprising cases of sepsis, acute wound infection, chronic and delayed wound infections after gastric, pancreatic and colon cancer surgery. Genetic polymorphisms of 1) TNFα G-308A and TNFβ G252A, 2) CCR2 G190A, 3) CD14 C-159T, 4) TLR2 G2259A and C2029T, 4) TLR4 A1036G and C1363T, and 5) TGFβ T941C sites was studied. Levels of TNFα and TGFβ were measured and correlated with their gene polymorphism.

**Results:** 1) The entire studied group of infected and non-infected patients revealed higher frequency of TNFα G308A GG and lower of GA, and lower of TNFβ G252A GA and higher of AA than controls. There was less of CCR2 GG genotype patients than healthy subjects. In the TGFβ T941C investigated group patients expressed only the CC genotype. Interestingly, additional genotype was detected using TGFβ T941C primer with preponderance in patients, 2) in subgroups of patients with sepsis, acute local infections and delayed wound healing the TNFα G308A GG genotype was represented at higher prevalence than in controls. Patients' TNFβ G252A GA genotype was less and AA was more prevalent than in controls. However, there were less CCR2 GG patients than healthy subjects. In TGFβ G252A studied patients only CC genotype was expressed. Interestingly, additional genotype was detected with preponderance in patients. 3) The TNFα G308A GG, TNFβ G252A GA, CD14 C159T CC and CT, CCR2 GC genotype dominated in patients after gastric surgery with delayed wound healing. Those with TNFα G308A GG, TLR 4-1 A1060G AA, TLR 4-2 C1363T CC had delayed wound healing after pancreatic resection, 4) Patients with genotype TNFα G308A both homozygotes and heterozygotes, displaying delayed healing after gastric and pancreatic surgery produced more TNFα than those with fast healing. The TGFβ level was significantly higher in patients with fast healing of wound after gastric surgery than in controls. These patients presented other than the TGFβ T941C genotype.

**Conclusions:** Evident differences in genetic polymorphism of TLR, TNFα and β were observed between patients with inflammation compared with healthy subjects.

## Gastrointestinal\_3 P036

**Pneumatosis cystoides coli—case report**

Dziki Adam<sup>1</sup>, Wierchniewska-Ławska Agnieszka<sup>2</sup>, Spychalski Michał<sup>3</sup>, Tchórzewski Marcin<sup>4</sup>

<sup>1</sup>Department of General and Colorectal Surgery, Medical University of Łódź, Poland, <sup>2</sup>Department of Histopathology, Medical University of Łódź, Poland, <sup>3</sup>Department of General and Colorectal Surgery, Medical University of Łódź, Poland, <sup>4</sup>Department of General and Colorectal Surgery, Medical University of Łódź, Poland (marcint@infocentrum.com)

Pneumatosis cystoides coli is a very rare condition characterized by multiple submucosal or subserosal gas cysts the size of 0.5–3 cm. The disease can be found in any part of the gastrointestinal tract. In large bowel it localizes predominantly in the left colon. Both fulminant and benign conditions exist. Fulminant pneumatosis is associated with an acute bacterial process, sepsis and necrosis of the bowel; in this case surgery is indicated. Benign pneumatosis can be totally asymptomatic and observed as an incidental finding at laparotomy, endoscopic or radiologic examinations (CT, MR). The symptoms can be uncharacteristic and include hypogastric pain, abdominal distention, diarrhea and constipation. Many different causes of pneumatosis have been proposed including mechanical and bacterial. We have presented a case of pneumatosis cystoides coli in a 76-year-old patient with a history of ischaemic heart disease and myocardial infarction. Patient recently has complained of constipation and moderate loss of weight. Endoscopic examination was undertaken because of intensification of symptoms. The examination revealed multiple polyps of the sigmoid and descending colon. On histopathological examination they were confirmed as a tubular adenomas with the low grade dysplasia. As a result the patient was qualified for elective surgery. He underwent the resection of the sigmoid colon and upper rectum. The multiple gas-filled cysts located in the submucosa were found in the surgical specimen. The postoperative course was uncomplicated and patient was discharged on day 7. Microscopic evaluation revealed multiple pseudocysts' formations with wall built of histiocytes and giant cells. The changes were located in submucosa and subserosa along the whole resected bowel. Pathologic analysis revealed pneumatosis cystoides coli. Follow up examination six months after surgery revealed subsidence of symptoms.

## Plastic P037

**Does aprotinin affect capsule formation around tissue expander ?**

El Gawad Ahmed<sup>1</sup>, Defty Charlotte<sup>2</sup>, Salama Yehia<sup>3</sup>, Duncan Christian<sup>4</sup>

<sup>1</sup>Cairo University, Egypt, <sup>2</sup>Plastic Surgery Trainee, UK, <sup>3</sup>General Surgery, Tainnee UK, <sup>4</sup>Plastic Surgery Consultant, UK (aelgawad@gmail.com)

This double blind randomised control study was designed to assess the effectiveness of Aprotinin for the enhancement of tissue expansion. Twenty four post-burn patients were evenly assigned to two groups. One group served as control, the other was experimental. In one group, Aprotinin was used for enhancement of tissue expansion. It was assumed that by topical application of antifibrinolytic agents, formation of the fibrous capsule around the expander could be inhibited, thus enhancing tissue expansion. The study revealed that the rate of expansion was significantly increased with the use of Aprotinin.

## Plastic P038

**Aesthetic consideration in reconstruction of post-burn scars of face and neck using tissue expansion**

El Gawad Ahmed<sup>1</sup>, Defty Charlotte<sup>2</sup>, Salama Yehia<sup>3</sup>, sakr wael<sup>4</sup>, duncan Christian<sup>5</sup>

<sup>1</sup>Plastic Surgery Trainee, UK, <sup>2</sup>Plastic Surgery Trainee, UK, <sup>3</sup>Plastic Surgery Trainee, UK, <sup>4</sup>Prof Plastic Surgery, Egypt, <sup>5</sup>Consultant Plastic Surgery, UK (aelgawad@gmail.com)

The post-burn scars of face and neck are problematic cases to plastic surgeons. According to anatomical considerations, functional and esthetic evaluation, these scars have many classifications depending on functional disability and extent of

scar tissue after burn healing. There are many methods for resurfacing ranging from excision and direct closure up to free tissue transfer. The aim of this work was to evaluate the aesthetic consideration in reconstruction of post-burn scars of face and neck using tissue expansion. There is an agreement between our results and the results of other investigators. From the complications point of view, we have 10% major complications. This continuous improvement and the understanding of the procedure proved to be the main factors for lowering the major complications caused by the expansion. Evaluation of the results is done by aesthetic evaluation for the type of scar, colour match of the resurfacing skin, presence of wrinkles, and bulk of the new covering tissue, face and neck contour and the donor site morbidity. For all these reasons, tissue expansion can be considered an, extremely useful adjunct in reconstructive surgery. In conclusion, controlled soft tissue expansion is a safe reliable, and highly recommended for reconstruction of large defects, especially when the local flaps are inadequate. It is worthwhile to remember that most of face and neck post-burn scar are candidates for this procedure.

## Gastrointestinal\_2 P039

**Laparoscopic wedge resection for gastrointestinal stromal tumor (GIST) of the stomach. Report of two cases**

Fama Fausto<sup>1</sup>, Linard Cecile<sup>2</sup>, Villari Santa Alessandra<sup>3</sup>, Gioffre'-Florio Maria Antonietta<sup>4</sup>, Metois David<sup>5</sup>, Saint-Marc Olivier<sup>6</sup>

<sup>1</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans, France, <sup>2</sup>Service d'Anesthésie et Réanimation, Centre Hospitalier Régional d'Orléans (France), <sup>3</sup>Division of General Surgery, Department of Human Pathology, University of Messina (Italy), <sup>4</sup>Division of General Surgery, Department of Human Pathology, University of Messina (Italy), <sup>5</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France), <sup>6</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France) (famafausto@yahoo.it)

**Introduction:** Gastrointestinal Stromal Tumours (GIST) are the most frequent mesenchymal tumour of the gastrointestinal tract. They represent 1% of the gastrointestinal tumours and are frequently few symptomatic. The most common site is the stomach (60–70%).

**Case Report:** We report our recent experience about laparoscopic GIST resection. Two females underwent laparoscopic procedure in 2007. In the first case, a 24-year-old woman was admitted for chronic iron-deficiency anaemia, haemoglobin (Hb) 7g/dl, related to a sub-mucosal tumour on the greater curvature. Diagnosis was established by oesophagus-gastro-duodenoscopy (OGD) and confirmed by contrasted abdominal computed tomography (CT). In the second case, a 77-year-old woman was admitted with history of vague abdominal pain and anaemia (Hb 6,9 g/dl) caused by a neoplasm located on the lesser curvature and assessed by OGD and endoscopic ultrasounds with biopsy. In all cases a laparoscopic wedge resection, using roticulator linear staplers, was performed. In both cases, postoperatively course was uneventful. Hospitalisation period was 4th and 9th postoperative day, respectively. The second patient was kept on hospitalisation longer to improve her Hb level. The histological examination, showed a well-encapsulated tumour (6cm of diameter) with a fusiform cells proliferation mixed to fibro-hyaline stroma, cytological atypies and mitotic rate > 10/50HPFs (high malignancy risk) in the first case and a tumour (3,5 cm of diameter), microscopically same, with a less mitotic rate > 5/50HPFs (intermediate malignancy risk) in the second case. The immunohistochemical panel assessment was positive for anti-CD117 and anti-CD34 antibodies and resection margins were clear in all cases. Follow-up control was normal after 6 months. Discussion Gastric GIST represents a good indication for laparoscopic wedge resection by single use stapler devices. This minimally invasive surgery is safe and technically feasible in order to respect oncologic rules.



## Gastrointestinal\_2 P040

## Secondary vascular prosthesis migration in small bowel

Fama Fausto<sup>1</sup>, Linard Cecile<sup>2</sup>, Villari Santa Alessandra<sup>3</sup>,  
Gioffre'-Florio Maria Antonietta<sup>4</sup>, Saint-Marc Olivier<sup>5</sup>,  
Piquard Arnaud<sup>6</sup>

<sup>1</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans, France, <sup>2</sup>Service d'Endocrinologie, Centre Hospitalier Régional d'Orléans (France), <sup>3</sup>Division of General Surgery, Department of Human Pathology, University of Messina (Italy), <sup>4</sup>Division of General Surgery, Department of Human Pathology, University of Messina (Italy), <sup>5</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France), <sup>6</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France) (famafausto@yahoo.it)

**Introduction:** Extraluminal prosthesis migration is a rare complication of vascular surgery. We describe a case occurred after 2 months to a vascular procedure.

**Case Report:** A 63-year-old man was admitted for appearance of sepsis after laparotomic arterial surgery for obliterating arteriopathy of the external iliac right artery (occluded until to popliteal artery). His past medical history comprised hypertension, hyperlipidemia and heavy tobacco smoke. Two months prior to admission, patient underwent a right aorto-femoral by-pass (goretex prosthetic material) with femoral tripod endarterectomy. On 10th postoperative day he had fever and high white blood cell count (20.000 cells/mm<sup>3</sup>). Ultrasound scan was negative while blood cultures positive, and an antibiotic treatment was adapted to the specific bacterial sensitivity. An enhanced computed tomography (CT) showed a tight contact between prosthesis and small bowel (ileum) with suspicion for a secondary fistula. An explorative laparotomy revealed no peritonitis or haemorrhage. An ileal resection with manual anastomosis, associated to an ileo-femoral crossover bypass (from left to right), was performed. Macroscopically, specimen examination showed an intraluminal migration of the prosthesis in the ileum for 4 cm. Patient was admitted in intensive care unit (I.C.U.), then shifted to the surgical ward and discharged on 20th postoperative day. By 5 months follow-up the patient was asymptomatic.

**Discussion:** The migration is the most important, and frequently described, complication after surgical procedure with prosthetic implant. Intraluminal slippage of digestive (biliary tree, colon and oesophagus) and respiratory stents is common. In the vessels system, vascular prosthesis migration is possible but generally was done within the same system.

## Hepatobiliary\_2 P041

## Solitary fibrous tumour of the liver presenting with hypoglycaemic coma

Fama Fausto<sup>1</sup>, Barrande Gaelle<sup>2</sup>, Villeneuve Alain<sup>3</sup>, Linard Cecile<sup>4</sup>,  
Gioffre'-Florio Maria Antonietta<sup>5</sup>, Saint-Marc Olivier<sup>6</sup>

<sup>1</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans, France, <sup>2</sup>Service d'Endocrinologie, Centre Hospitalier Régional d'Orléans (France), <sup>3</sup>Service d'Endocrinologie, Centre Hospitalier Régional d'Orléans (France), <sup>4</sup>Service d'Anesthésie et Réanimation, Centre Hospitalier Régional d'Orléans (France), <sup>5</sup>Division of General Surgery, Department of Human Pathology, University of Messina (Italy), <sup>6</sup>Service de Chirurgie Digestive, Endocrinienne et Thoracique, Centre Hospitalier Régional d'Orléans (France) (famafausto@yahoo.it)

**Introduction:** Solitary Fibrous Tumours (SFT) are mesenchymal neoplasms. These tumours sometimes presented with hypoglycaemic syndromes due to an overproduction of a high molecular weight form of Insulin-like Growth Factor type II (big-IGF-II). Only 3 cases of SFTs of the liver associated with hypoglycaemic syndrome have been described, but in none of them was a clear relationship with big-IGF-II overproduction documented.

**Case Report:** We report a case of a 68-year-old male, admitted for hypoglycaemic coma, who was found to be affected by a large (24 × 20 × 12 · 5cm) tumour of the liver. Laboratory tests reported on a marked hypoglycaemia with decreased levels of insulin, C-peptide and testosterone and increased levels of Testosterone Binding Globulin (TeBG), Follicle-stimulating Hormone (FSH), Luteinizing Hormone (LH) and Prolactin. Synacthen test, Cortisol and

Adreno Cortico Tropic Hormone (ACTH) levels were normal. A transperietal liver biopsy showed a spindle cell tumour. Preoperative Western Blot (WB) analysis highlighted a band at a molecular weight of 7·5 kDa, corresponding to the mature form of IGF2, and some bands at a higher molecular weight of 10–20 kDa, corresponding to big-IGF2. The patient underwent a liver trisegmentectomy including VI, VII and VIII segment. On immunostaining, CD-34 and vimentin positivity confirmed the diagnosis of SFT. Postoperative serum WB analysis showed that big-IGF2 bands, to be significantly reduced after 24 hours, and absent at 3, 7, 10 and 14 days after the operation. After the 2nd postoperative day, glucose serum levels returned spontaneously to a physiological daily profile. No distant metastases had been found (follow-up 25 months).

**Discussion:** This case documents unequivocally that liver SFTs are able to overproduce big-IGF-II responsible for severe hypoglycaemia. In addition, our report suggests that big-IGF-II should be assessed with WB analysis at least 3 days after the operation, if its complete disappearance should be verified.

## Gastrointestinal\_3 P042

## Effect of Neostigmine in post abdominal surgery Ileus: a randomized Clinical Trial

Fanaie S. Ahmad<sup>1</sup>, Ziaee S. Ali<sup>2</sup>, Moradi Mehran<sup>3</sup>

<sup>1</sup>Dep. of Surgery, Baqiyatallah University of Medical Science, Tebran, Iran, <sup>2</sup>Erfan Hospital, Emergency Department, Tebran, Iran, <sup>3</sup>Baqiyatallah University of Medical Science, Tebran, Iran (ahmadfanaei@erfanhospital.ir)

**Background:** After abdominal surgery, a normal physiological ileus occurs. This type of ileus spontaneously resolves within 2–3 days after sigmoid motility returns to normal. However, the terms postoperative adynamic ileus or paralytic ileus are defined as ileus of the gut persisting for more than 3 days following surgery.

**Design:** This study is a prospective clinical Randomized trial of neostigmine in 42 patients with ileus after abdominal surgery to demonstrate its efficacy.

**Intervention:** Intravenous administration of neostigmine 2·5 mg in 500 N/S over 30 min, or placebo. Patients who had no response to the initial injection were eligible to receive open-label neostigmine three hours later.

**Setting:** Abdominal circumference, Time to first flatus and defecation, HR and BP after 3 hours of administration, and radiographic colonic measurements were recorded. Patients were followed for recurrence of ileus for their remaining time in the hospital. All organic causes of Ileus were excluded from the study. Result: 20 out of 21 neostigmine patients (95·21%) passed flatus and stools with first administration of Neostigmine administration, whereas none of the placebo-treated patients passed stools ( $p < 0·001$ ). In pre study abdominal circumference there was no significant difference, whereas after 3 hours of intervention it was decreases significantly. ( $100·85 \pm 14·61$  case group,  $124·71 \pm 16·15$ ,  $P < 0·0001$ ). No acute serious adverse effects occurred in both groups.

**Conclusion:** In patients with acute colonic pseudo-obstruction who have not had a response to conservative therapy, treatment with neostigmine rapidly decompresses the colon.

## Transplantation, Organ preservation\_1 P043

## Chlamydia pneumoniae infection treatment with spiramycin in kidney transplant

Fesolowicz Sławomir<sup>1</sup>, Artur Kwiatkowski<sup>2</sup>, Michał Wszola<sup>3</sup>,  
Edyta Podsiadły<sup>4</sup>, Krzysztof Ostrowski<sup>5</sup>, Andrzej Chmura<sup>6</sup>

<sup>1</sup>Department of General and Transplantation Surgery, <sup>2</sup>Department of General and Transplantation Surgery, <sup>3</sup>Department of General and Transplantation Surgery, <sup>4</sup>National Institute of Hygiene, <sup>5</sup>Department of General and Transplantation Surgery, <sup>6</sup>Department of General and Transplantation Surgery (sfes@op.pl)

Previous research pointed to a significant role of C. pneumoniae infection in the development of chronic renal allograft dysfunction, liver chronic rejection and vasculopathy of the transplanted heart. The aim of the study was to evaluate the C. pneumoniae presence prior to and after kidney transplantation and to determine the role of spiramycin therapy in patients after kidney transplantation.

**Material and methods:** The study group consisted of 50 patients (25 pairs) who received kidney transplants from cadaveric donors. One of the two kidneys from one donor was transplanted to a patient randomised to spiramycin (dose of  $2 \times 3$  million U/day orally for 3 months) (group S) and the other was transplanted to a patient assigned as control (group C). Markers of infection were assessed on day 1 post transplantation and 3 months later (average=94 days). All (n=50) patients were examined for bacterial DNA presence in peripheral blood leukocytes using real-time PCR and titers of serum anti *C. pneumoniae* IgG and IgA antibodies using microimmunofluorescence (MIF). *C. pneumoniae* infection was diagnosed as *C. pneumoniae* DNA presence in peripheral blood leukocytes or positive antibodies in both classes.

**Results:** *C. pneumoniae* infection was initially diagnosed in 14 patients from group S and in 8 patients from group C (p=ns) after 3 months in 12 and 9 patients respectively (p=ns). Conversion from positive to negative *C. pneumoniae* status occurred in 7 patients from group S and one patient from group C (p=0.04). Conversion from negative to positive *C. pneumoniae* status occurred in 5 patients from group S and 2 patients from group C (p=ns).

**Conclusions:** The results suggest a possible role for spiramycin treatment of in *C. pneumoniae* infection in kidney allograft recipients. *C. pneumoniae* infection diagnosis and treatment should be considered as a routine at every patient awaiting transplantation.

## Education P044

### Experiences of the basic laparoscopic techniques' graduate education between 1995-

Furka Istvan<sup>1</sup>, Brath Endre<sup>2</sup>, Peter Sapy E. Mohamed Gamal<sup>3</sup>, Robert Kotan Andrea Furka<sup>4</sup>, Flasko Tibor<sup>5</sup>, Miko Iren<sup>6</sup>

<sup>1</sup>Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>2</sup>Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>3</sup>Augusta Surgical Center, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>4</sup>Augusta Surgical Center, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>5</sup>Department of Urology, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>6</sup>Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary (ifurka@med.unideb.hu)

**Introduction:** At our department the education of laparoscopic techniques for surgeons has begun in February, 1992. Since the 1995/1996 university year also in the gradual education we have started the education of, Basic Laparoscopic Surgical Training. Introduction to laparoscopic surgery" accredited elective courses for the Hungarian and English Program students. Our aim was the familiarization and acquire of minimal invasive techniques.

**Methods:** The educational topics for graduate training are: Lesson I: short history of laparoscopic surgery with introduction of the laparoscopic manual armamentarium and equipments. Lesson II: "dry training", the use of pelvi-box, operating in a three-dimensional field viewing two-dimensional structure through video-imaging instrumentation. Intracorporeal knotting techniques in open and closed pelvi-box. Lesson III: preparation of chicken thigh in open and closed pelvi-box and in MATT (Minimal Access Therapy Technique) trainer. Lesson IV: cholecystectomy on isolated liver-gallbladder biopreparation in open and closed pelvi-box and in MATT trainer. Lesson V: "diagnostic laparoscopy" on a live tissue. Create pneumoperitoneum, insert the laparoscopic instruments. Learn the use of the manual equipment of laparoscopic surgery (dissection, stop the bleeding, clips' applying). At the practice's end students may perform laparoscopic cholecystectomy with teachers' help. Lectures and practices are completed also with several own video films together with a bilateral video-conference system between the operating theater and the lecture hall.

**Results:** 255 medical students (134 in Hungarian and 121 in English Program) took part in the graduate laparoscopic courses in our training center between 1995-2007. In accordance with our quality assurance system the students' opinions showed, they were maximally satisfied with our small-group courses. Till date we gave 31 Hungarian and 29 English certifications for applying jobs,

resident status and Ph.D. program. Supports: DE OEC 1991, 2003, 2005, 2006. Grant: HEFOP-3.3.1-P.-2004-09-0040/1-0.

## Sepsis, Infection, Immunity P045

### Synbiotic 2000FORTE<sup>®</sup> decreases the risk of sepsis by bloodstream infections in multiple trauma patients

Giamarellos-Bourboulis Evangelos<sup>1</sup>, Kotzampassi Katerina<sup>2</sup>, Kanelakopoulou Kyriaki<sup>3</sup>, Bengmark Stig<sup>4</sup>

<sup>1</sup>4th Department Of Internal Medicine, Faculty Of Medicine, University Of Athens, Greece, <sup>2</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Greece, <sup>3</sup>4th Department of Internal Medicine, Faculty of Medicine, University of Athens, Greece, <sup>4</sup>Department of Hepatology, University College, London, UK (kakotbe@yahoo.com)

**Background:** A recent randomized clinical trial of our group disclosed considerable reduction of the infective sequelae after administration of a probiotic formula, namely Synbiotic 2000FORTE, in patients with multiple injuries, the latter being a preparation of four probiotics. The effect of treatment on the microbiology of the study population is presented herein.

**Methods:** A total of 72 patients with severe multiple trauma allocated to a 15-day administration of either placebo (or the synbiotic formula were studied in respect to infection and sepsis.

**Results:** Thirteen of the placebo group developed bloodstream infections (36.1%) compared to seven of the Synbiotic 2000FORTE group (19.4%, p: 0.009). Odds ratio for the advent of sepsis due to bloodstream infections was 2.182 among the placebo group compared to 1.268 among the Synbiotic 2000FORTE group. The time to progression to primary bacteremia was longer among patients treated with Synbiotic 2000FORTE compared to placebo (p: 0.0237 between groups). Twelve (33.3%) and five (13.9%) placebo-treated and probiotic-treated patients respectively developed ventilator-associated pneumonia with *Acinetobacter baumannii* as a bacterial cause (p: 0.047 between groups).

**Conclusions:** Probiotics contained in the studied formula decrease significantly the risk for sepsis by bloodstream infections and the occurrence of VAP by *A. baumannii*. An effect on bacterial translocation may be proposed as a probable mechanism of action.

## Gastrointestinal\_3 P046

### Are Home Parenteral Nutrition Patients Adequately Monitored?

Hallum NS<sup>1</sup>, Baxter JP<sup>2</sup>, McKee RF<sup>3</sup>

<sup>1</sup>Scottish Home Parenteral Nutrition Managed Clinical Network. Glasgow Royal Infirmary Glasgow Royal Infirmary, Glasgow, UK, <sup>2</sup>Scottish Home Parenteral Nutrition Managed Clinical Network. Ninewells Hospital, Dundee Ninewells Hospital, Dundee, <sup>3</sup>Scottish Home Parenteral Nutrition Managed Clinical. Network. Glasgow Royal Infirmary. Glasgow Royal Infirmary, Glasgow (nikkihallum@hotmail.com)

**Background and Methods:** The provision of Home Parenteral Nutrition (HPN) allows patients with intestinal failure to leave hospital and gain independence. The successful management of these patients necessitates regular multiprofessional review and monitoring in clinics or during subsequent inpatient admissions. The Scottish HPN Managed Clinical Network (MCN) was set up to ensure both equity of access and high standards of care for all patients. All enrolled centres collect an agreed dataset on an ongoing basis using a standard purpose-built database, which is combined yearly for review. Now in its seventh year, audit is undertaken to establish the adequacy of monitoring of its patients. The current audit assesses frequency and content of review in 2006. Standards set out by the HPN MCN advise that a multiprofessional nutrition team, on a three to four monthly basis, reviews all patients. Review should ideally comprise weight, anthropometry, blood tests and vitamin/micronutrient measurements. A figure of 100 days was used as the frequency with which

review should be undertaken. Data is available for 52 patients attending 141 clinic appointments in 7 centres.

**Results:** Always Reviewed < 100 days Sometimes Never Reviewed < 100 days 18 (33%) 18 (33%) 17 (33%) Table 1. Frequency of patient review Review Type < 100 Days Since Last Review > 100 Days Since Last Review Outpatient (OPD) 85 (60%) 56 (40%) OPD + Admission 94 (67%) 47 (33%) Table 2. HPN reviews in 2006 Component Haematinics Weight Anthro Routine Bloods Micronut Yes 70 (50%) 121 (86%) 34 (23%) 131 (93%) 88 (62%) No 71 (50%) 34 (14%) 107 (77%) 10 (7%) 53 (38%) Table 3. Adequacy of HPN review.

**Discussion:** The Scottish HPN MCN patients are not being reviewed as often as is recommended by the network protocols, with only 18 out of 52 patients meeting the criteria on every visit throughout 2006. However patients reviewed less frequently did not appear to have more admissions and complications. During patient reviews, weight measurement and routine blood tests are successfully taken but anthropometry and micronutrient levels are less well recorded. Full blood count, urea and electrolytes and liver function tests were sent at 93% of reviews. Other tests were less often requested – magnesium 65%; C reactive protein 58%; glucose 46% of visits. Micronutrients and haematinics were often omitted. Bone biochemistry is not well documented (Calcium 72%; vitamin D 28%). There may be some informal review taking place which is not being recorded and no account is taken of whether patients are longstanding or new to the therapy. Nevertheless there is clear room for improvement in our HPN review. Anthropometry could be improved by better organisation and staff training. Many factors impinge on our ability to achieve complete blood results – organisational difficulties with requests, a central trace element laboratory and poor venous access. The frequency and content of review were set by the MCN on the basis of expert opinion rather than any higher level of evidence. Although it is clear that we should improve some aspects of our review, future studies might examine the outcome in HPN patients reviewed less frequently.

## Minimally invasive P047

### Aortic Endovascular Grafts – How Much Should We Oversize?

Harvey Nicholas<sup>1</sup>, Kotze Carl<sup>2</sup>, Francis Ian<sup>3</sup>, Thompson Phil<sup>4</sup>, Johnston M<sup>5</sup>, Yusuf Syed<sup>6</sup>

<sup>1</sup>Brighton and Sussex University Trust, <sup>2</sup>Brighton and Sussex University Trust, <sup>3</sup>Brighton and Sussex University Trust, <sup>4</sup>Brighton and Sussex University Trust, <sup>5</sup>Brighton and Sussex University Trust, <sup>6</sup>Brighton and Sussex University Trust (nb@doctors.net.uk)

**Introduction:** A 15–20% device over-sizing of the endovascular graft relative to the vessel diameter is generally practised. This is used to compensate for any underestimate that may lead to an endoleak. However, there are no data on the diameter measurement for endovascular grafts on CT scan so, therefore, the extent of oversizing is largely arbitrary.

**Aim:** This study assessed the correlation between actual graft diameter and that measured on CT scan. Methods Five Endovascular grafts (Zenith, Cook®) were embedded in gelatine and scanned by CT (GE Lightspeed Ultra, 8 slice). The diameters were then measured at the top of the graft in the proximal seal zone. Measurements were obtained by two independent radiologists who were not aware of the actual graft diameter.

**Results:** There was a strong correlation of the CT measurements between observers. Graft diameters were undersized by both observers ranging between 1–4mm for observer A and 1–3mm for observer B. The percentage difference of the graft body diameters ranged between 5–23% and 6–19% for observer A and observer B respectively. The percentage difference of the graft limb diameters ranged between 3–33% and 6–33% respectively.

**Conclusion:** Although there is global under-sizing, it is minimal and there is strong agreement between measurement of diameter on CT scan and actual graft measurement. A 15–20% over-sizing of the endovascular graft body is, therefore, genuine and appropriate.

## Gastrointestinal\_1 P048

### Macroscopic Evaluation of The Vermiform Appendix

Harvey Nicholas<sup>1</sup>, Fettiplace Rachel<sup>2</sup>, Clark Jeremy<sup>3</sup>

<sup>1</sup>Brighton and Sussex University Trust (nb@doctors.net.uk)

**Introduction:** The laparoscopic assessment and treatment of right iliac fossa pain are rapidly becoming more common. It is known that appendicectomy carries more risk of complications than laparoscopy alone but whether removal of a macroscopically normal appendix should be performed has not been agreed. There is conflicting evidence in the literature regarding the accuracy of in vivo assessment of the appendix.

**Methods:** All appendicectomies performed between June and October 2007 were entered into our study. The operating surgeon was asked to make an assessment of the appendix which was then sent for histological evaluation.

**Results:** Appendicectomies were performed on 35 female patients and 36 male patients although appendicitis was present in 25 and 33 respectively. The operating surgeon was either a senior house officer (n=29), registrar (n=36) or consultant (n=6). The macroscopic assessment by the surgeon had a 100% correlation with the histological diagnosis of inflammation of the appendix and there were also no false positives. Interestingly the macroscopic assessment of the appendix in vitro was less accurate with the pathologist diagnosing macroscopic appendicitis in 44 of 58 showing microscopic inflammatory changes.

**Conclusion:** The operating surgeon is remarkably proficient at recognising appendiceal inflammation. Our findings suggest that it would be safe not to perform an appendicectomy if the appendix appears normal. However, in the light of studies with alternate findings further investigation needs to be undertaken to evaluate the risk-benefit ratio of this increasingly common situation.

## Minimally invasive P049

### Improvement of microsurgical knotting time and technique during graduate and postgraduate courses

Hever Timea<sup>1</sup>, Miko Iren<sup>2</sup>, Brath Endre<sup>3</sup>, Nemeth Norbert<sup>4</sup>, Tothmartinez Adrienn<sup>5</sup>, Furka Istvan<sup>6</sup>

<sup>1</sup>Microsurgical Educational Training Center, Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>2</sup>Microsurgical Educational Training Center, Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>3</sup>Microsurgical Educational Training Center, Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>4</sup>Microsurgical Educational Training Center, Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>5</sup>Microsurgical Educational Training Center, Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>6</sup>Microsurgical Educational Training Center, Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary (timibeve@yahoo.com)

**Introduction:** Microsurgical education has a great importance regarding the effective clinical and research work. At the Microsurgical Education and Training Center of our department the here developed Furka-method is used, which characteristics are: synchronous, active, video-assisted, individual, self-controlled and analyzing. Between 1 January, 2005 and 31 December, 2006 we analysed the knotting parameters of medical students, Ph.D. students and residents in microsurgical courses. The degree of the microsurgical skill's development can be different depending on the individual background.

**Methods:** The participants put their knots in rubber gloves according to the topic. On data sheets, photos and by video records the time durations of performing the first ten knots (after the technique's attainment), the knotting-direction and knot quality were documented.



**Results:** Performing the first two or three knots proved to be the longest. The first knot needed  $7.45 \pm 4.16$  minutes for medical students,  $4.83 \pm 2$  minutes for Ph.D. students, and  $6.85 \pm 3.89$  minutes for residents. Following the fourth knot the time duration values were significantly improved compared to the base values ( $p < 0.001$ ). The time for performing the tenth knot was  $3.5 \pm 1$  minutes by the medical students,  $2.96 \pm 1.2$  minutes in the Ph.D. course, and  $1.83 \pm 0.99$  minutes for the residents ( $p = 0.009$  versus medical students). In parallel, the quality of knots has been improved.

**Conclusions:** Time duration and quality of knots are useful tools for indication of microsurgical skills' development, followed-up at various training levels. The candidates with manual experiences had better parameters, but their improving is similar as in the medical student course. The participant's skills and future activity can be predicted. Our quality assurance system (ISO 9001 : 2000) and the evaluation of the students' opinion, mean examine marks may contribute to the educational quality's improving. Supports: PFP 1713/1998, DE OEC 2000, 2001, 2002, 2004.

## Cardiovascular, Thoracic\_1 P050

### Does patency of Cimino-Brescia shunt depend on concomitant diseases respectively surgical expertise?

Hever Timea<sup>1</sup>, Kosztyu Laszlo<sup>2</sup>, Balla Jozsef<sup>3</sup>

<sup>1</sup>Department of Operative Techniques and Surgical Research, Department of Vascular Surgery, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>2</sup>Department of Vascular Surgery, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>3</sup>Institute of Internal Medicine, Department of Nephrology, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary (timhever@yahoo.com)

**Introduction:** Cimino-Brescia arterio-venous fistula is used for haemodialysis of patients with end-stage renal failure. We examined the concomitant diseases, especially hypertension, diabetes mellitus, peripheral vasculopathy and medication after acute myocardial infarction (AMI), whether they alter fistula's patency.

**Patients and methods:** Between 1 January, 2001 and 31 December, 2004 in our department 409 shunts had been operated on 294 patients (154 men and 140 women). Anamnestic data and laboratory results were obtained from surgical and internistic documents and by asking the alive and locally treated 68 patients. Also we analysed the effect of surgical expertise.

**Results:** According to international literature the average shunt's patency is nearly 1 year, while it was an average of 763 days in our observed patients. In patients with hypertension fistulas had been obliterated earlier ( $p = 0.583$ ), and with diabetes various results were observed depending on the onset of disease. The fistula's patency was longer in diabetes for 5–10 years ( $p = 0.05$ ), and it was shorter in case of 10–15 years ( $p = 0.06$ ). Shunts obliterated earlier in patients with peripheral vasculopathy ( $p = 0.028$ ). In post-AMI cases fistulas functioned longer ( $p = 0.035$ ). 64% of all Cimino-Brescia shunts were made on the forearm, 56.2% of the primer fistulas were on the left side forearm. 86.8% of the fistulas have been operated by experienced surgeons. There wasn't significant variance of fistula's patency comparing the trainees and the experienced surgeons (749 days versus 741 days) caused probably by the easier cases and the good supervision for the trainees.

**Summary:** The patency of Cimino-Brescia fistula is influenced by uraemia-affecting on atherosclerosis-, by diabetes and peripheral vasculopathy as well as previous AMI. Supposedly in post-AMI patients the prescribed medicaments had a protective effect on the vascular wall. However, hypertension didn't affect the fistula patency significantly. Surgical expertise can be predictive for fistula patency and patients' quality of life, but the well-supervised trainees can produce equivalent results, too.

## Gastrointestinal\_3 P051

### American Society of Anesthesiologists Score as a Prognostic Factor for Colorectal Cancer: Analysis from 401 Laparoscopic Colorectal Surgical Patients

Hida Koya, Yamaguchi Takashi, Teramukai Satoshi, Fukushima Masanori, Koizumi Kinya, Sakai Yoshiharu  
Kyoto University Hospital, Japan (hidakoya@kuhp.kyoto-u.ac.jp)

American Society of Anesthesiologists Physical Status (ASA-PS) score has been commonly used to preoperatively classify surgical patients and to predict perioperative morbid-mortality rates based on the patient's comorbidities. But it has been rarely used as a prognostic factor in contrast to that Eastern Cooperative Oncology Group Performance Status (ECOG-PS) score has been. We investigated here whether ASA-PS score would be a potential prognostic factor, analyzing the data of 401 consecutive colorectal cancer patients who underwent laparoscopic surgery. The ASA-PS scores were collected from the anesthesia records, and the ECOG-PS scores were estimated from the patients' clinical records. In univariate analysis, though both ASA-PS score and ECOG-PS score were associated with overall survival ( $p < 0.001$ ), both scores are highly correlated (Spearman's correlation: 0.853). In Cox regression analysis including ASA-PS, ASA-PS was found to be a factor which significantly and independently associated overall survival ( $\geq 3$  versus  $\leq 2$ , HR: 2.99, 95% CI: 1.46–6.14,  $p = 0.003$ ) as well as distant metastasis, high CA19-9 level, low albumin level, and presence of mental illness. When we included ECOG-PS instead of ASA-PS in the multivariate analysis, the similar results ( $\geq 2$  versus  $\leq 1$ , HR: 3.22, 95% CI: 1.35–7.69,  $p = 0.008$ ) were obtained. Since ECOG-PS score is rarely recorded in clinical records, ECOG-PS might be less reliable, particularly in retrospective studies. Thus we should collect ASA-PS score as a potential prognostic factor and use for patient selection or for stratification in clinical studies for colorectal surgical patients.

## Cardiovascular, Thoracic\_1 P052

### Selective phosphodiesterase-5 inhibition reduces neointima formation in rat carotid arteries after endothelial denudation

Hirschberg Kristóf<sup>1</sup>, Radovits Tamás<sup>2</sup>, Loganatan Sivakkanan<sup>3</sup>, Kark Matthias<sup>4</sup>, Szabó Gábor<sup>5</sup>

<sup>1</sup>Department of Cardiac Surgery, University of Heidelberg, Heidelberg, Germany,

<sup>2</sup>Department of Cardiac Surgery, University of Heidelberg, Heidelberg, Germany,

<sup>3</sup>Department of Cardiac Surgery, University of Heidelberg, Heidelberg, Germany,

<sup>4</sup>Department of Cardiac Surgery, University of Heidelberg, Heidelberg, Germany,

<sup>5</sup>Department of Cardiac Surgery, University of Heidelberg, Heidelberg, Germany (famafausto@yahoo.it)

**Introduction:** The longterm results of successful interventional and surgical vessel reconstruction are compromised by restenosis due to neointima formation. Recent studies suggest that nitric oxide (NO) may play a role in the reduction of neointima formation. The aim of our study was to evaluate the effectiveness of the NO-cGMP pathway by administering a selective phosphodiesterase-5 enzyme inhibitor Vardenafil (V) in a rat model of carotid stenosis.

**Methods:** Right carotid endarterectomy was made on anesthetized male Sprague-Dawley rats. After cross clamping the intima was denuded by a mechanical-chemical (cotton-tipped applicator immersed in saponin) method, than the arteriotomy was closed with a running suture. Three groups were studied: sham-operated rats ( $n = 6$ ), control endarterectomized rats (E,  $n = 6$ ) and endarterectomized rats treated orally with phosphodiesterase-5 enzyme inhibitor Vardenafil in a dose of 10 mg/kg/day (E + V,  $n = 6$ ). After 3 weeks, the vasculature were perfusion-fixed (formaldehyde solution 4%, 30 ml/min i.a.). The vessel compartment areas were measured by conventional microscopy using haematoxylin-eosin staining. Neointima areas, stenosis grade and neointima/media area ratio were compared between groups. Immunohistochemical analysis of carotid arteries was performed to confirm neointima formation.

**Results:** Three weeks after endarterectomy, marked neointimal hyperplasia was found in the control group. Phosphodiesterase-5 enzyme inhibition significantly reduced the stenosis grade (mean  $\pm$  SEM, E + V versus E:

20.42 ± 7.42% versus 53.69 ± 12.07%;  $p < 0.05$ ) and neointima/media area ratio (E + V versus E: 0.51 ± 0.18 versus 1.08 ± 0.21;  $p < 0.05$ ).

**Conclusion:** Treatment with phosphodiesterase-5 enzyme inhibitor significantly suppressed neointimal hyperplasia in a rat model of carotid stenosis.

## Hepatobiliary\_1 P053

### All-trans-retinoic acid ameliorates carbon tetrachloride-induced liver fibrosis in mice through modulating cytokine production

Hisamori Shigeo<sup>1</sup>, Okoshi Kae<sup>2</sup>, Nagayama Satoshi<sup>3</sup>, Kubo Hajime<sup>4</sup>, Watanabe Go<sup>5</sup>, Yoshiharu Sakai<sup>6</sup>

<sup>1</sup>Division of Gastrointestinal Surgery, Department of Surgery, Kyoto University Hospital, Japan, <sup>2</sup>Division of Gastrointestinal Surgery, Department of Surgery, Kyoto University Hospital, <sup>3</sup>Division of Gastrointestinal Surgery, Department of Surgery, Kyoto University Hospital, <sup>4</sup>Division of Gastrointestinal Surgery, Department of Surgery, Kyoto University Hospital, <sup>5</sup>Division of Gastrointestinal Surgery, Department of Surgery, Kyoto University Hospital, <sup>6</sup>Division of Gastrointestinal Surgery, Department of Surgery, Kyoto University Hospital (hisamori@kuhp.kyoto-u.ac.jp)

**Background/Aims:** We have recently reported that all-trans-retinoic acid (ATRA) suppresses the transdifferentiation and proliferation of lung fibroblasts and prevents radiation-or bleomycin-induced lung fibrosis. The next question to be resolved is whether ATRA could also prevent the liver fibrosis or not.

**Methods:** Eight-week-old BALB/c mice were injected intraperitoneally with CCl<sub>4</sub> to make liver cirrhosis. ATRA is also injected intraperitoneally in the treatment group. Liver histology, the values of transforming growth factor (TGF)-β 1 and the values of interleukin (IL)-6 in liver tissues were compared between the ATRA treatment and non-treatment groups. The effect of ATRA on the production of cytokines in quiescent and activated HSCs was also examined in vitro.

**Results:** CCl<sub>4</sub>-induced liver fibrosis was attenuated by administration of ATRA. The overall survival rate at 12 weeks was 75.0% (n=24) in the treatment group whereas it was 26.5% in the non-treatment group (n=25). The mRNA levels of TGFβ 1 and IL-6 in livers of the treatment group were markedly suppressed ( $p < 0.001$ ), compared with those of the non-treatment group. In vitro studies disclosed that the administration of ATRA reduced (1) the production of TGF-β 1, IL-6, and collagen in HSCs, (2) TGF-β-dependent transdifferentiation and IL-6-dependent proliferation of the HSCs, and (3) the activities of nuclear factor (NF)-κB p65 and p38 mitogen-activated protein kinase (MAPK), which stimulate the production of TGF-β 1 and IL-6.

**Conclusions:** Our findings indicate that ATRA ameliorates liver fibrosis by suppressing the activation of HSCs. As the oral administration of the drug results in good compliance, ATRA could be a novel approach in the treatment of liver fibrosis.

## Plastic P054

### Comparison of a new long-term absorbable suture material (MonoMax) with polydioxanone in closure of abdominal wall (animal model)

Horvath Szabolcs<sup>1</sup>, Baracs Jozsef<sup>2</sup>, Ferencz Sandor<sup>3</sup>, Ferencz Andrea<sup>4</sup>, Funk Lutz<sup>5</sup>, Weber George<sup>6</sup>

<sup>1</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs, Hungary, <sup>2</sup>Department of Surgery, Medical Faculty, University of Pécs, <sup>3</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs, <sup>4</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs, <sup>5</sup>Aesculap AG & Co.KG, Germany, <sup>6</sup>Department of Surgical Research and Techniques, Medical Faculty, University of Pécs (szabiorvath@gmail.com)

**Background:** The long-term absorbable suture materials are generally used for the closure of the abdominal wall. The aim of this study was to evaluate the safety and feasibility of usage of a new suture material (MonoMax, B.Braun, Aesculap) in animal models.

**Methods:** Two versions of MonoMax (poly(4-hydroxybutyrate)) with different elasticity (70% and 90% elongations) were evaluated in 36 domestic pigs. Polydioxanone was used as a control suture. Animals were randomized into three

groups: Group I (n=12): MonoMax 70%, Group II (n=12): MonoMax 90%, Group III (n=12): polydioxanone. In each group a 15 cm long midline abdominal incision was performed, and the abdominal wall was closed with running sutures (1 USP). 10, 30, and 90 days postoperatively the animals were sacrificed (four pigs at each occasion). In our study the handling characteristics of the suture materials, the wound healing (both macroscopically and microscopically), and the tensile strength of the tissue were analyzed.

**Results:** All pigs survived. There were no differences in the handling characteristics of suture materials and microscopic wound healing. Subcutaneous abscesses in four cases (in Group I and II at 10th postop. day, in Group I at 30th postop. day, and in Group II at 90th postop. day), and incisional hernias in three cases (one in Group II and two in Group III and all of them at 30th postop. day) have been observed. The mean tensile strength of tissue in Group I were significantly higher than control group at 30th postoperative day (144,52 N versus 113,94 N,  $p < 0,05$ ). At 90th postoperative day in Group II the tensile strength of the sutured linea alba was stronger than the native fascia (166,5 N versus 148 N,  $p < 0,001$ ).

**Conclusions:** Based on our study the MonoMax is as safe and reliable as polydioxanone but it seems to be stronger than polydioxanone.

## Transplantation, Organ preservation\_1 P055

### Development of a perfusion preservation model in porcine kidneys

Jager L. Cara<sup>1</sup>, Heger Michal<sup>2</sup>, Gulik van Thomas<sup>3</sup>

<sup>1</sup>AMC, The Netherlands Department of Surgery, Surgical Laboratory, AZ Amsterdam, The Netherlands, <sup>2</sup>AMC, The Netherlands Department of Surgery, Surgical Laboratory IWO-1 Meibergdreef 9 1105 AZ Amsterdam, The Netherlands, <sup>3</sup>AMC, The Netherlands Department of Surgery, Surgical Laboratory IWO-1 Meibergdreef 9 1105 AZ Amsterdam, The Netherlands (L.C.Jager@amc.uva.nl)

**Introduction:** Several studies have shown that kidney graft preservation by hypothermic machine perfusion (MP) improves organ quality compared to cold storage (CS). Hypothermic (4°C) MP in combination with the use of a new preservation solution (Polysol) that was developed at our department has already shown promising results in a porcine autotransplantation survival model. MP at (sub)normothermic temperatures (15°C–32°C), whereby physiological parameters are optimally mimicked, might constitute an even more effective means to reduce ischemic damage and subsequent reperfusion injury. Therefore, we developed an experimental setup for isolated perfusion of porcine kidneys at different temperatures to be assessed in an autotransplantation model. This pilot study reports on the reproducibility and feasibility of our perfusion system.

**Materials and Methods:** The perfusion setup consists of a roller pump, flow-, pressure-, and temperature probes, a heat exchanger, a glass oxygenator, a temperature-regulated organ chamber, and a solution reservoir. Kidneys, retrieved from landrace pigs (n=4), were continuously perfused during 6 hrs at 4°C. Flow and pressure were continuously monitored to calculate vascular resistance. Oxygen consumption, electrolytes, pH, and lactate dehydrogenase (LDH) levels in the perfusate were assayed so as to derive information on organ metabolic state.

**Results:** The perfusate temperature and pO<sub>2</sub> (~500 mmHg) remained stable at different perfusion temperatures. Kidneys preserved at 4°C ex vivo demonstrated stable pH levels (pH ≈ 7.1). An increase in LDH (~10fold) and lactate (~3fold) was observed during 6hrs of perfusion. Metabolism gradually decreased as measured by oxygen consumption during perfusion. With pressure-controlled perfusion at 35 cm H<sub>2</sub>O, a perfusion flow of 0.3–0.6 ml/min/g kidney was reached and the vascular resistance slightly decreased during perfusion in all kidneys. The isolated perfusion kidney model was validated for 6-hr perfusion at 4°C.

**Conclusion:** This perfusion set-up allows us to examine functional parameters during MP preservation in an ex vivo setting.

## Transplantation, Organ preservation\_2 P056

**Difficult vascular access for hemodialysis in patients with central veins obstruction**

Jakimowicz Tomasz<sup>1</sup>, Galazka Zbigniew<sup>2</sup>, Nazarewski Slawomir<sup>3</sup>, Grochowicki Tadeusz<sup>4</sup>, Frunze Slawomir<sup>5</sup>, Szmidt Jacek<sup>6</sup>

<sup>1</sup>Department of General, Vascular and Transplant Surgery, Medical University of Warsaw, Poland, <sup>2</sup>Department of General, Vascular and Transplant Surgery, Medical University of Warsaw, Poland, <sup>3</sup>Department of General, Vascular and Transplant Surgery, Medical University of Warsaw, Poland, <sup>4</sup>Department of General, Vascular and Transplant Surgery, Medical University of Warsaw, Poland, <sup>5</sup>Department of General, Vascular and Transplant Surgery, Medical University of Warsaw, Poland, <sup>6</sup>Department of General, Vascular and Transplant Surgery, Medical University of Warsaw, Poland (tomj@amw.edu.pl)

Dialysis dependent patients have often central venous drainage problems, usually due to percutaneous vein catheterization. In case of functioning arm arterio-venous fistula outflow thrombosis can be the reason of venous hypertension, arm edema and vascular access failure. Percutaneous angioplasty and stenting of narrowed vessels is sometimes not sufficient. In such circumstances there is the possibility to create new fistula with venous anastomosis to subclavian or iliac vein, superior or inferior vena cava. In case of existing fistula failure, it is possible to create veno-venous graft to by-pass the thrombosed vein. The aim of the study was to assess the possibility of creation and function of arterio-venous fistula with the outflow to central veins. Between 1990 and 2007 in our Department 49 patients with central veins occlusion were treated. Mean age was 43 years (range 19–64 years), mean duration of hemodialysis was 4,2 years (range 16 months – 6 years), mean number of previous vascular access surgery was 7,6 (3–17). We performed 19 axillo-iliac, 14 axillo-axillary by-passes and 16 conduits from arm fistula to jugular (9) or subclavian (7) vein for hemodialysis purposes. We used 5 or 6 mm diameter external supported PTFE grafts. All except one fistulas were used for hemodialysis. One patient died with good function of fistula before it's initial usage. Follow-up period ranged from 1 to 84 months. In four cases of stenosis of venous anastomosis occurred (8, 12, 14 and 16 months postoperatively), two of which were successfully treated by angioplasty and one required a new anastomosis to the inferior vena cava. In 12 cases (24%) graft thrombectomy was necessary 1 to 38 months after the operation. One axillo-iliac and one axillo-axillary by-pass was removed 14 and 22 months after the operation due to infection. In conclusion we found extraanatomic conduits an efficient option as a permanent vascular access for hemodialysis purposes in patients with central venous occlusion.

## Cardiovascular, Thoracic\_1 P057

**Ischaemic postconditioning reduces TNF-alpha expression and leukocyte activation after infrarenal aortic ischaemia-reperfusion in rat model**

Jancso Gabor<sup>1</sup>, Sinay Laszlo<sup>2</sup>, Horvath Szabolcs<sup>3</sup>, Arato Endre<sup>4</sup>, Weber Gyorgy<sup>5</sup>, Roth Erzsebet<sup>6</sup>

<sup>1</sup>University of Pecs Medical School, Department of General and Vascular Surgery, Pecs, Hungary, <sup>2</sup>University of Pecs Medical School, Department of General and Vascular Surgery, <sup>3</sup>University of Pecs Medical School, Department of Surgical Research and Techniques, <sup>4</sup>University of Pecs Medical School, Department of General and Vascular Surgery, <sup>5</sup>University of Pecs Medical School, Department of Surgical Research and Techniques, <sup>6</sup>University of Pecs Medical School, Department of Surgical Research and Techniques (jancsogabor@hotmail.com)

**Objective:** We studied the protective effects of ischaemic postconditioning (PS) on ischemia-reperfusion injury of the lower extremities in a rat model of abdominal aortic intervention. We aimed to examine the evoked oxidative stress, cytokine expression and leukocyte activation after revascularisation surgery.

**Methods:** Anesthetized animals (48 Wistar rats) underwent a 60 min infrarenal aorta cross-clamping. After the ischaemic period, an intermittent 4 times 15 sec reperfusion–15 sec ischaemic episodes–were applied (ischaemic postconditioning: group PS). Then we started a 120 min reperfusion in the aorta. In untreated group animals underwent a long ischaemia (60 min) and the following reperfusion (group IR). Peripheral blood samples were collected

before operation, and in early (5; 10; 15; 30; 60 and 120 min) reperfusion periods. Serum peroxide level, TNF-alpha concentration, myeloperoxidase (MPO) activity and PMA-induced leukocyte ROS production were measured.

**Results:** In PS group, plasma peroxide level elevation was significantly lower in very early reperfusion (5–30 min) comparing to non-conditioned IR group (10,04±1,9 •M/l vs 16,91±3,67 •M/l p<0,05). PS also reduced serum TNF-alpha concentration (167,41±31,26 •g/ml versus 116,55±12,04 •g/ml p<0,05), MPO activity (1,759 ± 0,239 •M/ml vs 1,22 ± 0,126 •M/ml p<0,05) and leukocyte activation detected by PMA-induced leukocyte ROS production (5,7 ± 0,96 AU/103cells versus 4,63 ± 0,69 AU/103cells).

**Conclusions:** Ischaemic postconditioning could reduce ROI production after IR in early reperfusion period, thus limiting ROI mediated tissue lesion, cytokine-leukocyte activation, and inflammatory responses. PS seems to be an effective tool in vascular surgery to reduce reperfusion injuries after revascularization interventions. Supported by OTKA K67731, K48851, K60227.

## Gastrointestinal\_3 P058

**A Case report–2 Cases of Primary Aorto-enteric fistulas**

Jani Priyanka<sup>1</sup>, Akhtar Irfan<sup>2</sup>

<sup>1</sup>King's Mill Hospital, Nottinghamshire, UK <sup>2</sup>King's Mill Hospital (dpajjani@yahoo.com)

Primary aortoenteric fistula (PAEF) is a communication between the aorta and the enteric tract without any previous vascular intervention, e.g., aortic grafting. The direct communication is the cause of erosion of a diseased aorta into the gastrointestinal tract. Generally the involved aorta is aneurysmal in nature. Although rare, this condition may cause rapid patient deterioration and death and hence requires a prompt diagnosis and early surgical intervention. Primary Aorto-enteric fistulas present with episodes of gastrointestinal bleeding and/or fever and pulsatile abdominal mass. This case series involving two patients with primary aorto-enteric fistulas over the last year with two very different presentations, treated successfully by surgical interventions. First patient is an 80 yrs old female, presented with an episode of haematemesis – 300 mls fresh blood. Whilst in A&E incidental finding of pulsatile abdominal mass was made and proven to be Abdominal Aortic Aneurysm. CT abdo showed abdominal aorta aneurysm involving renal and common iliac arteries bilaterally. But no signs of leak or enteric fistulas noted. Patient was deemed stable AAA and was awaiting OGD until she had a second episode of haematemesis following which she underwent a laparotomy and intra-operative finding of aorto-enteric fistula was made. She was treated successfully and has made full and uneventful recovery. Second patient is a previously fit and well 65yrs old male patient who presented with fever, sweats, suprapubic abdominal pain and vague back pain. USS abdomen and IVU were normal and patient was discharged home on antibiotics for UTI. On the second presentation with similar complaints the patient had an abdominal CT Scan which showed an infra-renal abdominal aortic aneurysm 5.7 cm and a aorto-enteric fistula. Patient was started on intravenous antibiotics and underwent emergency EVAR operation. Intra-operative and microbiology results were suggestive of mycotic lesions in the involved aorta and hence a diagnosis of primary aorto-enteric fistula due to mycotic aneurysm was reached. Patient needed a prolonged period of intravenous antibiotics and rehabilitation but did manage a complete recovery. Since his surgery he continues to remain pain free and has had no further episodes of unexplained febrile illness. In summary, high level of suspicion is the key to diagnosis of primary aorto-duodenal fistulas. And they should be thought of in patients with pyrexia of unknown origin or in repeated episodes of upper GI bleed with failed attempts at endoscopy and a CT Scan of the abdomen is generally a helpful diagnostic tool.



## Minimally invasive P059

**Laparoscopic restorative proctocolectomy with ileal pouch-anal anastomosis for ulcerative colitis: surgical outcomes of 27 cases**Kawamura Junichiro<sup>1</sup>, Nagayama Satoshi<sup>2</sup>, Nomura Akinari<sup>3</sup>, Watanabe Go<sup>4</sup>, Sakai Yoshiharu<sup>5</sup><sup>1</sup>Department of Surgery, Kyoto University Hospital, Kyoto, Japan, <sup>2</sup>Department of Surgery, Kyoto University Hospital, <sup>3</sup>Department of Surgery, Kyoto University Hospital, <sup>4</sup>Department of Surgery, Kyoto University Hospital, <sup>5</sup>Department of Surgery, Kyoto University Hospital (kawamura@kuhp.kyoto-u.ac.jp)

**Purpose:** Since ulcerative colitis (UC) occurs primarily in younger patients, body image and cosmesis are major problems. Laparoscopic restorative proctocolectomy (LRP) requires a prolonged operation time long and high cost, but its short-term results are not inferior to those of conventional open restorative proctocolectomy (ORP). Moreover, long-term results for quality of life and morbidity are similar for these procedures, with LRP being superior to ORP with respect to body image and cosmesis. In our hospital, laparoscopic total proctocolectomy with ileal pouch-anal anastomosis (LRP-IPAA) is routinely used for the elective treatment of UC. We present our approach for laparoscopic dissection and transection of the rectum combined with transanal rectal mucosectomy and report short-term outcomes.

**Methods:** A total of 27 patients with UC underwent LAP-IPAA. One-, two-, and three-stage IPAA were performed in 2, 22, and 3 patients, respectively.

**Results:** The median operation time was 439 minutes, and the median operative blood loss was 180 g. No patient was switched to open surgery. One patient required reoperation for intestinal perforation caused by intestinal strangulation due to the small intestine twisting around the stoma site. Postoperative intestinal obstruction occurred in 7 patients, but all cases were treated conservatively. There was no operative mortality, and no sexual or urinary complications were reported during short-term follow-up.

**Conclusions:** LRP-IPAA is a feasible approach for the treatment of ulcerative colitis that provides excellent views of the pelvis. This procedure may offer important advantages over conventional surgery.

## Gastrointestinal\_1 P060

**The short time effects of calcium dobesilate, diosmin-hesperidin and sitz bath on acute complaints in the treatment of patients with bleeding hemorrhoidal attacks**Köksal Hakan Mustafa<sup>1</sup>, Yıldırım Sadık<sup>2</sup>, Toydemir Toygar<sup>3</sup>, Celayir Fevzi<sup>4</sup>, Öner Muharrem<sup>5</sup>, Baykan Adil<sup>6</sup><sup>1</sup>Department of Gastroenterology, Sıgılı Etilal Training and Research Hospital, Istanbul, Turkey, <sup>2</sup>General Surgeon (Ass. Prof.), <sup>3</sup>General Surgeon, <sup>4</sup>General Surgeon, <sup>5</sup>General Surgeon, <sup>6</sup>General Surgeon (Prof.) (fcelayir@gmail.com)

Rectal bleeding and perianal pain/discomfort are common indications for acute hospital admissions to the general surgery department. The patients consult to the doctor early because of the scary effect of bleeding and decrease quality of life by pain. In our study we compare the effectiveness of calcium dobesilate (CD), diosmin-hesperidin (MPFF) and sitz bath (SB) that were used alone and all together at the acute times of therapy. 173 consecutive patients were enrolled to our study with rectal bleeding. As a prospective randomized study, there were 5 groups participating each of them at least 34 patients: These are MPFF, MPFF + SB, CD, CD + SB and SB only. For discomfort and physical signs, the patients were seen at the hospital again at the 3th and 10th days. The median age of the patients was 28 (16–56) years. Seventy percentage of the patients had Grade II and 30% of them Grade III hemorrhoids. Significant discomfort/pain relief was seen almost all in 5 groups (the best one was MPFF + SB group). The minimum effectiveness was seen on CD alone group and SB group. Sitz bath were used by 3 of the groups and rectal bleeding was detected only at 2 (1.9) patients in these groups. At the patients with painful Grade II and grade III hemorrhoidal diseases, oral therapy and sitz bath alone are not enough to give adequate acute response. The best clinical response is got out from the usage of oral therapy and sitz bath all together. Key words: Rectal bleeding, Calcium Dobesilate, flavonoids,

## Gastrointestinal\_2 P061

**Calcium scoring in the aorto-iliacal trajectory: a new risk factor for leakage of a colorectal anastomosis**Komen Niels<sup>1</sup>, Klitsie Pieter<sup>2</sup>, Dijk Jan Willem<sup>3</sup>, Hermans John<sup>4</sup>, Jeekel Hans<sup>5</sup>, Lange Johan<sup>6</sup><sup>1</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>2</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>3</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>4</sup>Department of Radiology University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>5</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands, <sup>6</sup>Department of Surgery University Medical Center Rotterdam Erasmus MC, Rotterdam, The Netherlands (n.komen@erasmusmc.nl)

**Introduction:** Decreased perfusion, local oxygenation and microcirculation are considered to be causative factors for colorectal anastomotic leakage. Atherosclerosis can reduce microcirculation and therefore local oxygenation. It is possible to quantify atherosclerosis, visualized on CT-scan, by means of the "calcium score software". This pilot study aims to evaluate the possible correlation between the presence of these calcifications in the aorto-iliacal trajectory and colorectal anastomotic leakage.

**Methods:** The calcium scores of colorectal patients were determined on a preoperative CT-scan. The aorto-iliacal trajectory was split up in different segments being aorta, left and right common iliac artery, left and right internal iliac artery and the left and right external iliac artery. Additionally, risk factors for atherosclerosis and anastomotic leakage were scored, i.e. age, gender, BMI, smoking, alcohol use, use of steroids, antihypertensive drugs and statines, cardiac co-morbidity, type of anastomosis, urgent operation, operation, prophylactic drainage, protective ileostomy and bloodtransfusion.

**Results:** A total of 97 patients was included. Nine (9.3%) developed anastomotic leakage, of whom one died (11.1%). Statistical analysis showed a significant correlation between the calcium score in the right common iliac artery and the presence of anastomotic leakage ( $p = 0.043$ ). A trend was found for the calcium score in the left common iliac artery and the presence of anastomotic leakage ( $p = 0.067$ ). Analysis of the risk factors showed no significant difference between the group with and the group without anastomotic leakage.

**Conclusion:** This pilot study shows a significant correlation between the presence of atherosclerosis in the right common iliac artery and the presence of anastomotic leakage. For the left common iliac artery a trend was found. These results suggest that the calcium score, i.e. atherosclerosis, is a new risk factor for anastomotic leakage.

## Hepatobiliary\_2 P062

**Two patients with VIPoma, we succeeded in curative surgical resection**Komoto Izumi<sup>1</sup>, Ota Shuichi<sup>2</sup>, Harada Tomika<sup>3</sup>, Adachi Yukito<sup>4</sup>, Hirai Kiyoshi<sup>5</sup>, Imamura Masayuki<sup>6</sup><sup>1</sup>Saiseikai Noe Hospital, Japan, <sup>2</sup>Saiseikai Noe Hospital, <sup>3</sup>Saiseikai Noe Hospital, <sup>4</sup>Saiseikai Noe Hospital, <sup>5</sup>Saiseikai Noe Hospital, <sup>6</sup>Saiseikai Noe Hospital (ikomoto@mx.brwa.ne.jp)

**Introduction:** VIPomas are very rare pancreatic neuroendocrine tumors. VIP causes a distinct syndrome, very-large-volume diarrhea, severe hypokalemia, hypochlorhydria. Between September 2006 and May 2007, we experienced two patients with VIPoma. Patients: Case 1 is 74 years-old female. She suffered from watery diarrhea from August 2006. She came to our hospital and hypokalemia and high serum VIP level (1980 pg/ml) were pointed out. We diagnosed her with WDHA syndrome and treated her with Octreotide Acetate before surgery. Vascular-rich tumor, its diameter was 25mm, was detected in the tail of the pancreas by CT scan and US. Selective arterial secretagogue injection test (SASIT) with calcium was positive when calcium was injected into the splenic artery. We diagnosed that VIPoma was located in the tail of the pancreas. Distal

pancreatectomy was performed. Case 2 is 82 years-old female. She suffered from large-volume watery diarrhea and renal failure. Before treated with long-acting Octreotide Acetate, her serum VIP level was 1420 pg/ml. A small vascular rich tumor was detected in the pancreas head by CT scan. SAG or SASI test were not useful in this case. Under the diagnosis of pancreas head VIPoma, we performed enucleation of pancreas-head tumor. In both cases, after surgery, the serum VIP level returned to the normal and diarrhea stopped instead of give up treatment with Octreotide Acetate.

**Conclusion:** We experienced two patients with VIPoma, to whom we performed curative surgical resection successfully. One of these cases, SASI test was useful to diagnose the location of VIPoma. SASI test with calcium may have chance to help the localization VIPoma, similar to gastrinomas or insulinomas.

## Gastrointestinal\_2 P063

### Left Sided Appendicitis: A Case Report

KordJamshidi Abdolrasool<sup>1</sup>, Ziaee Seyed Ali<sup>2</sup>, Khatibzadeh Nadia<sup>3</sup>, Fanaei S.Ahmad<sup>4</sup>

<sup>1</sup>Ilam University Of Medical Science, Iran, <sup>2</sup>Erfan Hospital, <sup>3</sup>Islamic Azad University of Medical Science, <sup>4</sup>Bagiyatalah University of Medical Science (sali\_ziaee@yahoo.com)

**Background:** Situs inversus totalis is an uncommon anatomic anomaly that complicates diagnosis and management of acute abdominal pain. Thus, awareness of the multiple etiologies, common and uncommon, and their unusual and sometimes confounding presentations is critical for the Emergency Physicians and surgeon alike. Case Presentation: We present the case of a 24-year-old female with situs inversus totalis and left-sided acute appendicitis.

**Discussion:** Appendicitis, including both right-sided and left-sided, has an annual incidence of 1 : 1000 population. Situs in *versus* totalis is a rare anatomic anomaly with an estimated incidence of 1 : 20000 in the general population and an autosomal recessive mode of inheritance. Considering of this phenomenon in acute abdomen patients is one of the most important notes. Adverse outcomes with appendiceal rupture and abscess formation occurred due to inadvertent physical examinations and inadequate observation, especially in cases like

## Hepatobiliary\_1 P064

### The enzymatic activity of type 1 iodothyronine deiodinase (D1) is low in liver haemangioma – preliminary study

Kornasiewicz Oskar<sup>1</sup>, Dębski Marcin<sup>2</sup>, Stepnowska Marta<sup>3</sup>, Szalas Anna<sup>4</sup>, Bar-Andziak Ewa<sup>5</sup>, Karawczyk Marek<sup>6</sup>

<sup>1</sup>Department of General, Transplant and Liver Surgery Medical University of Warsaw, Poland, <sup>2</sup>Department of Internal Medicine and Endocrinology Medical University of Warsaw, <sup>3</sup>Department of Internal Medicine and Endocrinology Medical University of Warsaw, <sup>4</sup>Department of Internal Medicine and Endocrinology Medical University of Warsaw, <sup>5</sup>Department of Internal Medicine and Endocrinology Medical University of Warsaw, <sup>6</sup>Department of General, Transplant and Liver Surgery Medical University of Warsaw (debskim@wp.pl)

**Introduction:** Type 1 iodothyronine deiodinase (D1) is responsible for the conversion of thyroxine (T4) into tri-iodothyronine (T3). The enzyme is mainly present in thyroid, liver and kidneys. There has been strong evidence that the metabolism of thyroid hormones is disturbed in some of neoplastic tissues such as thyroid cancer, renal cancer and breast cancer. However there are only few available data about D1 enzymatic activity in benign tumors such as haemangioma which is the most common primary liver tumor. Aim of the study The aim of this study was to estimate the enzymatic activity of D1 in liver haemangioma in comparison with healthy liver tissue. The activity was assessed by measurement of radioactive iodine released in reaction of deiodination catalyzed by D1. Material Seven tumors and seven healthy control tissues were obtained from the patients (average age 50) who had liver resection performed for benign tumors.

**Results:** It was found that D1 activity was significantly lower in haemangioma tissues compared with healthy counterparts ( $p = 0,0017$ ).

**Conclusion:** Healthy liver tissue expresses high level of D1. In some liver lesions, for example colorectal liver metastasis, we discovered low D1 enzymatic activity. Interestingly in liver haemangioma elevated level of deiodinase type 3 (D3), which inactivates thyroid hormones was reported. Our finding demonstrates low enzymatic activity of D1 in liver haemangioma and suggest so far unknown role of thyroid hormones in this type of benign liver tumors.

## Hepatobiliary\_1 P065

### Polycystic liver disease (PLD): an indication for liver transplantation

Kornasiewicz Oskar<sup>1</sup>, Nyckowski Paweł<sup>2</sup>, Krawczyk Marek<sup>3</sup>

<sup>1</sup>Department of General, Transplant and Liver Surgery Medical University of Warsaw, Poland, <sup>2</sup>Department of General, Transplant and Liver Surgery Medical University of Warsaw, <sup>3</sup>Department of General, Transplant and Liver Surgery Medical University of Warsaw oskar.kornasiewicz@gmail.com

**Introduction:** Polycystic liver disease (PLD) is a rare, benign, inherited disorder where hepatic function is well preserved despite multiple cystic lesions throughout the liver. Liver failure rarely occurs. Most of patients with PLD have concomitant polycystic renal disease. PLD has been rare and controversial indications for liver transplantation because patients commonly have preserved liver function at the time of transplantation. Aim of the study The objective of the study was to evaluate indications and immediate results in patients with PLD treated for either liver or combined liver-kidney transplantation.

**Material and methods:** We reviewed charts of ten cases of adult patients with highly symptomatic polycystic disease who underwent OLT or K-LTx for PLD between 2001 and 2007. Mean age was 45 years (range, 34 to 56 years). The group consisted of six patients (0.7%) who underwent OLTx and four (0.7%) patients who received simultaneous liver and kidney transplantation. The outcome was assessed were relief of symptoms, early postoperative complications and mortality.

**Results:** The main indication for liver transplantation in all ten cases were specific symptoms such as massive hepatomegaly causing severe physical handicaps, clinically advanced malnutrition, and poor quality of life which led to disability. Four patients with indications for combined liver-kidney transplantations were dialysis dependent. None on the patients had symptoms of end stage liver disease or clinical signs of hepatic failure. In cases of simultaneous transplantations, the kidney was implanted separately after the liver transplantation. All of the patients are still alive following the transplantation. No major surgical complications have occurred.

**Conclusion:** In our clinical practice, liver transplantation is a treatment of choice in those patients with severe symptoms or life threatening conditions. Patients with polycystic liver disease can undergo liver transplantation safely with good results and they benefit from the relief of abdominal distension and anorexia.

## Sepsis, Infection, Immunity P066

## Intestinal flora in critically ill trauma patients: the role of synbiotics

Kotzampassi Katerina<sup>1</sup>, Bezirtzoglou Efi<sup>2</sup>, Voidarou CHRYSA<sup>3</sup>, Alexopoulos Athanasios<sup>4</sup>, Voudouris Antonios<sup>5</sup>, Kazamias Pantelis<sup>6</sup>

<sup>1</sup>Department Of Surgery, Faculty Of Medicine, University Of Thessaloniki, Thessaloniki, Greece, <sup>2</sup>Dept of Food Science & Technology, Lab. of Microbiology, Biotechnology & Hygiene, Democritus University of Thrace, Orestiada, Greece, <sup>3</sup>Dept of Food Science & Technology, Lab. of Microbiology, Biotechnology & Hygiene, Democritus University of Thrace, Orestiada, Greece, <sup>4</sup>Dept of Food Science & Technology, Lab. of Microbiology, Biotechnology & Hygiene, Democritus University of Thrace, Orestiada, Greece, <sup>5</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece, <sup>6</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece (kakotbe@yahoo.com)

Intestinal mucosal barrier disruption seen in critical illness is mainly attributed to changes in gut flora composition, thus recently an effort was made to preserve or re-establish the normal flora with probiotics. Our purpose was to assess fecal flora in 75 critically-ill mechanically ventilated, multi-trauma patients receiving a combination of pre-and probiotics *versus* placebo and to correlate the findings with clinical outcome. Patients were randomized to—once daily for 15-d—Synbiotic 2000Forte [Medipharma, Sweden] or maltodextrin [placebo]. Fecal samples were collected on days 0, 4, 7, and 15, for total microbial flora identification. Infections, septic complications, mortality, days under ventilatory support, and stay in ICU were recorded. Maltodextrin-treated group exhibited intestinal microbial decolonization; *E.coli* was absent, while major pathogens such as *Klebsiella*, *C. difficile*, *S. aureus* were prominent. The synbiotic group was found to have significantly more balanced flora; from day-7 a significant increase of *Lactobacillus*, *Prevotella*, *Bacteroides*, and on day-15 of *E.coli*, *Lactobacillus*, *Lactococcus*, *Pediococcus*, *Enterococcus*, *Bacteroides*, was noted. A measurable increase between day-7 and day-15 was also prominent for *E. coli* and *Lactobacillus* sp. At clinical level, Synbiotic-treated patients exhibited a significantly reduced rate of infections [ $p = 0.01$ ], SIRS, severe sepsis [ $p = 0.02$ ], days of ICU stay [ $p = 0.01$ ], and days under mechanical ventilation [ $p = 0.001$ ] *versus* controls. Mortality rates were 14.3% *versus* 30%, respectively. This specific synbiotic formula administered in ICU multi-trauma patients upon admission seems to successfully compensate for loss of normal gut flora; the beneficial effect observed might well match the improved patient response with respect to infection and sepsis rates.

## Gastrointestinal\_1 P067

## Albumin versus colloids in colon surgery patients – preliminary results

Kotzampassi Katerina<sup>1</sup>, Grosomadis Vasilios<sup>2</sup>, Andreopoulos Konstantin<sup>3</sup>, OS<sup>4</sup>, Eleftheriadis Efthymios<sup>5</sup>

<sup>1</sup>Department Of Surgery, Faculty Of Medicine, University Of Thessaloniki, Thessaloniki, Greece, <sup>2</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece, <sup>3</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece, <sup>4</sup>Thessaloniki, Thessaloniki, Greece, <sup>5</sup>Department of Surgery, Faculty of Medicine, University of Thessaloniki, Thessaloniki, Greece (kakotbe@yahoo.com)

**Introduction:** In colon surgery for malignancy, tissue oedema, as a result of increased capillary permeability – due both to operational stress response and the perioperative fluid therapy – may contribute not only to the systemic consequences, but also to anastomotic dehiscence with questionable end results for the patient. The use of albumin is considered to be the gold standard for prevention of this complication, being at least theoretically combined with hypoalbuminaemia; however, in recent years its use has become controversial. On the other hand, after the acknowledgement of the pharmacokinetic advantages of synthetic colloids, there has been an ongoing shift towards

their use as perioperative fluid therapy in major elective surgery, too. We aimed to investigate the effect of colloids, as a postoperative regimen against routinely given human albumin in patients subjected to colectomy for cancer. Thirty-day morbidity, including anastomotic leakage, abdominal wound infection and dehiscence, as well as organ specific and systemic infections, sepsis and septic shock, were assessed.

**Methods:** Fifty colon cancer patients with actual indication for early postoperative albumin treatment were randomized to receive either human albumin [100ml/day] or 6% HES130/0.4 [Volumen, Fresenius AG] [500ml/day], for 6 consecutive days. Patients were then followed up for the next 30 days.

**Results:** In the albumin and Volumen groups anastomotic leakage was prominent in 3 and 1 patients, respectively; wound infection in 3 and 1, respectively, systemic infection in 5 and 4, and sepsis in 2 and 0 patients respectively. One patient finally died from sepsis from the albumin group.

**Conclusion:** We conclude that in our material, patients receiving Volumen against albumin as perioperative 6-day treatment, exhibited lower morbidity rates. However, further research is required.

## Hepatobiliary\_1 P068

## Calcified primary hydatid cyst of gallbladder – a rare clinical entity

Krasniqi Avdyli<sup>1</sup>, Limani Dalip<sup>2</sup>, Spahija Gazmend<sup>3</sup>, Gashi-Luci Lumturije<sup>4</sup>

<sup>1</sup>University Clinical Centre of Kosova, Department of Abdominal Surgery, Medical School University of Prishtina, Kosovo, <sup>2</sup>University Clinical Centre of Kosova, Department of Abdominal Surgery, Medical School University of Prishtina, Kosovo, <sup>3</sup>University Clinical Centre of Kosova, Department of Anesthesiology and Reanimation, Medical School University of Prishtina, Kosovo, <sup>4</sup>University Clinical Centre of Kosova, Institute of Pathology, Medical School University of Prishtina, Kosovo (dr.krasniqi2001@yahoo.com)

**Background:** Hydatid disease is a common clinical pathology in many parts of the world. The main species pathogenic for humans in Mediterranean and Southern European countries is *Echinococcus granulosus*. Cystic hydatidosis continuous to be a common pathology of surgical wards in Kosovo. 70–80% of hydatid cysts are developed in the liver. Primary hydatid cyst of the gallbladder is an unusual and very rare localization. Until now, only five cases that fulfill the criteria of primary gallbladder hydatidosis are published in English language literature. The aim of this presentation is to shed light on some characteristics of diagnosis, spread routes and treatment of this very rare clinical entity. Case presentation: We report the clinical case of a 39 years old lady, referred to abdominal surgery department as a calcified hydatid cyst of the liver with gallbladder involvement. History of disease shows long-term chronic right upper quadrant abdominal pain with intermittent colic's and nausea. Chest x-ray, plain radiograph of the abdomen, abdominal US and CT have been taken. Blood and other routine tests were taken as well. The patient underwent sub costal right laparotomy. The accurate diagnosis – a calcified primary hydatid cyst of gallbladder was made during the surgery. No other cyst was found at exploration of the peritoneal cavity. Complete pericystectomy along with cholecystectomy was performed. The histopathology confirmed the presence of calcified hydatid cyst of gallbladder.

**Conclusion:** Primary hydatid cyst of gallbladder is a very rare clinical entity. Specific preoperative diagnostic localization is not always easy, especially in the hospitals with limited resources. Complete pericystectomy along with cholecystectomy were performed. Cyst was developed entirely extra-mucosally. A possible spread route of oncospheres from gut mucosa to the gallbladder wall is through lymphatic circulation. Five year follow-up shows no complication and recurrence.



## Gastrointestinal\_3 P069

**Pseudoaneurysms of visceral arteries in patients with chronic pancreatitis: diagnostics and treatment**

Kruger AG<sup>1</sup>, Kokov LS<sup>2</sup>, Karmazanovsky GG<sup>3</sup>, Kozlov IA<sup>4</sup>, Barbin PB<sup>5</sup>, Tarbaeva NV<sup>6</sup>

<sup>1</sup>Vishnevsky-Institute of Surgery, Moscow, Russia, <sup>2</sup>Vishnevsky-Institute of Surgery, Moscow, Russia, <sup>3</sup>Vishnevsky-Institute of Surgery, Moscow, Russia, <sup>4</sup>Vishnevsky-Institute of Surgery, Moscow, Russia, <sup>5</sup>Vishnevsky-Institute of Surgery, Moscow, Russia, <sup>6</sup>Vishnevsky-Institute of Surgery, Moscow, Russia (barbin@ixv.comcor.ru)

**Aim:** To develop algorithm of treatment of patients with pseudoaneurysms of visceral arteries complicating chronic pancreatitis

**Materials and methods:** 22 patients with pseudoaneurysms of visceral arteries in the setting of chronic pancreatitis were treated in Vishnevsky-Institute of Surgery since 1995. Mean age was 48 years (29–67 years). Diagnose was based on ultrasound (US) examination (B-mode, duplex and 3D-reconstruction), contrast enhanced spiral computed tomography (SCT), conventional angiography. There were no clinically suspected pseudoaneurysms. 4 patients (18%) presented with gastrointestinal (GI) bleedings.

**Results:** There were 14 cases of splenic artery pseudoaneurysm, 4 cases of pancreato-duodenal artery aneurysm, gastro-duodenal artery was involved in 3 cases and right hepatic artery once. Localization and size of pseudoaneurysm as well as condition of pancreas influenced our tactic. Spontaneous thrombosis occurred in 3 cases of small (2–3 cm in diameter) pseudoaneurysms. Endovascular intervention was used in 10 cases with the size of lesion being not more than 55 mm and minimal pancreas changes. There were 8 vascular occlusions and 2 stent-graft implantations. The efficacy of treatment was evaluated with US exam. There was no flow in the aneurysm sac in 6 cases. In 2 cases endovascular occlusion was not effective resulting in surgical procedure: distal pancreas resection and splenectomy in one case and distal pancreas resection with splenectomy and pancreatico-jejunostomy in another. There was one death due to polyorgan failure. 9 patients with large pseudoaneurysms (60–138 mm), significant sclerotic changes of pancreas and pancreatic hypertension demanded open surgery. Twice surgical procedure was required to control massive GI bleeding. The following procedures were performed: distal pancreas resection + splenectomy – 3, splenic artery ligation with pseudoaneurysm “isolation” – 2, splenic artery ligation + pseudoaneurysm resection + splenectomy – 1, distal pancreas resection + Frey procedure + pseudoaneurysm resection – 1, Frey procedure + cholecystectomy, choledochotomy, common bile duct drainage – 1. In the case of gastro-duodenal artery lesion cystopancreaticojejunostomy and gastro-duodenal artery ligation was performed. One patient died.

**Conclusion:** Endovascular treatment is indicated in case of small pseudoaneurysms of visceral arteries without connection with pancreatic ducts. In case of pseudoaneurysms developing in the cavity of necrotic pancreatic cysts or in the setting of pancreatic hypertension a surgical procedure is performed. Endovascular procedures may be used pre-operatively to control bleeding during surgery.

## Gastrointestinal\_2 P070

**A simple quality of life questionnaire for patients with faecal incontinence**

Krysa J<sup>1</sup>, Lyons M<sup>2</sup>, Williams AB<sup>3</sup>

<sup>1</sup>Guy's and St Thomas' NHS Trust, London, UK, <sup>2</sup>Guy's and St Thomas' NHS Trust, <sup>3</sup>Guy's and St Thomas' NHS Trust (jokrysa@aol.com)

**Introduction:** Faecal incontinence affects 2% of the adult general population. Current assessment tools only record the frequency and type of incontinence, with no measure of the affect on the patient quality of life. A simple quality of life questionnaire was designed to triage patients with faecal incontinence to the most appropriate level of support, investigation and treatment.

**Method:** A questionnaire was developed to include a 'symptom' score, similar in content to St Mark's questionnaire and a 'bothersome' score. A pilot study (34 patients) assessed the clarity of questions. Once content validity was established

it was sent to 360 patients who attended a pelvic floor clinic. Its external validity was assessed against the SF-36 and the Manchester Health Questionnaires and ease of use assessed using a separate form.

**Results:** Of the 360 patients, 84 replied, with a mean age of 56 years (range 26–86, 66 female). The questionnaire was shown to be reliable both by measurement of its internal consistency, (Cronbach's alpha statistic (0.9)) and by test-retest analysis (Spearman's Correlation Coefficient (SCC): 0.8 with  $p < 0.001$ ). There was a significant correlation between the scores of the new questionnaire and the Manchester Health Questionnaire, (SCC: 0.5 with  $p < 0.001$ ), as well as the SF-36 (SCC: 0.25 with  $p < 0.05$ ). Divergence validity, assessed by correlating the number of pads used and the overall 'symptom' score, was established (SCC: 0.5 with  $p < 0.001$ ). The new questionnaire was easiest and on average took 4 minutes to complete.

**Conclusion:** We have demonstrated that the new questionnaire is reliable and valid. It is easy and quick to complete and assesses both severity and impact of symptoms.

## Minimally invasive P071

**Acute submucosal abscess formation following India ink colonic tattooing prior to laparoscopic colorectal resection: case report and literature review**

Kumar Bhaskar<sup>1</sup>, Paringe Vishal<sup>2</sup>, Rech Borge<sup>3</sup>, Ahamd Syeer MUZAFFAD<sup>4</sup>

<sup>1</sup>Scunthorpe General Hospital, UK, <sup>2</sup>Scunthorpe General Hospital, <sup>3</sup>Scunthorpe General Hospital, <sup>4</sup>Scunthorpe General Hospital (bhaskarARGOPAKUMAR@DOCTORS.ORG.UK)

**Aims:** We describe our experience of a potentially dangerous complication following the injection of India ink for colonic tattooing prior to laparoscopic colorectal resection for malignant disease.

**Methods:** A search of Medline was performed using the key words 'India ink', 'Complications', 'colonic tattooing'. A total of seven articles were located and used as a basis for the literature review. Full medical records were reviewed along with relevant laboratory results and histopathology slides.

**Results:** A. Literature review: There are minimal complications reported with the use of India ink for colonic tattooing. Intestinal perforation, infarction are reported complications but to date there are no descriptions of acute submucosal abscess formation. B. Case Report: A 74 year old man with a history of carcinoma of the sigmoid underwent injection of India ink prior to laparoscopic sigmoid resection the following day. On the first day after tattooing he developed lower abdominal pain, pyrexia and was generally unwell. Laboratory tests revealed a marked leukocytosis and striking elevation of CRP. Post-operative pathological analysis revealed the presence of a submucosal abscess and surrounding acute inflammatory response at the injection site. The patient made an uneventful recovery and is currently well.

**Conclusions:** The onset of acute abdominal pain, fever, tachycardia or other clinical features of an inflammatory response following the use of India ink tattooing should alert the clinician to the possibility of acute submucosal abscess formation. We believe that with the anticipated uptake of laparoscopic colorectal surgery and bowel cancer screening surgeons should be fully aware of this potentially dangerous complication of endoscopic colonic tattooing.

## Plastic P072

**Is the darn repair of inguinal hernia still justified in 2008?**

Kumar Bhaskar<sup>1</sup>, Paringe Vishal<sup>2</sup>, Touqan Nader<sup>3</sup>, Shaikh Faisal<sup>4</sup>, Kar Asif<sup>5</sup>

<sup>1</sup>Scunthorpe General Hospital, UK, <sup>2</sup>Scunthorpe General Hospital, <sup>3</sup>Scunthorpe General Hospital, <sup>4</sup>Scunthorpe General Hospital, <sup>5</sup>Scunthorpe General Hospital (bhaskargopakumar@doctors.org.uk)

**Aims:** Lichtenstein mesh repair (LM) is generally considered to be the gold standard method of open inguinal hernia repair. The aim of this study was

to compare the classical Darn repair (DR) with the LM to assess whether it remains an effective and justifiable operation.

**Methods:** All patients who underwent open primary inguinal hernia repair between 1992 and 2002 by the DR or LM method performed by a single surgeon. We evaluated and compared post-operative complications, hernia recurrence rates, operative time, cost and incidence of chronic pain in both groups.

**Results:** A total of 259 patients (51% DR, 49% LM) were analysed. The mean age was 48 years (range:15–89). Mean follow up was 6 years (range: 2–13). Postoperative complications were minimal in both groups. Recurrence rates were 0.78% (LM) and 0.76% (DR). The incidence of infection was 2.3% for both groups. Incidence of chronic pain post surgery was 1.56% (DR) and 1.58% (LM). Although operation times were not significantly different in both groups DR was cheaper compared with LM repair.

**Conclusions:** In our experience DR is still a safe and highly effective repair option that remains comparable with a LM repair. A well constructed DR still has a role in the treatment of primary inguinal hernia repair and ultimately may lead to significant cost benefit. These findings justify the use of this operation as an alternative to LM repair for open inguinal hernia repair.

## Wound healing.1 P073

### Enterovesical fistulas in patients hospitalized in Medical University of the Infant Jesus hospital from 1995 to 2006

Kuzaka Boleslaw<sup>1</sup>, Kawecki Dariusz<sup>2</sup>, Borkowski, Broda Tomasz, Joanna<sup>3</sup>, Wierzbicki Zbigniew<sup>4</sup>, Chmura Andrzej<sup>5</sup>, Borkowski Andrzej<sup>6</sup>

<sup>1</sup>Dept. of Urology Medical University of Warsaw, Poland, <sup>2</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>3</sup>Dept. of Urology Medical University of Warsaw, <sup>4</sup>Dept. of General Surgery and Transplantation Medical University of Warsaw, <sup>5</sup>Dept. of General Surgery and Transplantation Medical University of Warsaw, <sup>6</sup>Dept. of Urology Medical University of Warsaw (dkawecki@o2.pl)

Enterovesical fistulas are a relatively uncommon complications of colorectal and pelvic malignancies, diverticulitis, inflammatory bowel disease, radiotherapy and traumas in Poland. Authors reviewed material of 24 patients with enterovesical fistulas hospitalized in the Department of Urology and Department of Surgery of Jesus Infant Hospital Medical University of Warsaw from 1995 to the end of 2006. A total of 24 symptomatic fistulas were recorded in a 13 of women with the mean age 67 years (54% of patients) and 11 of men with the mean age 65 years (46% of patients). In all cases of persistent fistulas were treated by surgical and/or urological interventions. The origin of the fistulas were: colorectal malignancies 16 of patients (67%), pelvic malignancies 2 patients (8%), vesical malignancies 3 patients (12,5%) and other 3 patients (12,5%). The most common anatomical anastomoses were as follows: vesicosigmoidal fistula in 12 patients (50%), vesicorectal fistula in 4 patients (16,5%), vesicoenteral fistula in 2 patients (8,5%), urogenitoenteral fistula in 3 patients (12,5%), other in 3 patients (12,5%). Surgical treatment of fistulas were: colostomy in 15 patients (50%), enteral resections and anastomoses in 6 patients (20%), transversostomy 3 patients (10%), jejunostomy 1 patient (3%), other in 5 patients (17%). To the end of 2006 from 24 patients underwent of treatment : 9 patients are alive (37,5%), 8 patients death (33,3%), 7 unknown (29,2%). The median period of life were 12 months (from 1 to 84 months) after.

**Conclusions:** 1. The most common etiological factors of enterovesical fistulas were colorectal malignancies 67% of patients. 2. Only 20% of patients were underwent completely surgical treatment because of advanced malignancies. 3. The most common method of surgical treatment was colostomy in 63% of patients.

## Minimally invasive P074

### The consequences of lost gallstones in the abdominal cavity after laparoscopic cholecystectomy—experimental animal study

Levay Bernadett<sup>1</sup>, Mikó Irén<sup>2</sup>, Szabó-Györgyi Schneider Ferenc<sup>3</sup>, Takács-Ildikó Bráth-Endre<sup>4</sup>, Furka István<sup>5</sup>, Gamal-Eldin Mohamed<sup>6</sup>

<sup>1</sup>Dept. of Reconstructive Surgery, Governmental Medical Centre, Budapest, Hungary, <sup>2</sup>Institute of Operative Techniques & Experimental Surgery, Univ. of Debrecen, Hungary, <sup>3</sup>National Institute of Oncology, Budapest, Hungary, <sup>4</sup>Techniques & Experimental Surgery, Univ. of Debrecen, Hungary, <sup>5</sup>Techniques & Experimental Surgery, Univ. of Debrecen, Hungary, <sup>6</sup>Dept. of Day Surgery & Min. Invasive Procedures, Budapest, Hungary (gamal13@hotmail.com)

**Background:** The problems caused by gallbladder perforation and splitting of gallstones during laparoscopic cholecystectomy (LC) are thought to be of no importance, though some clinical papers report about serious complications caused by the stones. In this animal experiment we studied the behaviour of contaminated and non-contaminated gallstones placed in the abdominal cavity of experimental animals to detect the macro-, and microscopic morpho-histologic changes in the specimens gained from the surrounding of the stones. Contaminated gallstones (cg) and sterile manufactured cholesterol (mc) stones of the same size were placed in the abdominal cavity of experimental animals, far from each other, separately, in the right and left subphrenic region. In the 14th postoperative day the animals were sacrificed and morphological appearances were detected. No any traces of cholesterol stones were found! While massive inflammatory processes, abscesses and adhesion formation was detected in the surrounding of the stones. This was also proved by the histologic results of the specimens taken.

**Conclusion:** Gallstones could be contaminated and may cause serious complications in the abdominal cavity like inflammation, adhesion or abscess formation. Cholesterol stones have the chance to be absorbed, but also they may be associated by minor complications, like adhesion formation.

## Hepatobiliary.2 P075

### Liver diseases in severely obese subjects undergoing bariatric surgery

Lisik Wojciech<sup>1</sup>, Wierzbicki Zbigniew<sup>2</sup>, Szalas Jakub<sup>3</sup>, Ziemiański Paweł<sup>4</sup>, Chmura Andrzej<sup>5</sup>, Rowiński Wojciech<sup>6</sup>

<sup>1</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>2</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>3</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>4</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>5</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>6</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland (wojciech.lisik@am.edu.pl)

Fatty liver disease can range from fatty liver alone (steatosis) to fatty liver associated with inflammation—non-alcoholic steatohepatitis (NASH). Steatohepatitis may progress to liver fibrosis and cirrhosis, and may result in liver-related morbidity and mortality. Fibrosis in the liver may be present in 30–50% of patients with NASH. Only small number of patients with NAFLD eventually suffer from end-stage liver disease and even hepatocellular carcinoma.

**Methods and patients:** In our study we analyzed frequency of NASH in severe obese patients, underwent bariatric surgery. Comparison enclosed results of 112 patients selected for bariatric surgery: either Roux-en-Y Gastric Bypass (RYGB) or Vertical Banded Gastroplasty (VBG). Mean body weight 141.4 kg, mean BMI 45.8 kg/m<sup>2</sup>, mean body fat 51.7%, mean age 43.2 years old, 88 women, 20 men. We assessed biochemical (aminotransferases, albumin level, prothrombin time, alkaline phosphatase, bilirubin) and morphological (ultrasonography and biopsy taken during surgery) parameters of liver.

**Results:** All patients had normal prothrombin time, normal serum albumin, alkaline phosphatase, bilirubin and increased AST (in 31.2% patients), ALT (in 42.8% patients). The analysis of liver biopsies have shown NASH in 43.7% patients, liver steatosis in 81.2% patients, panlobular inflammation (42%), portal fibrosis (15%). We noticed significant statistical correlation between BMI and level of hepatic steatosis.

**Conclusion:** Liver diseases in NASH and fibrosis are necessary to be monitoring in severe obese patients. The weight loss secondary to the bariatric surgery, may be associated with decrease in the incidence of nonalcoholic fatty liver disease.

## Hepatobiliary\_2 P076

### Working Memory Alterations in Two Experimental Models of Type C Hepatic Encephalopathy

Losada M<sup>1</sup>, Cruz A<sup>2</sup>, Aller MA<sup>3</sup>, Méndez M<sup>4</sup>, Arias J<sup>5</sup>, Arias JL<sup>6</sup>

<sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Unit. Virgen de la Luz Hospital Cuenca. Spain, <sup>3</sup>Surgery I Dep. Complutense University Medical School. Madrid. Spain, <sup>4</sup>Psychobiology Lab. School of Psychology. University of Oviedo. Asturias. Spain, <sup>5</sup>Surgery I Dep. Complutense University Medical School. Madrid. Spain, <sup>6</sup>Psychobiology Lab. School of Psychology. University of Oviedo. Asturias. Spain (manuellosadaruiz@hotmail.com)

**Background and aims:** Hepatic encephalopathy (HE) produces attention and memory deficits in humans. There was no consensus about factors that determine these cognitive impairments, since these deficits are not related to the different etiopathogenesis of HE. Three types of HE have been proposed: A (with acute hepatic insufficiency), B (with porto systemic shunts) and C (with cirrhosis and portal hypertension or Porto systemic collateral circulation). Our aim is to study working memory alterations in B and C HE experimental models.

**Methods:** 44 male Wistar rats, control rats (C; n = 9), sham operated (SO; n = 9), rats with triple partial portal vein ligation (TPVL; n = 8), with end-to-side portocaval shunts (PCS; n = 8), and with cirrhosis and portal hypertension by thioacetamide (TAA; n = 10) were used. Spatial working memory was evaluated using the Morris water maze in a paired sample task. Task was developed in six sessions that were carried out on six consecutive days.

**Results:** Differences between groups were demonstrated. SO and PCA rats had an unimpaired working memory. Both groups showed retention of information (p = 0,015). Nonetheless, TPLV did not. There were differences between C and TAA. Retention of information was shown only by C (p = 0,035).

**Conclusion:** Our findings suggest that type C HE presents a severe deficit in working memory. Portal hypertension, a feature of TAA and TPVL rats, could be involved in working memory deficits, suggesting a functional impairment of brain limbic system which is implicated in this type of learning.

## Hepatobiliary\_2 P077

### Chronic Prehepatic Portal Hypertension in the Rat: Is it a type of Metabolic Inflammatory Syndrome

Losada M<sup>1</sup>, Cruz A<sup>2</sup>, Aller MA<sup>3</sup>, Vara E<sup>4</sup>, García C<sup>5</sup>, Arias J<sup>6</sup>

<sup>1</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>2</sup>General Surgery Department. Virgen de la Luz Hospital. Cuenca, Spain, <sup>3</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain, <sup>4</sup>Biochemistry and Molecular Biology Department. School of Medicine. Complutense University of Madrid, Spain, <sup>5</sup>Biochemistry and Molecular Biology Department. School of Medicine. Complutense University of Madrid, Spain, <sup>6</sup>Surgery I Department. School of Medicine. Complutense University of Madrid, Spain (manuellosadaruiz@hotmail.com)

**Background:** A progressive development of hepatic steatosis with an increase in the lipid hepatocyte content and the formation of megamitochondria have been demonstrated in rats with prehepatic portal hypertension. The aim of this study was to verify the existence of liver and serum lipid metabolism impairments in rats with long-term (2 years) portal hypertension.

**Methods:** Male Wistar rats: Control (n = 10) and with prehepatic portal hypertension by triple partial portal vein ligation (n = 9) were used. Liver content of Triglycerides (TG), phospholipids (PL) and cholesterol and serum cholesterol, lipoproteins (HDL and LDL), TG, glucose and Lipid Binding Protein (LBP) were assayed with specific colorimetric commercial kits. Serum levels of insulin and somatostatin were assayed by RIA.

**Results:** The liver content of TG (6.30 + 1.95 versus 4.17 + 0.59 µg/ml; p < 0.01) and cholesterol (1.48 + 0.15 versus 1.10 + 0.13 µg/ml; p < 0.001) increased in rats with portal hypertension. The serum levels of cholesterol (97.00 + 26.02 versus 114.78 + 37.72 mg/dl), TG (153.41 + 80.39 versus 324.39 + 134.9 mg/dl; p < 0.01), HDL (20.45 + 5.14 versus 55.15 + 17.47 mg/dl; p < 0.001) and somatostatin (1.32 ± 0.31 versus 1.59 + 0.37 mg/dl) decreased, whereas LDL (37.83 ± 15.39 versus 16.77 ± 6.81 mg/dl; p < 0.001) and LBP (308.47 + 194.53 versus 60.27 + 42.96 ng/ml; p < 0.001) increased.

**Conclusion:** Portal hypertension in the rat presents changes in the lipid and carbohydrate metabolism similar to those produced in chronic inflammatory conditions and sepsis in humans. These underlying alterations could be involved in the development of hepatic steatosis and, therefore, in those described in the metabolic syndrome in humans.

## Orthopedic P078

### Early results of patello-femoral joint arthroplasty in a district general hospital

Malhotra Akshay<sup>1</sup>, Velpula Jagan<sup>2</sup>, Singh Jagwant<sup>3</sup>, Denn Peter<sup>4</sup>, Benton Mark<sup>5</sup>

<sup>1</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>2</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>3</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>4</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>5</sup>Macclesfield District General Hospital (akshay16@gmail.com)

Isolated patellofemoral arthritis is a well recognised variant of the osteoarthritic knee. We present early follow up results of patellofemoral arthroplasty in a district general hospital. A retrospective study was undertaken based on notes of 12 patients operated in the past 24 months. All twelve patients were investigated initially with an arthroscopy by a consultant who identified the patellofemoral arthritis. They were further operated by the same surgeon and the same type of implant was used in all the patients. A clinical and radiological follow-up was carried out which showed patellar tracking was normal and there wasn't any evidence of loosening. Oxford knee score was used to judge patient satisfaction. Average age of the patients' was 60 years with the range being from 42–83 years. Average length of hospital stay was 4 days with the range being 3–7 days. Average follow-up was 14 months with the range being 7–24 months. The average oxford score was 18. Average range of post-operative movements attained for the knee were 0–120 degrees. The visual analogue score was 9/10. Thus here we are highlighting the encouraging early results we have attained using isolated patellofemoral arthroplasty in a district general hospital.

## Orthopedic P079

### Determining correlation between clinical examination, Magnetic Resonance Imaging and Arthroscopy of the Knee joint

Malhotra Akshay<sup>1</sup>, Velpula Jagan<sup>2</sup>, Singh Jagwant<sup>3</sup>, Sundaram R<sup>4</sup>, Kershaw Steve<sup>5</sup>

<sup>1</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>2</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>3</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>4</sup>Macclesfield District General Hospital, Macclesfield, U.K, <sup>5</sup>Macclesfield District General Hospital, Macclesfield, U.K (akshay16@gmail.com)

**Aim:** Historically for diagnosing soft tissue injuries of the knee we have relied on clinical examination but with the advent of the MRI scan many surgeons choose to confirm their diagnosis with its help. Our audit aimed to ascertain the efficacy of clinical examination and the need for MRI scans only in specific cases. For this we correlated clinical findings, radiological findings and arthroscopic findings of the knee joint.

**Methodology:** We performed a retrospective study, its time period spanning from Jan 2006 to April 2007 where we identified patients who underwent arthroscopy of the knee joint. A total of 62 patients were identified all of



which were operated upon by a single surgeon. We have compared the clinical diagnosis, MRI scan and arthroscopic diagnosis. In our cohort the male to female ratio was 38:24 and the average age was 52 years (Range from 22 to 83).

**Results:** Out of 62 patients, 55 had a definitive pre-operative clinical diagnosis and 7 have no clear cut pre-operative diagnosis. Comparing the initial clinical diagnosis and arthroscopic findings – In 44 patients out of 55 having a definitive pre-operative clinical diagnosis, the clinical and arthroscopic findings correlated with each other (80%) while in the remaining 11 patients clinical findings did not correlate (20%). Comparing the MRI scan reports with the arthroscopic findings we found – 48% patients had a complete correlation, 23% partial correlation and 26% no correlation.

**Conclusion:** In our study we found only 50% of MRI scans were accurate. Approximately 25% of the MRI scans were inaccurate. This led to the question whether we need to perform MRI scans if we suspect meniscal or ACL tear or degenerative disease? Our recommendations were – If the clinical findings are convincing – list for an arthroscopy straight away. If the clinical diagnosis is inconclusive or there is vague history or the patient has been seen by multiple surgeons – MRI scan would be indicated. MRI scan should be reserved for more complicated and confusing cases so that we can avoid unnecessary burden on the MRI scanner and be more cost effective. Also unnecessary delay in waiting for the scan results in delay of the surgery and prolongation of the patients' pain and morbidity.

## Orthopedic P080

### Relationship between central axis of proximal tibia and centre of ankle joint – a radiological study

Mandalia V, Bhattacharjee A, Eldridge J, Toms A

Trauma & Orthopaedics Department Bristol Royal Infirmary, Bristol, UK  
(bhattacharjee\_santanu@hotmail.com)

**Background:** Tibial endosteal referencing forms the basis of proximal tibial cut in revision knee replacement so that the centre of the tibial stem will coincide with the centre of the ankle joint. Aim: Examine the relationship between the central axis of proximal tibia and centre of the ankle joint.

**Method:** 100 digital long leg standard films is studied to evaluate the relationship between the central axis of proximal tibia and centre of the ankle joint; 35 of these films were of patients awaiting revision of total knee replacement. Five separate central points in proximal tibia is joined to form the central axis of proximal tibia which was extended distally up to the level of ankle joint. Distance between the centre of the ankle joint and distal extension of the central axis of proximal tibia was measured at the level of the ankle joint.

**Results:** A deviation of 0–5 mm was observed in 66 patients, 5–10 mm in 25 patients and more than 10 mm in 9 patients.

**Conclusion:** The central axis of tibia does not always correspond to the centre of the ankle joint. This is important in cases of revision knee replacement where proximal tibial endosteal referencing is used for the proximal tibial cut. A significant deviation of the distal extension of proximal tibial central axis from the centre of the ankle joint will lead to tibial component being misaligned instead of being perpendicular to the ankle joint. Patients undergoing revision knee replacement should have at least full-length tibial x-ray to identify this anatomical variation. Also the position of the tibial component as seen on x-rays of the knee does not always represent its relation with the ankle joint.

## Sepsis, Infection, Immunity P081

### Use of per-anal suction drains in collapsing pelvic abscess cavities

Mangam Sudhakar<sup>1</sup>, Chandra Aninda<sup>2</sup>, Marzouk Deya<sup>3</sup>

<sup>1</sup> Association of Surgeons of Great Britain and Ireland, <sup>2</sup> Royal College of Surgeons of England, <sup>3</sup> Royal College of Surgeons of Edinburgh (drmsudhakar@yahoo.com)

Pelvic abscess are a recognised complication of colorectal surgery. Drainage of these is often performed percutaneously under radiological image control. We describe two cases where the patients developed pelvic abscesses after Hartmann's procedure. Drainage was effected using a per-anal looped Redivac drain which was placed in the pelvic cavity, through rectal stump with relatively rapid resolution of symptoms. This is a simple technique that transforms a potentially complex complication of the procedure with rectal discomfort and leakage into a method to maximise resolution of the pelvic abscess. Pelvic abscess cavities are notorious for the length of time they need to collapse and heal completely. On occasions, patients may end up with non-healing chronic pelvic abscess cavity, which need complex intervention to attempt to heal it. The technique described here is simple, provides dependent drainage, can be maintained effectively for weeks & seems to be an effective alternative to percutaneous drainage.

## Oncology P082

### Reverting the blocking effect of growth factors on the inhibitory effect of Melphalan in rhabdomyosarcoma cancer cells

Marin Hector<sup>1</sup>, Sanisidro Roberto<sup>2</sup>, Garcia-Alonso Ignacio<sup>3</sup>, Alonso-Varona Ana<sup>4</sup>, Quintana Adrian<sup>5</sup>, Palomares Teodoro<sup>6</sup>

<sup>1</sup> Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>2</sup> Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>3</sup> Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>4</sup> Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>5</sup> Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain, <sup>6</sup> Laboratory of Experimental Surgery. University of The Basque Country. Leioa. Spain (ignacio.galonso@ehu.es)

We have previously demonstrated the stimulatory effect of several growth factors (GF) on rhabdomyosarcoma cell cultures. Herein we study their effect on Melphalan treatment in vitro, and the efficacy of all-trans retinoic acid (ATRA) to compensate for that effect.

**Methods:** S4MH rhabdomyosarcoma cells were cultured in DMEM enriched with 10% fetal calf serum. Proliferation studies have been carried out on 24-wells plates, seeded with 10,000 cells. Every 24 h the number of cells/well was assessed using a Neubauer plate. First of all, the effect of Melphalan and ATRA on the culture was assessed. Then, the effect of Melphalan or ATRA + Melphalan on cultures stimulated with different GF (HGF, VEGF, FGFb, PDGF, IGF-II, EGF) was analysed. Previously, the optimal concentration of GF was assessed. Differences were analysed using a two-way ANOVA.

**Results:** In the absence of GF, ATRA (10–6M) and Melphalan (2,5\*10–6M) reduce by 1.6 the proliferation of the culture. If both drugs are combined this reduction increases up to a 2.7 fold ( $p < 0.05$ ). The strongest protumoral effect was achieved by PDGF (10 ng/ml), completely reversing the effect of Melphalan on the culture. However, if ATRA is added to Melphalan the proliferation of the culture drops by a 1.4 fold. Quite similar results are obtained when adding HGF (10 ng/ml) or VEGF (10 ng/ml) to the cultures. IGF-II induces only a slight stimulus to the cultures treated with Melphalan, and so the addition of ATRA reduces by 2.1 fold the proliferation if compared to the non-treated cultures. Last of all, FGFb and EGF do not modify the antiproliferative effect of Melphalan.

**Conclusions:** Some of the GF promoted by surgery and, more specifically, by liver resection reduce or block the antiproliferative effect of Melphalan. In presence of these GF, the addition of ATRA restore the previous levels of efficiency of the cytostatic treatment.

## Cardiovascular, Thoracic\_1 P083

**Does the Short Form 36 (SF 36) quality of life tool adequately reflect balance and activity status in patient with intermittent claudication (IC)?**

Mazari Fayyaz Ali Khan<sup>1</sup>, Jordan Alistair<sup>2</sup>, Vanicek Natalie<sup>3</sup>, Chetter Ian<sup>4</sup>, Coughlin Patrick<sup>5</sup>

<sup>1</sup>Academic Vascular Surgery Unit Alderson House Hull Royal Infirmary, Hull, UK, <sup>2</sup>Department of Sports, Health & Exercise Science University of Hull, <sup>3</sup>Department of Sports, Health & Exercise Science University of Hull, <sup>4</sup>Academic Vascular Surgery Unit Alderson House Hull Royal Infirmary, <sup>5</sup>Academic Vascular Surgery Unit Alderson House Hull Royal Infirmary (fayyazmazari@hotmail.com)

**Background:** The SF36 is a well validated generic quality of life (QOL) tool in claudicants, reflecting physical, psychological and social impairments. Patients with IC are thought more likely to have poor balance, postural instability and an increased risk of falling. The Activity-specific Balance Confidence (ABC) scale is a valid measure of fear of falling in the elderly. No study has attempted to establish whether the SF36 accurately reflects instability in claudicants as measured using the ABC. AIMS: To establish whether SF36 adequately reflects instability in claudicants.

**Methods:** Fifty seven claudicants (44 men) with mean age of 74 years (range 50–87 years) completed the SF36 and the ABC. All patients undertook a standard treadmill test (10 degree, 2.5 km/hr) and their maximal walking distance (MWD) measured. Spearman Rank Correlation and Mann Whitney U tests were used where applicable.

**Results:** The median ABC score was 81.1%, although 26 (45%) had scores < 80% (indicating some functional impairment). Neither age nor sex correlated with the ABC score. Treadmill MWD showed weak correlation with the ABC score ( $r_s = 0.43$ ). The ABC score correlated with all health domains of the SF36 but showed strongest correlation with the domains of Physical Function ( $r_s = 0.69$ ;  $p < 0.0001$ ), social function ( $r_s = 0.71$ ,  $p < 0.0001$ ) and overall Physical Summary ( $r_s = 0.64$ ;  $p < 0.0001$ ).

**Conclusion:** A significant proportion of claudicants admit to a fear of falling and poor balance and this is associated with poor social function. The SF36 reflects balance confidence and fear of falling as determined by the ABC. We aim to assess whether effective treatment for claudication influences these outcome measures.

## Orthopedic P084

**The possibilities of external fixation application in the treatment of unstable pelvis fractures**

Michalski Paweł<sup>1</sup>, Deszczynski Jarosław<sup>2</sup>, Stolarczyk Paweł<sup>3</sup>

<sup>1</sup>Dept. Orthop.&Rehab., Medical University, Warsaw, Poland, <sup>2</sup>Dept. Orthop.&Rehab., Medical University, Warsaw, Poland, <sup>3</sup>Department of Clinical Rehabilitation, Warsaw Medical University, Poland (jdeszcz@o2.pl)

**Introduction:** Pelvic fractures are a serious problem of traumatological surgery. They often coincide with other serious injuries. Immediate external fixation of an unstable pelvic fracture is often a life-saving procedure (it prevents shock) and is absolutely indicated as the primary, emergency management of such fractures. In some cases, external fixation can be sufficient as the ultimate management in traumas of the pelvic girdle. External fixator is necessary, which construction allows not only stabilization, but also reposition of fractures (both compression and distraction of bone fragments). It is possible to manipulate the device on a patient in order to obtain anatomic position of the pelvis. In our material (23 patients) in type B1 fractures (15 patients), anatomic position of bone fragments was obtained in 13 patients. In 2 cases, the results of reposition were unsatisfactory. Such effects were associated, among others, with too long time elapsed between the trauma and application of the fixator (7 days) and the patients' obesity. In type B2 fractures, correct positioning of bone fragments was obtained in all the cases (6 patients), and external fixation was the ultimate treatment of the pelvic fracture. On the other hand, in vertically unstable type C fractures (2 patients) we failed to obtain correct positioning of the fractured bones.

**Conclusion:** in case of type B fractures, external fixators ensure stability of the pelvic girdle, but in type C fractures external fixators do not provide sufficient stabilization and can be applied only as temporary fixation.

## Education P085

**Graduate education of "basic surgical techniques" between 1987–2007 at the department of operative techniques and surgical research, University of Debrecen**

Miko Iren<sup>1</sup>, Endre Brath Katalin Peto<sup>2</sup>, Tamas Lesznya Norbert<sup>3</sup>, Nemeth<sup>4</sup>, Furka Andrea<sup>5</sup>, Takacs E. Ildiko<sup>6</sup>, Furka Istvan<sup>7</sup>

<sup>1</sup>Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>2</sup>Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>3</sup>Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>4</sup>University of Debrecen, Debrecen, Hungary, <sup>5</sup>Augusztó Surgical Center, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>6</sup>Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>7</sup>Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary (imiko@med.unideb.hu)

The curriculum of 10 weeks (40 hours) "Basic Surgical Techniques" subject for medical students was developed by our Department in 1987. It forms the basis of our present education, too. From 1991 it has been completed with "Surgical Operative Practices" and "Introduction to Microsurgery", from 1995 "Introduction to Laparoscopic Surgery" courses (20–20 hours). In connection with introduction of the credit-system in 2004 "Basic Surgical Techniques" subject was qualified as "compulsory course", "Introduction to Laparoscopic Surgery" as compulsory elective, the two others as freely chosen elective courses. Our education was renewed in the last few years. Novel syllabus type textbooks issued for all faculties were written. New slide collections and several video films help our teaching work. According to the law of animal care increasing number of the practices are performed on "surgical phantom/simulation models": skin-, injection-, venous cutdown-and laparotomy pads, bowel and aorta biomodels. From 2004, in conformity with European Union requirements, practices are performed on inbred beagle dogs with the permission of the Committee of Animal Research at the University. There is a bilateral video connection between the seminar rooms and operating theatres. Students learn both basic things that are "essential" for all physicians, both procedures that are "useful" irrespectively of the special fields of medicine, besides getting "orientation" on several surgical interventions and new techniques. Our method is teaching in small groups with maximum 5–6 students under the direction of tutors. Furthermore, clinical surgeons and well-prepared undergraduate demonstrators help the education. Interest in our elective courses increases permanently, about 150–160 students apply yearly. According to our quality assurance system (ISO 9001:2000), by anonym opinions, the courses are considered to be interesting, useful and important for students. This fact motivates us to develop and widen our teaching system. From 2007 the curriculum was extended to 15 weeks.

## Gastrointestinal\_3 P086

**Predicting Negative Appendectomy by Using Demographics, Clinical Presentations, and Laboratory Parameters**

Mohebbi Hassan Ali<sup>1</sup>, Panahi Farzad<sup>2</sup>, Moussavi Naeeni Seyed Morteza<sup>3</sup>, Kabir Ali<sup>4</sup>

<sup>1</sup>Department of Surgery and Trauma Research Center, Baqiyatallah University of Medical Science, Tebran, I.R.Iran, <sup>2</sup>Associate professor of surgery-Trauma Research Center, Baqiyatallah University of Medical Science, Tebran, I.R.Iran, <sup>3</sup>Assistant professor of surgery-Department of Surgery, Baqiyatallah University of Medical Science, Tebran, I.R.Iran, <sup>4</sup>General Practitioner-Baqiyatallah University of Medical Science, Tebran, I.R.Iran (mobeiba@yahoo.co.in)

**Introduction:** Acute appendicitis (AA) is a common acute surgical disease. While negative appendectomy (NA) is inevitable, challenge for a surgeon is to decrease NA without increasing the morbidity and mortality.

**Methods:** In a cross-sectional study, 1116 patients with a primary diagnosis of AA who underwent open appendectomy in two hospitals were evaluated. Data were compared between the two groups (AA and NA). Statistical analysis was performed using one way ANOVA, Kappa and odds ratio correlation coefficients and the logistic regression model.

**Results:** The mean age was 24.110.25 years. There were 811 (72.6%) males. Rate of NA was 18.2%. The regression model revealed that being female ( $p = 0.001$ ), having a lower percentage of polymorph nuclear (PMN) cells ( $p = 0.024$ ) and lower heart rate ( $p = 0.021$ ) could be regarded as independent predictors of NA ( $p < 0.001$ ).

**Conclusion:** Female gender, low PMN percentage and low pulse rate, can provide important diagnostic information in addition to other diagnostic evaluations to prevent unnecessary appendectomy.

**Methods:** A descriptive cross-sectional study performed on patients in two hospitals in five years. They followed up for recurrence. Data analysis was done by evaluation of central indices, Pearson-chi square and student T-test.

**Results:** In 54 patients, 48(89%) were male with male to female ratio 8 to 1, mean age was 32.2 year. 16(30%) were smokers. The most common symptom and sign were chest pain (79%) and decrease of breath sounds (72%). In 70.5% the right side was involved. Primary SP and Secondary SP were in 28(51.8%) and 24(44.5%) of cases, respectively. The most frequent therapy was chest tube insertion in 50 cases (92.5%). In follow up in 33 months, there were 12(28.5%) recurrences and 7(16.6%) deaths. Among multiple parameters, only duration of follow-up period had statistically correlation with recurrence rate of SP.

**Conclusions:** Recurrence in SP is related to many factors. Duration after first SP may be a

## Orthopedic P087

### Earthquake Related Injuries in 854 casualties of the 2003 Bam (Iran) Disaster Incident who transported to Tertiary Referral Hospitals

Mohebbi Hassan Ali<sup>1</sup>, Panahi Farzad<sup>2</sup>, Towliat Kashani Seyed Mohsen<sup>3</sup>, Moharamzad Yashar<sup>4</sup>

<sup>1</sup> Baqiyatallah University of Medical Science, Trauma Research Center and Department of Surgery-IR, Iran, <sup>2</sup> Associate Professor of General Surgery-Baqiyatallah University of Medical Science, Trauma Research Center-IR, Iran, <sup>3</sup> Associate Professor of General Surgery-Baqiyatallah University of Medical Science-IR, Iran, <sup>4</sup> General Practitioner-Baqiyatallah University of Medical Science, Trauma Research Center-IR, Iran (mohabiba@yahoo.co.in)

**Introduction:** In December 2003, the residents of Bam (Iran) experienced an earthquake (6.6 Richter) which destroyed more than 90% of the city. About 12,000 of casualties were transferred to tertiary referral hospitals all over the country including to hospitals in Tehran, the capital of I.R.Iran.

**Methods:** Demographic, injury patterns, severity, diagnosis, treatment, and outcome data evaluated in randomised sampling.

**Results:** In 854 cases, there were 467 (54.7%) males; the mean age was 29.03 years. About 46% had received initial medical cares in field before transfer. Transportation by aircraft was the most common type for 555 cases (65%). Fractures of the lower extremity were the most common injury (25%). Limb fixation was the most initial procedure (389 times, 39.9%). The mean (SD) ISS was 6.7 (5.2). Orthopedic operations were the most frequent procedures (195/260, 75%). The mortality rate was 1.6% ( $n = 14$ ).

**Conclusions:** Tertiary referral centers have an important role in providing medical.

## Oncology P089

### Hospital Volume in the Surgical Treatment of Colon Cancer

Mroczkowski Pawel<sup>1</sup>, Kube Rainer<sup>2</sup>, Ptak Henry<sup>3</sup>, Köckerling Ferdinand<sup>4</sup>, Gastinger Ingo<sup>5</sup>, Lippert Hans<sup>6</sup>

<sup>1</sup> Klinik für Allgemein-, Viszeral-und Gefäßchirurgie Universitätsklinikum Magdeburg Magdeburg, Germany, <sup>2</sup> Klinik für Allgemein -, Viszeral-und Gefäßchirurgie Universitätsklinikum Magdeburg Magdeburg, Germany, <sup>3</sup> Chirurgische Klinik, Carl-Thiem-Klinikum Cottbus, Germany, <sup>4</sup> Vicantes Klinikum Spandau, Berlin, Germany, <sup>5</sup> Chirurgische Klinik, Carl-Chirurgische Klinik, Carl-Thiem-Klinikum Cottbus, Germany, <sup>6</sup> Klinik für Allgemein-, Viszeral-und Gefäßchirurgie Universitätsklinikum Magdeburg Magdeburg, Germany (mroczny@gmx.net)

The dependence of surgical results from hospital volume was controversial discussed in the last years. Many studies suggest a clear relationship, observing better results in larger treatment providers. However, the mechanism of this observation was not defined yet, as result of building the study concepts on a basis of administrative data (Medicare records etc.).

**Material and methods:** Analyzed were records of 31261 colon carcinoma patients surgically treated between 2000 and 2004, collected within an observational study "Quality of surgical treatment in colorectal carcinoma". There were 345 hospitals participating in the project on voluntary basis.

**Results:** The departments were divided into groups according to the yearly number of operations for colon carcinoma: group I: low volume ( $< 30$ ), group II: medium volume (30–60) and group III: high volume ( $> 60$ ). There were 7760 patients treated in group I, 14008 in II and 9493 in III. The risk factors and ASA classification were similar in all groups. High-volume hospitals treated more often patients with previously diagnosed carcinoma ( $p < 0.0001$ ), patients with ileus were more often treated in low-volume hospitals ( $p < 0.0001$ ). The discontinuity resection was most often conducted in high volume hospitals ( $p < 0.0001$ ). The higher volume hospitals were more confident in the own surgical technique, the 1-row-hand-anastomosis was most common in this group, the 2-row-hand-anastomosis in the low-volume group, the stapler-anastomosis in the medium-volume group ( $p < 0.001$ ). There was no difference in intraoperative complications or duration of surgery. The low-volume group reported the highest amount of patients without any postoperative complications ( $p < 0.001$ ). The high-volume hospitals treated more patients in UICC-stadium 0, II and IV, the low-volume in stadium II and III ( $p < 0.0001$ ). There were only small differences in the rates of local failures and 5 years survival.

**Conclusion:** Participation at voluntary quality-control study can provide an appropriate surgical treatment for colon carcinoma even in small-volume hospitals.

## Cardiovascular, Thoracic\_1 P088

### Recurrence of Spontaneous pneumothorax and related factors in 54 cases

Mohebbi Hassan Ali<sup>1</sup>, Nasser Mohammad<sup>2</sup>, Hassan<sup>3</sup>, Akhavan Moghadam Jamal<sup>4</sup>

<sup>1</sup> Baqiyatallah University of Medical Science, Department of Surgery and Trauma Research Center, Iran, <sup>2</sup> Assistant professor of cardiovascular Surgery-Department of Surgery -Baqiyatallah University of Medical Science, Tebran, I.R.Iran, <sup>3</sup> Medical Science, Tebran, I.R.Iran, <sup>4</sup> Assistant professor of Surgery-Department of Surgery -Baqiyatallah University of Medical Science, Tebran, I.R.Iran (mohabiba@yahoo.co.in)

**Introduction:** Spontaneous pneumothorax(SP) is a clinical problem and may recur.



## Oncology P090

**Intra-operative blood transfusion in cancer surgery: is it safe? A pilot study**

Mzallassi Zineb<sup>1</sup>, Heger Michal<sup>2</sup>, Henny Pieter<sup>3</sup>, Korte Dirk<sup>4</sup>, Hollmann Marcus<sup>5</sup>, Van Gulik Thomas<sup>6</sup>

<sup>1</sup>Department of Experimental Surgery and Department of Anesthesiology, Academic Medical Center, University of Amsterdam, Amsterdam, the Netherlands, <sup>2</sup>Department of Experimental Surgery, Academic Medical Center, University of Amsterdam, Amsterdam, the Netherlands, <sup>3</sup>Department of Anesthesiology, Academic Medical Center, University of Amsterdam, Amsterdam, the Netherlands, <sup>4</sup>Sanquin, Amsterdam, the Netherlands, <sup>5</sup>Department of Anesthesiology, Academic Medical Center, University of Amsterdam, Amsterdam, the Netherlands, <sup>6</sup>Department of Experimental Surgery, Academic Medical Center, University of Amsterdam, Amsterdam, the Netherlands (z.mzallassi@amc.uva.nl)

**Introduction:** Allogeneic blood transfusions are associated with several complications, consequently, cell saving systems are commonly used during surgeries in which much blood loss is expected. This enables re-transfusion of the patients lost blood, during or right after surgery. Intra-operative blood salvage (ICS) during cancer surgery is considered contraindicated because of the possibility of hematogenous dissemination of tumor cells. Several studies suggest, however, that cancer patients could benefit more from autologous blood during surgery than from allogeneic blood. Unfortunately, this is currently impossible without prior irradiation. Aim of this study is to qualify and quantify tumor cells in ICS-blood and to examine whether these tumor cells can be removed by a leukocyte depletion filter (LDF).

**Methods:** Blood samples of 5 patients with different types of cancer and 1 patient with a liver adenoma (negative control) were taken at different time intervals during surgery. At the same time, ICS-blood before and after passage through an LDF was sampled. Circulating tumor cells (CTCs) were characterized and quantified by immunocytochemical and immunomagnetic techniques using EPCAM and cytokeratin immunostaining.

**Results:** Starting surgery, the number of CTCs present in peripheral arterial blood of the patients varied from 0–1/7.5 ml. During and after surgery, the number of CTCs was 0–9/7.5 ml and 0–1/7.5 ml, respectively. In samples drawn from the portal vein during surgery, the number of CTCs was 0–23/7.5 ml. The number of CTCs present in ICS-blood was 25–144/7.5 ml. An LDF reduced the CTCs in ICS-blood to 0–31/7.5 ml. In the negative control, 9 CTCs/7.5 ml were found in ICS-blood.

**Conclusions:** A very low number of EPCAM- and cytokeratin-positive cells are found in ICS-blood. The method lacked specificity insofar as adenoma cells could not be differentiated from tumor cells. An LDF has the ability to capture tumor cells. Further research is warranted to validate the safety of re-transfusing ICS-blood.

## Gastrointestinal\_1 P091

**Vulnerability of Male in Appendicitis**

Nakajima Yoshimichi<sup>1</sup>, Hirayama Katsu<sup>2</sup>, Saitoh Ken<sup>3</sup>, Shimada Tomoyuki<sup>4</sup>, Tsukamoto Shigeki<sup>5</sup>, Sakai Rika<sup>6</sup>

<sup>1</sup>Department of Surgery, Hiraka General Hospital, <sup>2</sup>Department of Surgery, Hiraka General Hospital, <sup>3</sup>Department of Surgery, Hiraka General Hospital, <sup>4</sup>Department of Surgery, Hiraka General Hospital, <sup>5</sup>Department of Surgery, Hiraka General Hospital, <sup>6</sup>Department of Surgery, Hiraka General Hospital (yokotenoringo@cronos.ocn.ne.jp)

**Introduction:** It is recognized that appendicitis is more common in male than in female. Why male is more vulnerable than female? The purpose is to find out the characteristics in this situation.

**Patients and methods:** 173 patients had appendectomy for appendicitis in our hospital last 4 years (Jan 2003 – Dec 2006). Characteristics of the male patients were investigated compared with the female patients.

**Results:** 116 patients were male and 57 patients were female. The male/female ratio was 2.04. Age and BMI were same. Preoperative symptomatic duration was 1.85 days in male in contrast to 2.74 days in female ( $p = 0.0242$ ). White Blood Cell Count was 13693 in male in contrast to 12184 in female ( $p = 0.0115$ ). Operation duration and operative blood loss were same. Laparotomic procedures and histological findings were almost the same in each group. Ascites filling and abscess formation were same incidence in each group. SSI was diagnosed in 14 (12.1%) patients in male and 9 (15.8%) patients in female (NS). Postoperative hospital stay was 8.70 days in male and 10.1 days in female ( $p = 0.155$ ). In summer (July August and September), 39 males suffered appendicitis in contrast to 11 females did ( $p = 0.0591$ ). The incidence of male appendicitis corresponded to seasonal temperatures in our lesion. Female appendicitis showed almost the same incidence in each season.

**Conclusion:** In the case of appendicitis, male could be more vulnerable. The incidence was double in male. Male appendicitis showed short preoperative symptomatic duration and higher WBC count. Male appendicitis seems to advance rapidly than female appendicitis. Moreover, seasonal factors seem to affect only in male. In summer, only male should take care not to be suffered from appendicitis. As to seasonal factors, the most influential factor is yet to be investigated. It might be temperature or humidity. After all, female seem to be healthier than male.

## Minimally invasive P092

**Radiothermoablation—a new approach in the treatment of benign thyroid tumors: experimental and clinical result**

Nawrot Ireneusz<sup>1</sup>, Woźniwicz Bogdan<sup>2</sup>, Otto Maciej<sup>3</sup>, Chudziński Witold<sup>4</sup>, Wojtaszek Mikołaj<sup>5</sup>, Szmidi Jacek<sup>6</sup>

<sup>1</sup>Department of General, Vascular and Transplantation Surgery, Medical University of Warsaw, Poland, <sup>2</sup>Department of Pathology, Children's Memorial Health Institute, Warsaw, Poland, <sup>3</sup>Department of General, Vascular and Transplantation Surgery, Medical University of Warsaw, Poland, <sup>4</sup>Department of General, Vascular and Transplantation Surgery, Medical University of Warsaw, Poland, <sup>5</sup>Second Department of Radiology Medical University of Warsaw, Poland, <sup>6</sup>Department of General, Vascular and Transplantation Surgery, Medical University of Warsaw, Poland (inawrot@post.pl)

**Purpose:** The aim of this study was to safely adapt radiofrequency ablation techniques (RITA) to treat benign thyroid tumors. A dependable method had to be adapted which would be used to differentiate benign and malignant thyroid lesions in fine-needle biopsies prior to RITA.

**Materials & Methods:** Between 2001 and 2006 radiothermoablation was performed on 66 thyroid tissue fragments in 58 patients. Qualified for this procedure were patients in who fine tissue biopsies revealed struma nodosa or struma colloidosa. Immunohistochemical markers (PCNA, Ki67 and AgNOR) were used to differentiate between carcinoma and benign follicular adenomas. Ablation was performed intraoperatively on thyroid tissue fragments ranging in size from 1.3 to 2.2 cm, mean  $1.7 \pm 0.5$  cm prepared for resection. The first session was performed with heating the device to 70–80°C while exposition time ranged from 5–8–10 min at 30 W with two following sessions from 5–8–10 min. at 45 W. After RITA the thyroid lobe was resected and pathologically assessed to determine the extent of tissue necrosis.

**Results:** A necrosis zone, up to 1 cm was shown in tumors with diameters – 1.0–1.2 ± 0.2 cm with nearly the same tissue damage – 0.3–0.5 ± 0.1 cm. A necrosis zone, up to 2 cm was shown in tumors with diameters – 2.1–2.2 ± 0.2 cm with nearly the same tissue damage – 0.3–0.5 ± 0.1 cm. In 4 patients (6.1%) we observed temporary laryngeal nerve paralysis, in 2 (3%) cases minute bleeding after needle arm retraction.

**Conclusions:** Radiofrequency ablation can be a minimally invasive, alternative to surgical methods in neutral nodular goiter with the necrosis zone of the ablated thyroid lesion closely correlated to the used ablation parameters. Care must be taken in each case to discriminate between follicular carcinoma and adenoma before the procedure is attempted.

## Minimally invasive P093

### Laparoscopic cholecystectomy in the elderly patients

Nazari Shahram<sup>1</sup>, Khosroushahi Semira<sup>2</sup>, Sarie Hamid reza<sup>3</sup>, Ziaee S.Ali<sup>4</sup>, Amini Afshin<sup>5</sup>

<sup>1</sup>Erfan Hospital, Tebran, Iran, <sup>2</sup>Erfan Hospital, <sup>3</sup>Erfan Hospital, <sup>4</sup>Erfan Hospital, <sup>5</sup>Imam Hosain Hospital (dsnazari@botmail.com)

Laparoscopic cholecystectomy in the elderly patients

**Objectives:** Laparoscopic cholecystectomy (LC) is the 'gold standard' in surgical management of symptomatic cholecystolithiasis. Background: The elderly are more prone to complications of surgery because of co-morbidity, and they may benefit most from a minimally invasive approach. This study was intended to evaluate the safety of the use of a laparoscopic cholecystectomy for emergency and elective surgery in elderly patients.

**Methods:** From November 2003 to December 2006, all patients over 60 years of age who underwent cholecystectomy that began laparoscopically in two non academic hospitals were included.

**Results:** 155 elderly patients with mean age of 74.1 years were included (range 60–88 years). 110 of the patients were operated with the laparoscopic and 45 with the classical methods. The frequency of postoperative surgical and general complications and the presence of concomitant diseases associated with old age were compared.

**Conclusions:** A laparoscopic cholecystectomy can be used safely in an elderly population. The method of laparoscopic gallbladder excision proved to be beneficial also in persons of advanced age.

## Minimally invasive P094

### The role of complete excision of a retroperitoneal cystic lymphangioma: The Case

Nazari Shahram<sup>1</sup>, Khosroushahi Semira<sup>2</sup>, Ziaee Seyed Ali<sup>3</sup>, Sadr Farhad<sup>4</sup>, Amini Afshin<sup>5</sup>

<sup>1</sup>Erfan Hospital, Tebran, Iran, <sup>2</sup>Erfan Hospital, <sup>3</sup>Erfan Hospital, <sup>4</sup>Erfan Hospital, <sup>5</sup>Imam Hosain Hospital (dsnazari@botmail.com)

**Background:** Retroperitoneal cystic lymphangioma is a rare benign tumor of the retroperitoneal lymphatics that usually manifests in infancy. It is worth to Report of unexpected presentation especially in Adult. Case Presentation: A 26-year-old Female patient with a mass in left inguinal fossa and left lower abdominal pain and a 42 Years old man with abdominal pain and lumbago were referred to our hospital. Para clinic failed to determine the accurate diagnosis. Laparoscopy revealed a retroperitoneal cystic lymphangioma confirmed by histopathology. The unusual presentation of retroperitoneal tumours as chyloperitoneum or Chylous ascites is discussed. Although macroscopically, the resection was complete in both cases, lymphangioma recurred during a follow up period in one of the cases with chylo-thorax presentation.

**Discussion:** Due to its potential to grow, invade vital structures and develop life-threatening complications, complete laparoscopic excision should be considered as a therapeutic option to treat retroperitoneal cystic lymphangioma. If surgical excision is used in treatment, it needs to be as complete as possible to reduce the risk of recurrence.

## Oncology P095

### An extremely rare case of retroperitoneal metastasis of uveal melanoma: A case

Nazari Shahram<sup>1</sup>, Khosroushahi Semira<sup>2</sup>, Ziaee Seyed Ali<sup>3</sup>, Sadr Farhad<sup>4</sup>, Amini Afshin<sup>5</sup>

<sup>1</sup>Erfan Hospital, <sup>2</sup>Erfan Hospital, <sup>3</sup>Erfan Hospital, Tebran, Iran, <sup>4</sup>Erfan Hospital, <sup>5</sup>Imam Hosain Hospital (dsnazari@botmail.com)

**Background:** Melanoma of the uveal tract (iris, ciliary body, and choroid), though rare, is the most common primary intraocular malignancy in adults. Iris melanomas rarely metastasize. Melanomas of the posterior uveal tract are cytologically more malignant, detected later, and metastasize more frequently than iris melanomas.

**Case Presentation:** A 30 years old female with history of enucleated left eye due to choroidal melanoma and with abdominal pain referred to our hospital. She was operated and found to have a very vascular, pigmented, retroperitoneal mass measuring 10 × 12-cm lying under tail of pancreas pushing the left kidney down and stomach towards up with massive peritoneal seeding. It was unable to completely excise. Histopathology showed it to be a malignant melanoma. Unfortunately, a month after operation we missed the patient in a car accident.

**Discussion:** Iris melanomas rarely metastasize. Melanomas of the posterior uveal tract are cytologically more malignant, detected later, and metastasize more frequently than iris melanomas. This is a case report of an extremely rare secondary malignant melanoma presenting in the retroperitoneum.

## Gastrointestinal 2 P096

### Morphological and Differential Scanning Calorimetry examination of the small bowel tissue following warm ischemia and reperfusion

Nedvig Klara<sup>1</sup>, Roth Erzsebet<sup>2</sup>, Lorinczy Denes<sup>3</sup>, Ferencz Andrea<sup>4</sup>

<sup>1</sup>University of Pecs, Medical School, Department of Surgical Research and Techniques, Pecs, Hungary, <sup>2</sup>University of Pecs, Medical School, Department of Surgical Research and Techniques, <sup>3</sup>University of Pecs, Medical School, Institute of Biophysics, <sup>4</sup>University of Pecs, Medical School, Department of Surgical Research and Techniques (andrea.ferencz@aok.pte.hu)

**Background:** The most commonly employed method used for estimating intestinal ischemia/reperfusion (I/R) injury is conventional histology. We aimed to compare the conventional histology and Differential Scanning Calorimetry (DSC), as a thermoanalytical method to define intestinal structural changes following warm I/R.

**Methods:** I/R groups were designed with occlusion of superior mesenteric artery in Wistar rats. In Group I (GI,  $n = 10$ ) 1 hour ischemia followed by 3 hours reperfusion, and in Group II (GII,  $n = 10$ ) 3 hours ischemia followed by 1 hour reperfusion. Small bowel biopsies were collected after laparotomy, and at the end of the I/R periods. Tissue damage was analyzed by qualitative (Park's classification) and quantitative (software Scion Image) on hematoxylin/eosin-stained sections. After separation of bowel tissue we detected structural changes of mucosa, muscular layer and total intestinal wall by DSC.

**Results:** In GI histological findings were corresponding to an injury grade 1, showing minor clefting with the villus epithelium. In GII the injury was grade 3 after ischemia, characterized by severe destruction in mucosal thickness, denudation of villi and lesion in crypts, which was further deteriorated by the end of the reperfusion. These changes were significant by quantitative analysis ( $p < 0.05$ ). DSC data have supported these observations: after 1 hour ischemia the transition temperature ( $T_m$ ) was the same as in case of control for mucosa, but the calorimetric enthalpy decreased by about 30%. In case of 3 hours warm ischemia the  $T_m$  changed from 55 to 46°C and the calorimetric enthalpy was only half of the control one.

**Conclusion:** Present work demonstrated complex and exact structural analyses of intestinal injury following I/R. These thermal parameters indicate the thermodynamic consequences of structural destruction, which provides basis for further investigation in different intestinal stress models. (Supported by OTKA F046593, Bolyai Scholarship of the Hungarian Academic of Science).

## Transplantation, Organ preservation\_2 P097

**Effect of endogenous and exogenous PACAP on the oxidative stress and small bowel tissue lesion**Nedvig Klara<sup>1</sup>, Racz Boglarka<sup>2</sup>, Reglodi Dora<sup>3</sup>, Roth Erzsebet<sup>4</sup>, Weber Gyorgy<sup>5</sup>, Ferencz Andrea<sup>6</sup>

<sup>1</sup>University of Pecs, Medical School, Department of Surgical Research and Techniques, Pecs, Hungary, <sup>2</sup>University of Pecs, Medical School, Department of Surgical Research and Techniques, <sup>3</sup>University of Pecs, Medical School, Department of Anatomy, <sup>4</sup>University of Pecs, Medical School, Department of Surgical Research and Techniques, <sup>5</sup>University of Pecs, Medical School, Department of Surgical Research and Techniques, <sup>6</sup>University of Pecs, Medical School, Department of Surgical Research and Techniques (andrea.ferencz@aok.pte.hu)

**Background:** Tissue injury caused by cold preservation and reperfusion remains an unsolved problem during small bowel transplantation. Pituitary adenylate cyclase-activating polypeptide (PACAP) is present and plays a central role in the intestinal physiology. This study investigated the effect of endogenous and exogenous PACAP-38 on the oxidative stress and intestinal tissue damage in warm ischemia/reperfusion (I/R) and autotransplantation models.

**Methods:** Intestinal warm I/R and autotransplanted groups were established in Wistar rats (n = 45). In I/R groups 1 hour (GI), 2 hours (GII), and 3 hours (GIII) ischemia followed by 3 hours of reperfusion was applied. In autotransplanted groups total orthotopic intestinal autotransplantation was performed. Grafts were preserved in cold University of Wisconsin (UW) solution for 1 (GIV), 2 (GV), 3 (GVI) hours and 30 µg PACAP-38-containing UW for 1 (GVII), 2 (GVIII), and 3 (GIX) hours. Reperfusion lasted 3 hours in all groups. Endogenous PACAP-38 concentration was measured by radioimmunoassay. Tissue oxidative stress parameters: malondialdehyde (MDA), reduced glutathione (GSH), and superoxide dismutase (SOD) were measured. Tissue lesion was analyzed by qualitative (Park's classification) and quantitative (Scion Image software) methods on hematoxylin/eosin-stained sections.

**Results:** Endogenous tissue PACAP-38 concentration significantly decreased in GII and GIII compare to control ( $p < 0.05$ ). Preservation solution containing PACAP-38 ameliorated bowel tissue oxidative injury in GVII-GIX. SOD activity was significantly higher in GIX than in GVI. Qualitative and quantitative histological results showed destruction of the mucous, submucous and muscular layers and crypts in GIII, which was further deteriorated by the end of reperfusion. In contrast, in GIX intestinal structure better preserved following cold storage in PACAP-38-containing UW solution.

**Conclusion:** I/R decreased the endogenous PACAP-38 concentration in the intestinal tissue. Administration of PACAP-38 to the preservation solution mitigated oxidative injury and histological lesions in intestinal autotransplantation model. (Supported by OTKA F046593, K72592, Bolyai Scholarship of the Hungarian Academic of Science).

## Minimally invasive P098

**A novel videomicroscopic method for studying ureteral peristalsis in vivo in anesthetized rats**Osman Fares<sup>1</sup>, Nádasy George<sup>2</sup>, Monos Emil<sup>3</sup>, Nyirády Peter<sup>4</sup>, Romics Imre<sup>5</sup>

<sup>1</sup>Urology Department-Semmelweis University-Budapest-Hungary, <sup>2</sup>Clinical Experimental Research Department and Department of Human Physiology-Semmelweis University-Budapest-Hungary, <sup>3</sup>Clinical Experimental Research Department and Department of Human Physiology-Semmelweis University-Budapest-Hungary, <sup>4</sup>Urology Department-Semmelweis University-Budapest-Hungary, <sup>5</sup>Urology Department-Semmelweis University-Budapest-Hungary (osman.fares@yaboo.com)

**Introduction:** For a better understanding of the mechanisms by which ureteral flow is induced in normal and in pathological states the finer movements of

the ureteral wall have to be analyzed. Existing methods, however, do not allow comparisons of movements in different parts of the ureteral wall.

**Methods:** The middle portion of the ureter was microprepared, encased in a tissue chamber, superfused with Krebs-Ringer solution and covered with a glass top. The orifice of the left ureter was cannulated, and visualization of urine level movements in the cylindrical part of the plastic cannula marks volume flow as a function of time. Analog videotapes were digitized and analyzed off-line frame by frame. A set of cardinal points were identified on the surface of each segment using the pattern of vasa vasorum. The in vivo movements of these were recorded in a coordinate system determined by the tissue chamber.

**Results:** Individual surface points of the ureteral wall moved along complicated trajectory loops during spontaneous and drug stimulated contraction-relaxation cycles. Changes of the outer diameter due to contractions were accompanied by axial shortening (axial contraction in nearby segment) and axial displacement (axial contraction in farther segments) in a complicated pattern. During the active periods, stable, periodic contraction-relaxation cycles could be identified on the smoothed records.

**Conclusions:** A finer analysis of ureteral movements is needed to understand the mechanics of urine flow in this organ. In addition to the traveling contraction of the diameter, an axial contraction, shortening the ureter on a long stretch will participate in pushing the urine bolus.

## Minimally invasive P099

**Laparoscopic adrenalectomy in patients with pheochromocytoma – doubts and**Otto Maciej<sup>1</sup>, Dzwonkowski Jacek<sup>2</sup>, Ciągła Tomasz<sup>3</sup>, Szmidt Jacek<sup>4</sup>

<sup>1</sup>Department of General, Vascular, and Transplant Surgery, The Medical University of Warsaw, Poland, <sup>2</sup>Department of General, Vascular, and Transplant Surgery, The Medical University of Warsaw, Poland, <sup>3</sup>Department of General, Vascular, and Transplant Surgery, The Medical University of Warsaw, Poland, <sup>4</sup>Department of General, Vascular, and Transplant Surgery, The Medical University of Warsaw, Poland (19dzwonek@wp.pl)

Pheochromocytoma with its specific characteristic causes diagnostic and operative difficulties that's why became the last active adrenal tumor accepted for videoscopia. Laparoscopic adrenalectomy (LA) raised doubts about effectiveness, safety, benefits and radicality of surgical resection. The aim of the study: Presenting early results of laparoscopic adrenalectomy in patients with pheochromocytoma.

**Material and methods:** From 29.10.1997 to 31.12.2007 we performed 401 LA in 389 patients. In 76 (19,5%) cases the indication was pheochromocytoma. There were 58 (76%) patients with sporadic pheochromocytomas, 12 (15,8%) patients with MEN II a syndrome (6 bilateral), 5 (6,6%) with neurofibromatosis type 1, 1 (1,3%) with VHL syndrome and 1 (1,3%) had the extra-adrenal tumor. There were 41 (54%) women and 35 (46%) men, with the mean age 47,5 years (from 21 to 74 years). The mean size of tumor was 42,5 mm (from 12 to 85 mm). All patients were prepared with alpha and beta blockers and were operated through lateral transperitoneal approach. In 2 patients sparing adrenalectomy was performed.

**Results:** In the pheochromocytoma group the mean time of the unilateral LA was 144,1 minutes, simultaneous bilateral LA 246, comparing with patients with other adrenal pathologies: 139,6 and 280 respectively. The elevated blood pressure (BP) was noted during: intubation in 27 (36%) cases and tumor preparation in 51 (67%). The infusion of nitroglycerine was used in 12 (16%) cases and sodium nitroprusside in 9 (12%). There were no pressure reaction during insufflation. Drop of BP after clipping the adrenal vein occurred in 52 (68%) cases. Postoperative BP normalization was in 65 (86%) cases. 11 (14%) patients after LA required antihypertensive treatment.

**Conclusion:** 1. In case of pheochromocytoma LA is technically more demanding and the proper preoperative preparation is necessary 2. LA via lateral transperitoneal approach can be accepted as a recommended treatment for pheochromocytoma.



## Sepsis, Infection, Immunity P100

**Intrapleural infusion of Dimexid® with antibiotic for treatment of pleural empyema**

Panko Siarhei<sup>1</sup>, Karpitsky Aleksandr<sup>2</sup>, Ryzhko Andrej<sup>3</sup>, Boufalik Rostiskav<sup>4</sup>, Shestjuk Andrej<sup>5</sup>, Nikitjuk Leonid<sup>6</sup>

<sup>1</sup>Department of Medicine, Brest State University; Brest, Republic of Belarus,

<sup>2</sup>Department of Thoracic Surgery, Brest Regional Hospital; Brest, Republic of Belarus,

<sup>3</sup>Department of Thoracic Surgery, Brest Regional Hospital; Brest, Republic of Belarus,

<sup>4</sup>Department of Thoracic Surgery, Brest Regional Hospital; Brest, Republic of Belarus,

<sup>5</sup>Department of Thoracic Surgery, Brest Regional Hospital; Brest, Republic of Belarus,

<sup>6</sup>Department of Thoracic Surgery, Brest Regional Hospital; Brest, Republic of Belarus (pan@brsu.brest.by)

**Background:** The aim of the study was to analyze the efficiency of local conservative treatment of pleural empyema with the help of dimethylsulphoxide combined with antibiotic.

**Methods:** 58 patients with pleural empyema have been divided into three groups: group 1 with complications after heavy lung inflammations (n = 17); group 2 with purulent destruction of the lung (n = 18); group 3 with postoperative complications after thoracic surgery (n = 11), including 7 cases with bronchial fistulas after surgery for malignant disease; group 4 with purulent destruction of the lung (n = 4), that demanded emergency operative intervention; group 5 (n = 5) with posttraumatic empyema (n = 5). All patients received a combination of antibiotics intravenously and treatment by antibiotics was changed according to sensitivity testing of microorganisms. In addition, antibiotics were also administered by infusion into the pleural cavity after dissolution in Dimexid, so as it is a universal solvent and helps to penetrate inflammatory tissue for antibiotics. In groups 1, 2 and 5 a thoraco-centesis and pleural drainage was carried out on the first day of their stay in hospital. When purulent excretion stopped and full expansion of the lung was achieved (as controlled by chest X-ray), the drain stayed in pleural cavity for another three days, and was then removed.

**Result:** This treatment increased postoperative survival in patients with pleural empyema. Moreover, sufficient results was achieved in 95% of the cases.

**Conclusions:** Intrapleural infusion of Dimexid with antibiotics increases the efficiency of local treatment and can be a method of a choice for management of advanced pleural empyema.

## Gastrointestinal\_3 P101

**Delay in diagnosis of appendicitis-trends in litigation in the U.K**

Pawa Nikhil<sup>1</sup>, Nouri Reem<sup>2</sup>, Tutton Matthew G<sup>3</sup>

<sup>1</sup>Colchester General Hospital, UK, <sup>2</sup>Colchester General Hospital, UK, <sup>3</sup>Colchester General Hospital, U.K. (nikhil@pawa.me.uk)

**Introduction:** Appendicitis is one of the commonest surgical emergencies. Prompt appendectomy has long been the standard of care for acute appendicitis due to the risk of progression to advanced pathology. It has been asserted that the failure to diagnose appendicitis (and delay in appendectomy) is one of the leading sources of malpractice claims in the U.S.A. The aim of this study was to assess the trends in litigation in the U.K. since the uptake of laparoscopic surgery.

**Methods:** A retrospective analysis was performed of a prospective database of claims lodged with the NHS Litigation Authority for England and Wales between 2002 and 2008 relating specifically to delayed diagnosis of appendicitis. The claims were analysed for the incident details, result of claim and total costs.

**Results:** A total of 104 cases of litigation relating to delayed diagnosis in appendicitis were reported in the U.K. between 2002 and present day. At the time of analysis 72 of these claims were closed, with 32 still open. Of the closed claims 25 (35%) did not proceed to compensation. There was no significant difference in the number of claims made per year between 2002 and 2007. In 2002/3 65% of the claimants received compensation, compared to 33% in

2005/6. The range of damages paid to claimants between 2002 and 2007 was £0–£180 000. The mortality rate amongst the claimants was 5.8% (n = 6).

**Conclusion:** A delay in the diagnosis of appendicitis remains a serious hazard for patients, and those associated with litigation can display large financial implications on the healthcare system. There has been a decline in the proportion of claims leading to compensation over the last five years. This further supports the early use of diagnostic laparoscopy in patients admitted with acute abdominal pain.

## Hepatobiliary\_1 P102

**Selective approach to routine histological examination of gall bladder is justifiable**

Pawa Nikhil<sup>1</sup>, Liao Christopher C L<sup>2</sup>, Colclough Angela<sup>3</sup>, Menzies Donald M<sup>4</sup>

<sup>1</sup>Colchester General Hospital, UK, <sup>2</sup>Colchester General Hospital, UK, <sup>3</sup>Colchester General Hospital, UK, <sup>4</sup>Colchester General Hospital, UK (bishami.abdulrahman@bey.nhs.uk)

**Introduction:** Carcinoma of the gall bladder is a rare malignancy which affects women two to three times more commonly than men, mostly in their 7th and 8th decade of life. It carries a poor prognosis with an age-corrected over-all 5 years survival rate not exceeding 5%. As with all cancers early diagnosis of localised disease is effective in improving survival, unfortunately only 10 to 20% of all cancer is confined solely to the gall bladder. The aim of this study was to assess the incidence of unsuspected localised gall bladder cancer diagnosed only at histological examination with the possibility of reducing routine histological examination below the age of 50.

**Methods:** A retrospective analysis was performed of a prospectively collected pathology database at a district general hospital over a period of seven years (September 2001 to present day). All the case notes of gall bladder malignancies were retrieved with pre-operative radiological investigations and details of intra-operative findings reviewed.

**Results:** Altogether there were 2703 individual specimens. There were four (0.15%) cases of primary gall bladder carcinoma, one case of B-cell lymphoma and one case of metastatic cancer from an adjacent primary in the stomach. The affected patients' age ranged from 67 to 83 years. Of the four primary gall bladder carcinomas, one presented with empyematous perforation and the other three were identified intra-operatively. Pre-operative radiological findings were confounding in three cases.

**Conclusion:** The incidence of gall bladder carcinoma in our series was less than 0.2%. All of them were suspected pre-operatively and intra-operatively. There was no unsuspecting diagnosis of gall bladder carcinoma on routine histology without prior suspicion. Therefore we conclude that it is probably safe to abandon routine histological examination of unsuspecting gall bladder specimens in patients below a certain age group of 50 years without compromising effective patient management.

## Transplantation, Organ preservation\_2 P103

**How to establish a microsurgical experimental transplantation lab in Poland – own experience**

Pieróg Jarosław<sup>1</sup>, Kubisa Bartosz<sup>2</sup>, Grodzki Tomasz<sup>3</sup>, Drożdżdzik Marek<sup>4</sup>

<sup>1</sup>General Thoracic Surgery Unit Regional Hospital For Lung Diseases Szczecin, Poland, <sup>2</sup>General Thoracic Surgery Unit Regional Hospital For Lung Diseases Szczecin, Poland, <sup>3</sup>General Thoracic Surgery Unit Regional Hospital For Lung Diseases Szczecin, Poland, <sup>4</sup>Department of Experimental and Clinical Pharmacology Pomeranian Medical University Szczecin, Poland (garpi@op.pl)

Microsurgical experimental transplantation rat lung model lab is a sophisticated way to perform research. It is well known that the lab needs a lot of experience and funds, therefore, setting up this kind of the lab seems to be difficult in Poland. The team experience regarding microsurgical technique and good organization

is essential to make first step. The lab equipment is equally important. Our team gained the experience performing allogeneic rat lung transplantation for a large research team in Berne, Switzerland between 2000 and 2004. The Swiss supervisor of our team was satisfied with attitude towards lab working and good results as well. Consequently the equipment was lent by the Swiss Research Center in order to set up further cooperation between our centers. Local funds were used for some adjustment works only. Good relationship and fruitful cooperation were necessary to establish a high sophisticated experimental lab in Poland. Estimated costs to prepare fully operational lab did not exceed \$ 5000, however, we had to apply for The Polish State Committee For Scientific Research grant to start our first experimental transplantation research. Our experience shows it is possible to establish a high sophisticated lab in Poland without engagement of large amount of money. Needless to say devotion and large enthusiasm of the team as well as support of foreign experienced lab are essential to perform research work successfully.

## Transplantation, Organ preservation\_2 P104

### Viability of spleen autotransplants in beagle dogs—a complex long-term investigation

Sajtos Erika<sup>1</sup>, Furka Istvan<sup>2</sup>, Laszlo Galuska Sandor<sup>3</sup>, Sipka<sup>4</sup>, Judit Kovacs Endre Brath<sup>5</sup>, Norbert Nemeth Katalin Peto<sup>6</sup>, Miko Iren<sup>7</sup>

<sup>1</sup>Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary,

<sup>2</sup>Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary,

<sup>3</sup>Department of Nuclear Medicine, 3rd Department of Internal Medicine, Regional Immunological Laboratory, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>4</sup>Laboratory, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>5</sup>Department of Pathology, Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>6</sup>Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>7</sup>Department of Operative Techniques and Surgical Research, Department of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary (sajtos.erika@gmail.com)

**Introduction:** Despite the modern chemo-, and immune-prophylaxis the risk for complications following splenectomy still means great problems. Thus, spleen saving methods play important role preventing complications. In one-year follow-up, using morphological and functional methods, we examined the viability of implanted spleen-chips in beagle dogs.

**Materials and Methods:** Experimental groups (n = 3-3): “C”-non-operated control, “SH”-sham-operated control, “SE”-splenectomy, “AU5” or “AU10”-autotransplantation with 5 or 10 spleen-chips using “Furka’s spleen-chip” technique following splenectomy. Prior to operations, in postoperative 1st week, monthly till the 6th and in the 9th, 12th months hematological, hemostaseological, hemorheological examinations were performed. In the 12th month phagocyte chemiluminescence tests, colloid scintigraphy and diagnostic laparoscopy were carried out.

**Results:** “AU5”/“AU10”-group’s scintigraphy showed activity in spleen-pieces. During the diagnostic laparoscopy almost all the spleen-chips with blood supply were found. Although, functional results did not reach the values of “SH”/“C”-groups, from the 4th-5th postoperative months they showed particular restoration in filtration and immunological function of spleen-chips *versus* “SE”-group. In the 12th month relative cell transit time (RCTT) was  $4.35 \pm 0.82$  in “SH”-group,  $3.63 \pm 0.26$  in “C”-group,  $4.45 \pm 0.52$  in “SE”-group,  $5.2 \pm 0.22$  in “AU5”-group and  $4.14 \pm 0.38$  in “AU10”-group. Stimulation index was  $0.95 \pm 0.04$  in “SH”-group,  $0.89 \pm 0.11$  in “C”-group,  $0.77 \pm 0.12$  in “SE”-group,  $1.84 \pm 0.12$  in “AU5”-group ( $p < 0.05$  “AU5” *versus* “C”) and  $1.04 \pm 0.09$  in “AU10”-group in the 12th month. Histologically, the structure of spleen-chips was similar to normal splenic tissue. **SUMMARY:** Our results suggest that spleen-pieces are viable, their functions have been partly restored, and thus spleen autotransplantation may avoid the complications of splenectomy. However, regeneration of spleen-chips is expected only from the postoperative 4th-6th months. Besides functional scintigraphy, erythrocyte

deformability and peripheral phagocyte activity can be indicative for decrease (functional hyposplenism) or lost (asplenia) of splenic functions. Grants: OTKA T049331, and ETT 387/2006.

## Gastrointestinal\_1 P105

### Prevention and Detection of SSI after Total Gastrectomy

Sakai Rika<sup>1</sup>, Hirayama Katsu<sup>2</sup>, Nakajima Yoshimichi<sup>3</sup>, Saitoh Ken<sup>4</sup>, Tsukamoto Shigeki<sup>5</sup>, Enomoto Yoshitaka<sup>6</sup>

<sup>1</sup>Department of Surgery, Hiraka General Hospital, <sup>2</sup>Department of Surgery, Hiraka General Hospital, <sup>3</sup>Department of Surgery, Hiraka General Hospital, <sup>4</sup>Department of Surgery, Hiraka General Hospital, <sup>5</sup>Department of Surgery, Hiraka General Hospital, <sup>6</sup>Department of Surgery, Hiraka General Hospital (rika-s@alto.ocn.ne.jp)

**Introduction:** It is clear that SSI is the situation to be prevented. SSI must be different between operation procedures. The purposes are to clarify the characteristics of SSI after total gastrectomy and to reveal how to prevent and detect it.

**Patients and methods:** 101 patients had total gastrectomy in our hospital last 4 years (Jan 2003 – Dec 2006). Patients with SSI (+ SSI) were investigated compared with patients without SSI (–SSI).

**Results:** Almost all patients had laparotomic gastrectomy followed by Roux-Y reconstruction. 17 patients were suffered from SSI and 84 patients were no SSI. SSI was diagnosed in 16.8% patients. Age, gender, BMI, serum protein, albumin, sugar and cancer stage were statistically the same. 2 patients (11.8%) had primary chemotherapy in + SSI and 2 patients (8.33%) in –SSI (NS). One thirds patient had D2 dissection in both group. Number of dissected lymph nodes and number of positive lymph nodes were the same. 11 (64.7%) patients needed resection of surrounding organs in + SSI compared to 28 (33.3%) in –SSI ( $p=0.0154$ ). Operation duration and blood transfusion were statistically the same. Blood loss in + SSI was 564ml compared to 408ml in –SSI ( $p=0.0252$ ). Postoperative hospital stay was longer in + SSI, 42.5 days in + SSI and 34.2 days in –SSI ( $p=0.00494$ ). Body temperature was statistically higher ( $p<0.01$ ) in + SSI on 4, 5, 6 and 7 postoperative days. On these days, body temperatures were above 37.5 Celsius in + SSI.

**Conclusion:** Risk factors to the SSI were blood loss and resection of surrounding organs. Precise operation will be needed. Another important issue is how to prevent surrounding organ resection. Primary chemotherapy can be effective for locally advanced gastric cancer to prevent surrounding organ resection. In the point of early detection of the SSI, body temperature could be a useful predictive factor. Especially, body temperature more than 37.5 Celsius 4 day after surgery, can be indicative for the SSI.

## Oncology P106

### Management of post-operative Mondor's disease: a novel non-invasive manoeuvre

Salmon Remy<sup>1</sup>, Berry MG<sup>2</sup>, Hamelin JP<sup>3</sup>

<sup>1</sup>Institut Curie, Paris, France, <sup>2</sup>Institut Curie, <sup>3</sup>Institut Curie (miles.berry@curie.net)

**Background:** Mondor's disease is an uncommon complication of breast and axillary surgery. Although self-limiting, the subcutaneous cords may be both painful and functionally limiting for the patient for several months. Numerous pharmacologic approaches have been tried, but without widespread success, and we wished to evaluate the non-invasive technique of manual axial distraction in such patients.

**Methods:** 30 consecutive patients with axillary Mondor's disease following surgery were treated solely with this technique by the senior author (RJS) over a 24 month period. Mean age was 45 years (range 32–72) with 27 having undergone formal axillary dissection and 3 sentinel node biopsy.

**Results:** 25 (83.3%) were successfully treated with a single procedure, 3 (10%) two and 2 (6.7%) three procedures.

**Conclusion:** we present the initial results of the novel technique of manual axial distraction that has been found to be both efficacious and without adverse effect. It provides a rapid and definitive treatment of post-operative Mondor's disease.

## Oncology P107

## Renal Cell Carcinoma presenting with a mass in the trapezius muscle

Saroy Neelam<sup>1</sup>, Condon Luke<sup>2</sup>, Loney Elizabeth<sup>3</sup>, Moore Jim<sup>4</sup>, Bem chris<sup>5</sup><sup>1</sup>Bradford Royal Infirmary, Bradford, UK, <sup>2</sup>Bradford Royal Infirmary, <sup>3</sup>Bradford Royal Infirmary, <sup>4</sup>Bradford Royal Infirmary, <sup>5</sup>Bradford Royal Infirmary (nsaroy@hotmail.com)**Introduction:** Renal cell carcinoma (RCC) is notorious for metastasising to almost anywhere in the body. This is the first reported case of RCC initially presenting as a mass in the trapezius muscle.**Case Report:** A 72 year old male presented with a right posterior neck lump. Examination was normal apart from the presence of a 2 cm, mobile lump deep to the occipital insertion of the right trapezius muscle. Ultrasound scanning revealed a well defined 'vascular nodule' within the muscle itself. Fine needle aspiration cytology suggested metastatic carcinoma. Surgical biopsy revealed a non-encapsulated, necrotic mass within the substance of the right trapezius muscle. CT scanning showed a large mass replacing the left kidney associated with thrombosis of the renal vein and several enlarged para-aortic lymph nodes (see Figures) with no abnormality in the chest and no other metastases. Histology confirmed metastatic renal cell carcinoma. The patient was referred to the Renal Cancer MDT and underwent a radical left nephrectomy followed by immunotherapy with Interferon. He remains well 6 months post presentation.**Discussion:** Metastases to skeletal muscle are rare, regardless of the primary site. Renal cell carcinoma is the third most common infraclavicular neoplasm to metastasise to the head and neck (after breast and lung). Batson's venous plexus has been postulated as the route by which renal metastases may reach the neck without first seeding in the lungs (see Figure). It is thought that increases in intra-abdominal pressure facilitate the migration of tumour emboli through this valveless para-spinal venous plexus towards the head and neck, thereby avoiding filtration by the pulmonary vasculature. Would like to be considered for a poster presentation. N/B we have excellent CT scan images and histology slides. Please advise if I need to submit these along with the abstract. Thank you.

## Hepatobiliary\_2 P108

## Preemptive use of etofenamate in laparoscopic cholecystectomy

Şen Meral<sup>1</sup>, İnan Aydın<sup>2</sup>, Sert Hüseyin<sup>3</sup>, Akpınar Ayhan<sup>4</sup>, Dener Cenap<sup>5</sup>, Bozer Mikdat<sup>6</sup><sup>1</sup>Fatih University School of Medicine, Ankara, Türkiye, <sup>2</sup>Associate Professor of General Surgery, Fatih University School of Medicine, Ankara, Türkiye, <sup>3</sup>Assistant Professor in Anesthesiology, Fatih University School of Medicine, Ankara, Türkiye, <sup>4</sup>Resident in General Surgery, Fatih University School of Medicine, Ankara, Türkiye, <sup>5</sup>Associate Professor of General Surgery, Fatih University School of Medicine, Ankara, Türkiye, <sup>6</sup>Associate Professor of General Surgery, Fatih University School of Medicine, Ankara, Türkiye (drmeralsen@yahoo.com)**Aim:** In this study, we evaluated the preemptive effect of etofenamate on postoperative pain and emesis in the first 24 hours after elective laparoscopic cholecystectomy.**Materials and Methods:** This prospective, randomized, placebo-controlled, double-blind study was carried out on 120 ASA I and II patients who underwent elective laparoscopic cholecystectomy. Patients were randomly assigned to two groups each consisting of 60 patients. Group A (the etofenamate group) was received 1g (2 ml) etofenamate intramuscularly, group B (the placebo group) was received same dose (2 ml) 0.9% saline intramuscularly one hour before surgery. All patients were operated by same technic. Following the end of the skin closure, all patients were administered meperidine HCl in the patient-controlled analgesia (PCA) IV mode in order to treat postoperative pain. After an IV loading dose of 0.5 mg/kg, the demand bolus injection was set at 10 mg, with a lockout time of 30 min. Pain intensity was assessed on a visual analog scales (VAS) at four times; 1 hour, 6 hours, 12 hours and 24 hours after extubation of all patients. First dose of ondansetron was given IV 4 mg and every six hour repeated on demand of patients. The total meperidine HCl

consumptions, VAS scores and antiemetic requirements were recorded and comparisons among the two groups were evaluated.

**Results:** The mean total meperidine HCl consumption of the group A (the etofenamate group) was significantly less than the group B (placebo group). The VAS scores at 1 and 6 hours in the group A were significantly lower than the group B, also the VAS scores at 12 and 24 hours were lower in group A but this was not found significantly. There was no significant difference in the postoperative antiemetic (ondansetron) requirement among two groups.**Conclusion:** Preemptive use of etofenamate reduces pain intensity and meperidine HCl requirement, but it doesn't affect the antiemetic requirement in elective laparoscopic cholecystectomy.

## Minimally invasive P109

## Influence of preemptive analgesia on pulmonary functions and complications for laparoscopic cholecystectomy

Şen Meral<sup>1</sup>, Özol Duygu<sup>2</sup>, Bozer Mikdat<sup>3</sup>, Gökmen Derya<sup>4</sup><sup>1</sup>Fatih University School of Medicine, Department of General Surgery Ankara, Turkey, <sup>2</sup>Associated Prof. Dr., Fatih University School of Medicine, Department of Pulmonology, Ankara, Turkey, <sup>3</sup>Associated Prof. Dr., Fatih University School of Medicine, Department of General Surgery Ankara, Turkey, <sup>4</sup>Ankara University Faculty of Medicine, Department of Biostatistics Ankara, Turkey (drmeralsen@yahoo.com)

Pain and diaphragmatic dysfunction are the major reasons for postoperative pulmonary complications after upper abdominal surgery. Pre-operative administration of analgesics helps to reduce and prevent pain. The objective of this study was to search the influence preemptive analgesia on pulmonary functions and complications in laparoscopic cholecystectomy (LC). Fifty-five patients, scheduled for elective LC were included in our double-blind, randomized, placebo-controlled, prospective study. Randomly 28 patients were received 1g etofenamate (Group 1) and 27 patients were received 0.9% saline (Group-2) intramuscularly one hour before surgery. All patients underwent physical examination, chest radiography, lung function tests and pulse oxygen saturation measurements two hours before surgery and postoperatively on day two. Atelectasis was graded as micro, focal, segmental or lobar. In both groups mean spirometric values were reduced significantly after operation. The difference and proportional change according to preoperative recordings were decreased less in preemptive group (31.4 versus 32.4% reduction in forced vital capacity (FVC) and 33.1 versus 35.2% reduction in forced expiratory volume in one second (FEV1) for group 1 and 2, respectively, p:0.058). There was a slight but insignificant drop in oxygen saturations for both groups. Although degree of atelectasis found less severe in preemptive group, this was not significant and the overall incidence of atelectasis was similar (32.1 versus 29.1%). We concluded that preemptive analgesia, reduces the severity of atelectasis and drop ratios in lung functions postoperatively, but further studies with more patients are needed to establish the clinical importance of these findings.

## Plastic P110

## An Alternative and Safer Technique of Medical Tattooing

Shah Amit<sup>1</sup>, Azzawi Khayam<sup>2</sup>, Humzah M.D<sup>3</sup><sup>1</sup>University of Cambridge, UK, <sup>2</sup>University of Cambridge, <sup>3</sup>Plastic surgery unit, Wordsley Hospital (as329@hotmail.com)**Background:** The aim of medical tattooing is to achieve permanent "make-up" by intra-dermal application of ink(s). This micro-pigmentation is used in medicine for indications such as camouflage therapy and areola formation after breast reconstruction. The usual method is to introduce pigment implants with an electric gun containing a needle bar holding 1-14 needles. Risks associated with the procedure include various types of infection and keloid scar formation.**Aim:** To search for an alternative technique, which could be safer, easy to administer, readily available in clinics and with a lower risk of complications.



**Methods:** An in vitro experimental modification enabling intradermal infiltration of the “ink” using a simple hollow bore needle and syringe.

**Results:** An area equal to the size of a breast areola was successfully injected, controlling the radial extent of the tattoo ink by using a purse-string. Some difficulties were faced due to the material preparation.

**Conclusion:** The simpler technique of using a hollow bore needle and syringe for medical tattooing warrants further trialing with in-vivo studies after showing good outcomes in our in-vitro analysis. Modification of the tattoo ink may be considered to facilitate the process even further.

## Plastic P111

### A case report of Non-surgical treatment of Pectus Excavatum using a new endoprosthesis (Bio-Alcamid®)

Shah Amit<sup>1</sup>, Azzawi Khayam<sup>2</sup>, Humzah M.D<sup>3</sup>

<sup>1</sup>University of Cambridge, UK, <sup>2</sup>University of Cambridge, <sup>3</sup>Plastic Surgery Unit, Wordsley Hospital (as329@hotmail.com)

Pectus excavatum is a common congenital chest wall deformity. Several techniques have been used to treat pectus excavatum. However, the treatment of this deformity is a real challenge. The most common indication for treatment of pectus excavatum is the aesthetic disfigurement produced by this congenital abnormality. This is particularly important in young patients where the appearance of the chest can result in significant problems related to body image and self-esteem. Thus, achieving an ideal cosmetic result of the chest appearance is considered an appropriate medical indication. The patient's expectations are continuously growing, which require a critical analysis of the possible management options. Plastic surgeons are involved, as the deformity is a morphologic one in most cases. These facts justify the choice of using the simplest non-surgical therapy, whenever possible. The authors present a case report of pectus excavatum, treated successfully without surgery by using a new injectable biocompatible endoprosthesis filler (Bio-Alcamid®). Bio-Alcamid® is a new safe material, which can be used as soft tissue filler. It provides a better option for treating difficult cases like pectus excavatum without surgery.

## Plastic P112

### A Clinical Study of The new “Alphabetical Nine Points System” for the Clinical Diagnosis of Malignant Melanoma

Shah Amit<sup>1</sup>, Azzawi Khayam<sup>2</sup>, Humzah M.D<sup>3</sup>

<sup>1</sup>University of Cambridge, UK, <sup>2</sup>University of Cambridge, <sup>3</sup>Plastic Surgery Unit, Wordsley Hospital (as329@hotmail.com)

**Introduction:** The incidence of malignant melanoma is increasing and early detection has become a public issue. The effective treatment remains surgical excision. Therefore, early detection is extremely essential. Several systems have been developed to achieve the most accurate clinical diagnosis. The authors devised a new simple Alphabetical Nine Points System for the clinical diagnosis of malignant melanoma. It is an expansion of the ABCD criterion to “A to I”. This additional elements include: Elevation, Fungation or Failure to heal, Growing lesion, History of High risk, and Indefinite diagnosis.

**Aims:** The aim of the study was to achieve a clinical tool combining the beneficial concepts of existing systems in order to yield greater accuracy with diagnosis of malignant melanoma.

**Methods:** The system was applied in 40 cases. There were 20 cases of malignant melanoma, 10 cases of other skin cancers (SCC and BCC), and 10 cases of benign lesions. The Alphabetical Nine Points system was compared with the 7-points check list, the ABCD rule, and the dermatoscopic ABCD system.

**Results:** The devised system showed to be a reliable tool for clinical diagnosis of malignant melanoma. The initial results showed that 4 “positives” out of 9 could be used as a threshold for further investigation by way of biopsy

**Conclusion:** The Alphabetical Nine Points system could be a superior clinical diagnostic tool when compared to existing systems. It has a number of advantages including achieving a good level of accuracy, being easy to apply, cheap, and being suitable for the lay public as well as different health professionals.

## Transplantation, Organ preservation-1 P113

### Novel approach for identification of keratinocyte stem cells

Sinkiewicz-Darol Elena<sup>1</sup>, Domaszewska Anna<sup>2</sup>, Zaleska Marzanna<sup>3</sup>, Olszewski Waldemar L<sup>4</sup>

<sup>1</sup>Department of Surgical Research & Transplantation, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>2</sup>Department of Surgical Research & Transplantation, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Surgical Research and Transplantation, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>4</sup>Department of Surgical Research and Transplantation, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, Norwegian Radium Hospital, Oslo, Norway (wlo@cmdik.pan.pl)

**Rationale:** We documented that human skin preserved in anhydrous pulverized sodium chloride for months and transplanted to skin mice and humans is taken by the recipient (Transplantation 2006; 81: 1583–1588). The grafts were characterized by aggressive proliferation of keratinocytes (KC) seen on immunohistochemical section stained for BrdU. Clinically there was evident hyperkeratosis. We also noticed that dehydration in sodium chloride stopped proliferation of keratinocytes, and subsequent rehydration and transplantation brought about restarting of mitoses. This model allowed to identify cells that first undergo mitosis after contact with the recipient. The question arose whether these cells might be the spore-like stem cells?

**Materials & methods:** Fragments of normal human leg skin harvested during elective vascular surgery were preserved in anhydrous pulverized sodium chloride. After 7 to 30 days they were rehydrated, the epidermis was separated and KC were isolated. They were cultured for 7 and 21 days. Viability of cultured KC was tested in Live/Dead Viability/Cytotoxicity test. BrdU was added to culture medium. Flow cytometry was used for characterization of mitotic cells.

**Results:** The morphological shape of KC was totally preserved. Cells from all 5 epidermal layers could be identified. Among the whole population single large cells resembling by shape those from stratum spinosum and granulosum revealed full enzymatic activity. No cells with other shape revealed this property. Since in culture KC change their shape it was not possible to objectively identify their site of origin. These cells slightly incorporated BrdU whereas other KCs did not. Further identification of this population is needed.

**Conclusions:** Preservation of KC in anhydrous pulverized sodium chloride doesn't stop some single cells' to display enzymatic activity upon setting in culture. The described method may help to identify KC of highest capacity providing progenies probably belonging to the so called spore-like stem cells.

## Wound healing-1 P114

### The Effects of Thioredoxin-1 on The Experimental Colitis Model on Rats

Sozuer Erdogan<sup>1</sup>, Akcan Alper<sup>2</sup>, Yazar Fatih<sup>3</sup>, Akyildiz Hızir<sup>4</sup>, Saraymen Recep<sup>5</sup>, Deniz Kemal<sup>6</sup>

<sup>1</sup>Erciyes University School of Medicine, Department of General Surgery, Erciyes, Turkey, <sup>2</sup>Erciyes University School of Medicine, Department of General Surgery, <sup>3</sup>Erciyes University School of Medicine, Department of General Surgery Kayseri, Turkey, <sup>4</sup>Erciyes University School of Medicine, Department of General Surgery, <sup>5</sup>Erciyes University School of Medicine, Department of Biochemistry, <sup>6</sup>Erciyes University School of Medicine, Department of Pathology (acakcan2002@yahoo.com)

**Aim:** In this study, the effects of thioredoxin-1, an antiinflammatory and an antioxidant agent, have been investigated on the inflammatory process of the experimental colitis model.

**Materials and Methods:** In this study, 24 Sprague–Dawley male rats weighing 225–275 g were used. Rats were divided into 3 groups randomly, each including 8 (control, colitis and treatment groups). Normal saline (SF) were given to control group rectally. To the colitis group, trinitrobenzene sulfonic acid and ethanol mixture (TNBS–E) instilled rectally for colitis formation. Finally, to the treatment group, after instillation of TNBS–E, 40 µg/kg of thioredoxin-1 administered intraperitoneally every other day during 20 days. Blood samples were taken on the days 1st and 10th. On the 21st day, a midline

laparotomy was performed. Blood samples were taken from vena cava inferior and santrifugated, and the left colon was resected. Microscopic and macroscopic findings of specimens evaluated and graded. Myeloperoxidase (MPO) and MDA activity of the colonic tissues, and tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), interleukin-1 (IL-1), interleukin-6 (IL-6) and interleukin-10 (IL-10) levels of blood samples measured.

**Results:** In terms of macroscopic and microscopic grades, colitis and treatment groups' grades were statistically different ( $p < 0.05$ ). In the treatment group, tissue myeloperoxidase and MDA levels were significantly lower than study group ( $p < 0.001$ ). TNF- $\alpha$ , IL-1 and IL-6 levels were decreased significantly in treatment group when compared to colitis group ( $p < 0.05$ ). Treatment group's IL-10 levels were significantly higher than the colitis group ( $p < 0.01$ ).

**Conclusion:** According to histopathological and biochemical findings, administration of thioredoxin-1 reduced the inflammation on TNBS-E colitis formatted rats. Results suggest that the inflammation formation in colitis group, decreased significantly in treatment group by the effects of thioredoxin-1.

## Oncology P115

### A focus group discussion on patient decision making in cancer care : A qualitative analysis

Srinivasaiah Narasimhaiah<sup>1</sup>, Joseph Biju<sup>2</sup>, Gunn James<sup>3</sup>, Hartley John<sup>4</sup>, Monson John<sup>5</sup>

<sup>1</sup>Academic Surgical Unit, Castle Hill Hospital Cottingham, East Yorkshire, UK,

<sup>2</sup>Academic Surgical Unit, Castle Hill Hospital Cottingham, East Yorkshire HU16 5JQ,

<sup>3</sup>Academic Surgical Unit, Castle Hill Hospital Cottingham, East Yorkshire HU16 5JQ,

<sup>4</sup>Academic Surgical Unit, Castle Hill Hospital Cottingham, East Yorkshire HU16 5JQ,

<sup>5</sup>Academic Surgical Unit, Castle Hill Hospital Cottingham, East Yorkshire HU16 5JQ (simba\_anu@yahoo.com)

**Background:** Patient preferences should play an important role when decision-making in cancer-care. Literature is increasingly demonstrating that surgeons and physicians have divergent preferences for treatment options compared with their patients and with each other.

**Aim:** To explore opinions and thoughts among surgical colleagues about "patient decision making in cancer care".

**Methods:** A pilot focus group discussion involving academic-surgical-unit members constituting 4 consultants, 3 registrars and 3 research fellows. Qualitative methodology was adopted for analysis thereby identifying Themes & Outcomes.

**Results:** Themes that emerged are Evidence-based-clinical-practice, Knowledge, Decision-making, Patient-Information, Risk, Communication, Consent, Socio-economic factors and Patient-empowerment, Outcomes derived are to increase the evidence base, Increase the clinician and patient knowledge, provide adequate information, Decisions to be based on patients best interest, Communicate risk in a understandable manner, Take patients views, knowledge and demands into consideration,

**Conclusion:** Patient decision making in cancer care is slowly evolving, where decisions are not only made taking into account patients views, knowledge and demand but are also driven by them in a minority. Time is a factor and in years to come the patients will play an increased role in their treatments taking into account tradeoffs and risks between survival and quality of life.

## Gastrointestinal\_2 P116

### Role of Sacral Nerve Stimulation (SNS) in Ileo-anal Pouch incontinence

Srinivasaiah Narasimhaiah<sup>1</sup>, Waudby Phillip<sup>2</sup>, Duthie Graham<sup>3</sup>

<sup>1</sup>Academic Surgical Unit, University of Hull, Cottingham, UK. HU16 5JQ,

<sup>2</sup>Academic Surgical Unit, University of Hull, Cottingham, UK. HU16 5JQ,

<sup>3</sup>Academic Surgical Unit, University of Hull, Cottingham, UK. HU16 5JQ (simba\_anu@yahoo.com)

**Introduction:** An ileo-pouch anal anastomosis (IPAA) has become the gold standard procedure for ulcerative colitis and familial adenomatous polyposis. However, the operation may adversely impact the patient's continence and

quality of life. Treatment of Ileo-anal Pouch incontinence can be difficult. We reviewed our experience in an isolated individual case where SNS was used to treat Ileo-anal pouch incontinence with a successful outcome.

**Methods:** A prospectively maintained SNS database, was used for gathering data. Clinical notes were reviewed for details.

**Results:** A 53-year old male, was referred to consider SNS for pouch-incontinence, having failed conservative treatments and collagen Injections. He had undergone Subtotal-Colectomy in 2001 and Ileo-anal pouch reconstruction in 2002. He was troubled with increased frequency of bowel movements from his Ileo-Anal Pouch and also Faecal Incontinence associated with Urgency, Frequency and Leakage. These affected his quality of life significantly. Having undergone assessment for SNS, he had a temporary SNS on the left S2 nerve root. Bowel diaries showed good response with reduction in frequency of bowel movements from 9–10 times/day to 2–3 times/day and on 3 days no leakage of stool. Patient described improved quality of life. Patient is awaiting a permanent SNS

**Conclusion:** Although results might be far less predictable since there is no benefit from parasympathetic neuromodulation (subtotal Colectomy), there may be a direct contact effect on the pouch. We conclude that SNS for pouch-incontinence offers a satisfactory outcome, when other treatments have failed.

## Gastrointestinal\_1 P117

### Rectal Irrigation (RI) is beneficial for chronic constipation – A prospective review

Srinivasaiah Narasimhaiah<sup>1</sup>, Marshall Jill<sup>2</sup>, Gardiner Angie<sup>3</sup>, Duthie Graham<sup>4</sup>

<sup>1</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK,

<sup>2</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK,

<sup>3</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK,

<sup>4</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK (simba\_anu@yahoo.com)

**Introduction:** RI is used in faecal incontinence to relieve symptoms & improve quality of life. Literature on its role in constipation is limited. We aim to evaluate the causes for referral, efficacy & acceptability of RI using health outcome measures and assess effect on constipation.

**Methods:** Review of prospective database of RI between 2002 & 2005. Symptom quantification using general standardized questionnaire (GSQ) determined efficacy. SF-36 & FIQL determined acceptability.

**Results:** 175 patients' data is used. 111(63%) patients found RI useful & 64(37%) unhelpful. The median follow up is 20 months. 79 of 175 patients were referred for constipation. 39 (49%) had success with RI. The success/failure rate is significantly different for patients with constipation *versus* other diagnosis (Chi Sq=12.28,  $p=0.000$ ). For the patients presenting with constipation who had successful RI, 56% said that they were 'doing well' or 'good improvement' using RI, 26% said there had been a 'dramatic improvement' whilst 17% said there had been 'limited' improvement using RI. Up to one third of the patients had RI once a day. GSQ, SF 36 and FIQL were analyzed pre & post RI for the whole group. Analysis is done only on successful cases. GSQ: Showed significant improvement in symptoms of straining, incomplete emptying, wind & urinary leak on stress post RI (95% CI). Visual Analog Scales show reduction in the severity of the problem. SF36: 71 of 111 patients completed SF36 pre RI & 43 of these also completed it post RI. In the whole group the median value for MCS increased from 43 to 55 and PCS increased from 47 to 66. PCS is significant ( $p$  value of 0.03). In the group of patients with constipation the percentage increase in MCS & PCS is 20% and 33% respectively post RI. FIQL: Slight improvement in QOL is measured post RI but statistically insignificant.

**Conclusions:** Constipation accounted for nearly half of referrals. RI was successful in nearly half of the referred population. SF-36 demonstrates a significant improvement in the PCS. Generally speaking, RI offers symptomatic improvement & most patients find it acceptable.

**Abbreviations:** MCS – Mental Component Score, PCS: Physical Component Score

## Oncology P118

**Thrombo-Prophylaxis (TP) In Colo-Rectal Surgery : A National Questionnaire Survey of the members of the ACPGBI**Srinivasaiah Narasimhaiah<sup>1</sup>, Arsalani-Zadeh Reza<sup>2</sup>, Monson John<sup>3</sup><sup>1</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham, UK,<sup>2</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham. UKHU16 4AY, <sup>3</sup>Academic Surgical Unit, Castle Hill Hospital, University of Hull, Cottingham. UK HU16 4AY (simba\_anu@yahoo.com)

**Introduction:** Venous thrombo-embolism associated with malignancy reduces survival. Anecdotal evidence suggests that there is lack of uniformity in the thrombo-prophylaxis practice among surgeons in the UK. Available guidelines from NICE & ACPGBI recommend combined (Chemo + Mechanical) thrombo-prophylaxis. Cochrane library recommends self administered low molecular weight heparin (LMWH) for 2–3 weeks following surgery. Our aim was to assess current pattern of TP practice among colo-rectal surgeons in the UK & compare the current practice with available guidelines.

**Methods:** A postal questionnaire survey containing 10 items was sent to all the 490 active consultant surgical members of the ACPGBI.

**Results:** Of 490 questionnaires, 259 (52.8%) were returned fully completed. In our national questionnaire survey 259 (100%) routinely use TP, with 243 (93.8%) using departmental guidelines. Majority of them used combined chemo and mechanical prophylaxis at 247 (95.40%), while 12 (4.6%) used chemo-prophylaxis only. LMWH was the preferred chemo-prophylactic agent at 243 (93.8%). Majority started TP on admission 176 (68%) and stopped at discharge. At less than 1/3rd, 71 (27.4%) recommended TP after hospital discharge for an average duration of 4–6 weeks preferring graduated compression stocking followed by LMWH.

**Conclusion:** In our NSQ a small percentage of the consultant colleagues are using chemo-prophylaxis in isolation and in a majority thrombo-prophylaxis is not continued post-operatively for the recommended period of time as per guidelines. Although current TP practice is acceptable, use of available national guidelines would further improve the thrombo-prophylaxis practice. However patient compliance and resources are factors that need a thought.

## Wound healing\_1 P119

**Role of Sacral Nerve Stimulation (SNS) in vulvodynia**Srinivasaiah Narasimhaiah<sup>1</sup>, Waudby Phillip<sup>2</sup>, Culbert Brian<sup>3</sup>, Duthie Graham<sup>4</sup><sup>1</sup>Academic Surgical Unit, University of Hull, Cottingham, UK, <sup>2</sup>Academic Surgical Unit, University of Hull, Cottingham, UK, <sup>3</sup>Department of Anaesthetics, Castle Hill Hospital, Cottingham, UK, <sup>4</sup>Academic Surgical Unit, University of Hull, Cottingham, UK. (simba\_anu@yahoo.com)

**Introduction:** Vulvodynia is difficult to treat seriously affecting QOL. There are no reports of SNS in vulvodynia. We have reviewed our experience in two cases to determine whether it is a worthwhile procedure.

**Methods:** Patients were identified from prospectively maintained SNS-database and notes reviewed.

**Results: Case 1:** A 62yr-Female was diagnosed with vulvodynia of unknown aetiology, since she was aged 20. She experienced high intensity spasms lasting for 1–2 mts with worsening pain. Having failed other treatments, she was referred for SNS. She had a temporary SNS on left S2 root. Spasms were less severe lasting only 30–40 seconds. On a PACS/BPI assessment there was 70% relief at the end of two weeks. With improved QOL, Patient is awaiting permanent implant.

**Case 2:** A 43y-Female was diagnosed vulvodynia of unknown aetiology, associated with left buttock and perineal pain. Having failed other treatments, she was referred for SNS. She had 3 temporary SNS procedures done. The first on right S3 nerve-root was unsatisfactory with marginal improvement. Second was on the left S3 which failed. Unsatisfactory assessment on right S3 led to repeat right S3, which was successful. PACS/BPI assessment showed a reduction in pain of 60% after day 1 and 80% improvement at the end of 1st and 2nd week. With improved QOL, Patient is awaiting permanent implant.

**Conclusion:** SNS for vulvodynia with our limited experience offers a satisfactory outcome, when other treatments have failed.

## Wound healing\_1 P120

**Role of Sacral Nerve Stimulation (SNS) in chronic pelvic pain (CPP)**Srinivasaiah Narasimhaiah<sup>1</sup>, Waudby Phillip<sup>2</sup>, Culbert Brian<sup>3</sup>, Duthie Graham<sup>4</sup><sup>1</sup>Academic surgical unit, Castle Hill Hospital, University of Hull, Cottingham, UK,<sup>2</sup>Academic surgical unit, Castle Hill Hospital, University of Hull, Cottingham, UK,<sup>3</sup>Department of Anaesthetics, Castle Hill Hospital, Cottingham, UK, <sup>4</sup>Academic surgical unit, Castle Hill Hospital, University of Hull, Cottingham, UK.

(simba\_anu@yahoo.com)

**Introduction:** Chronic pelvic pain (CPP) is a disorder which can be difficult to treat affecting one's QOL. SNS has been tried when other treatments have failed. The reports of this procedure are limited, so we reviewed our experience in order to determine whether it is a worthwhile procedure.

**Methods:** Patients who underwent SNS for chronic pelvic pain were identified (Aug 2005 – Oct 2007). This is a retrospective review of a prospectively maintained SNS database and the notes reviewed.

**Results:** 7 patients received SNS for CPP. The mean age was 50 years. Female to male ratio was 6:1. In total 11 temporary SNS devices were used. 2 (28.5%) patients had successful outcome and five failed. Among the successful ones PACS/BPI assessment showed an improvement of 70%–80% at the end of two weeks of temporary test stimulation. The successful ones are waiting for a permanent SNS to be implanted.

**Conclusion:** SNS for chronic pelvic pain with our limited experience offers an option, when other treatments have failed. However, the success rates one could achieve might be less.

## Minimally invasive P121

**Central and peripheral chemoreceptor stimulation and influence on the blood flow in the rat's sciatic nerve**Stolarczyk Artur<sup>1</sup>, Przybylski Jacek<sup>2</sup>, Deszczyński Jarosław<sup>3</sup><sup>1</sup>Dept. Orthop.&Rehab., Medical University, Warsaw, Poland, <sup>2</sup>Dept. Clin. Rehab., Medical University, Warsaw, Poland, <sup>3</sup>Department of Biophysics and Physiology, Medical University of Warsaw, Poland, <sup>4</sup>Dept. Orthop.& Rehab., Medical University, Warsaw, Poland (jdeszcz@o2.pl)

**Introduction:** It is well known that cerebral blood flow remains relatively constant if arterial blood pressure falls and increases. Hypoxemia and respiratory acidosis leads to the increase in cerebral blood flow. The response of peripheral nerve blood supply to such stimuli remains unknown. The aim of the study was to investigate the influence of stimulation arterial and peripheral chemoreceptors on the sciatic nerve blood flow (SNBF).

**Materials and methods:** Using the laser Doppler flowmeter(LDF) we have measured the sciatic nerve blood flow (NBF) of healthy, anaesthetized rats at rest, at various arterial blood pressures and during respiratory acidosis and hypoxia. The intervention was carried out on 30 Wistar rats ventilated with a Harvard Rodent Ventilator (Model 638). Arterial blood pressure was recorded continuously from the common carotid artery (Temed MCK-4011S).

**Results:** Use of the hypoxic gas mixture caused a decrease in SNBF from  $15.12 \pm 0.62$  ml/min/100g to  $5.85 \pm 0.81$  ml/min/100g ( $p < 0.01$ ). MAP decreased from  $93.0 \pm 1.9$  mmHg to  $38.4 \pm 2.24$  mmHg ( $p < 0.01$ ). The calculated SNVR rose from  $4.25 \pm 0.089$  mmHg/ml/min/100g to  $7.15 \pm 0.29$  mmHg/ml/min/100g ( $p < 0.01$ ). After pharmacological sympathectomy there was no changes in SNVR. Use of the hyperbaric-hyperoxic gas mixture caused an increase in SNBF from  $14.8 \pm 0.45$  ml/min/100g to  $28.32 \pm 0.19$  ml/min/100g ( $p < 0.01$ ). MAP rose from  $78.0 \pm 2.9$  mmHg to  $102.1 \pm 3.15$  mmHg ( $p < 0.01$ ). There was no changes in SNVR. After pharmacological sympathectomy there was no changes in SNBF, MAP and SNVR.

**Conclusions:** Our findings suggest that a resistance of vasa nervorum in the sciatic nerve is not regulated by Pa O<sub>2</sub> and Pa CO<sub>2</sub>, there is no autoregulation.



Stimulation of central and regional chemoreceptors resulted in no significant change in sciatic nerve blood resistance. During a decrease of mean arterial pressure (MAP) there was an increase in vascular resistance of sciatic nerve as a fact of stimulation of autonomic noradrenergic neurons.

## Orthopedic P122

### Is Colles' fracture as an important therapeutic problem in 21st Century?

Stolarczyk Artur<sup>1</sup>, Deszczynski Jaroslaw<sup>2</sup>, Nagraba Lukasz<sup>3</sup>, Mitek Tomasz<sup>4</sup>

<sup>1</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>2</sup>Dept. Clin. Rehab., Medical University, Warsaw, Poland, <sup>3</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>4</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland (jdeszcz@o2.pl)

**Introduction:** Colles' fracture is one of the most commonly occurring fractures. Despite the fact, that fracture of distal extremity of the radius was described in 1814 by Abraham Colles, treatment of this trauma is still a vital problem and not always a therapeutic success. Most of the cases are treated non-operatively by reposition and immobilization. Nowadays it is considered that anatomical reposition is the most important factor determining the result of treatment.

**Aim of the study:** Evaluation of the influence of the position of bone's fragments after the fracture and patient's age on anatomical outcome of the Colles' fracture reposition.

**Materials and methods:** The study included patients treated in Orthopaedics and Rehabilitation Clinic of II Medical Faculty of Medical University of Warsaw. There were 223 patients (189 females and 34 males) with isolated Colles' fracture treated non-operatively. Mean age of patients was 65 years. Medical documentation was analyzed including radiograms of the forearm before and after reposition. The most important factors were angles of inclination (dorsal and radial) between the fragments assessed with diagnostic program.

**Results and conclusions:** The results show that high level of dislocation of the fragments and age over 60 have a negative influence on the reposition. It turned out that fully correct anatomical outcome was achieved only in 15% of patients with at least one of the risk factors. It is an argument for changing the classification to operative treatment.

## Minimally invasive P123

### Studies on sciatic nerve blood flow in respect to its vascular supply and tonic neural activity

Stolarczyk Artur<sup>1</sup>, Przybylski Jacek<sup>2</sup>, Deszczyński Jarosław<sup>3</sup>

<sup>1</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>2</sup>Dept. Clin. Rehab., Medical University, Warsaw, Poland, <sup>3</sup>Department of Biophysics and Physiology, Medical University of Warsaw, Poland, <sup>4</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland (jdeszcz@o2.pl)

**Introduction:** The introduction of laser flowmeters for a continuous measurements of blood flow has permitted accurate assessment of peripheral nerve microcirculation. The aim of our study was: 1) to carry out a functional verification appropriate anatomical sources of sciatic nerve blood supply in the rat; 2) to develop a measurement technique to facilitate standardisation of results; 3) to determine the role of tonic activity of efferent nerve fibres in the maintenance of resting blood flow in the sciatic nerve. nerve blood flow.

**Materials and methods:** The study was carried out on 20 Wistar rats ventilated with a Harvard Rodent Ventilator (Model 638). Arterial blood pressure was recorded continuously from the common carotid artery (Temed MCK-4011S). The sciatic nerve the trunk was mobilised extending for 18 mm. After dissection the mobilised nerve was covered by a thin layer of muscular fascia clearly visible only under the operating microscope. Measurement of the blood flow was done using a laser Doppler flowmeter (Alf 21 Transonic) with a probe of 0.8mm in diameter, 8mm from the subpiriform opening. The animals were divided into two groups including ten rats: I-control group, II-the effect of lidocaine was investigated. A complete lidocaine blockade in nerve conduction

was evidenced by absent motor muscle response in the lower limb following the application of a 3V electric stimulus above the blockade site. In the statistical analysis we used student-t test for the standard distribution to compare both rat groups, whereas, the ANOVA test was used for paired parameters to compare the results of subsequent experimental series.

**Results:** The removal of the muscular fascia resulted in a significantly increased blood flow from 16.8 ml/min/100g body weight + 1.75 to 28.1 ml/min/100g body weight + 5.46 (at  $p < 0.01$ ). The value of the blood flow measured in the nerve with the fascia removed was assumed to be 100% in the subsequent stages of the experiment.

**Conclusions:** Our results render the following: 1) in order to obtain a true measurement of the blood flow through the sciatic nerve it is necessary to remove its muscular fascia; 2) an uninjured epineurium plays a crucial role in maintaining a resting blood flow; 3) proximal and distal dissection of the sciatic nerve confirmed the role of its main sources of blood supply in maintaining a resting blood flow in the nerve trunk; 4) the tonic neural activity plays a

## Orthopedic P124

### Assesment of the femoral component rotation in total knee arthroplasty

Stolarczyk Artur<sup>1</sup>, Deszczynski Jaroslaw<sup>2</sup>

<sup>1</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland, <sup>2</sup>Dept. Clin. Rehab., Medical University, Warsaw, Poland, <sup>3</sup>Dept. Orthop. & Rehab., Medical University, Warsaw, Poland (jdeszcz@o2.pl)

**Introduction:** Accurate placement of the femoral component in total knee arthroplasty, particularly in rotation is very important to ensure in a biomechanically stable construct. There are known reproducible femoral landmarks such as the anteroposterior axis (APA or Whiteside's line), the posterior condylar axis (PCA) or epicondylar axis (EA) to locate the optimal position for femoral component rotation. We have assessed the epicondylar axis (EA) as a reproducible rotational landmark in the femur.

**Methods:** We analyzed the rotational position of EA with the aspect to the PCA using CT scans. 35 knees were assessed—22 women and 13 men, mean age was 65.9 years (SD= 9.7 years). Each line was drawn using defined criteria and reproducible landmarks and the angle between them measured on the medial side of the CT slice to determine a mean value. Every 1.25 mm CT slice were done.

**Results:** The mean value for the EA with respect to the PCA was 4.05° (range 0.8° to 10.3°, SD = 2.55°). There was no statistically significant difference between right and left knees or men and women.

**Conclusions:** The epicondylar line is a reproducible landmark in the knee with relatively consistent relationship with other axes of femoral rotation. Establishing of the EA is vital for proper positioning and external rotation of the femoral component.

## Sepsis, Infection, Immunity P125

### The activity of Posaconazol to fungal strains isolated from clinical specimens of patients hospitalized in Warsaw Medical University Central Clinical Hospital

Swoboda-Kopec Ewa<sup>1</sup>, Sikora Magdalena<sup>2</sup>, Blachnio Sylwia<sup>3</sup>, Kawecki Dariusz<sup>4</sup>, Jaworska-Zaremba Marta<sup>5</sup>, Luczak Mirosław<sup>6</sup>

<sup>1</sup>Microbiological Laboratory of Central Clinical Hospital Medical University of Warsaw, Poland, <sup>2</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>3</sup>Microbiological Laboratory of Central Clinical Hospital Medical University of Warsaw, <sup>4</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>5</sup>Dept. of Prosthetic Dentistry Medical University of Warsaw, <sup>6</sup>Microbiological Laboratory of Central Clinical Hospital Medical University of Warsaw (dkawecki@o2.pl)

**Introduction:** The increasing resistance of fungal strains to antifungal agents is the main reason of research on the new antimicrobials.

**Aim of the study:** The susceptibility analysis of fungal strain isolated from patients hospitalized in Warsaw Medical University Central Clinical Hospital in 2007 to Posaconazole in vitro.

**Material and methods:** The clinical material was consisted of: blood samples-33 (43,4%), respiratory tracts specimens-18 (23,7%), wound swabs-16 (21%), urine samples-4 (5,3%) and other-5 (6,6%). Strains were cultured on Sabouraud and CHROMagar media and identify by ID32C tests. The susceptibility analysis to Posaconazole was done according to E-tests.

**Results:** From the total number of 76 positive samples we cultured 87 of fungal strains. The following species were cultured *C. glabrata* - 41 (47%), *C. albicans* - 12 (14%), *C. krusei* - 10 (11,5%), *C. parapsilosis* - 6 (7%), *C. inconspicua* - 4 (4,5%), *Saccharomyces cerevisiae* - 4 (4,5%), other - 10 (11,5%). We isolated 83 strains of the yeast like fungi (95% out of all isolates) and two species of molds (5% of all isolates): *Aspergillus fumigatus* - 2 strains and *Fusarium incarnatum* - 2. Our results were analyzed according to ARTEMIS Program. The final Posaconazole concentration was 0,008 to 32ug/ml. In our study the break point was  $\leq 1$  ug/ml and it was established as the agent activity. Posaconazole was active for 83 isolates (95% casus) and it had the break point  $\leq 1$  ug/ml. The all resistant isolates were from the same spesies of *C. glabrata*. Posaconazole had not been active for 4 (5%) of isolates.

**Conclusions:** 1. 10% of *C. glabrata* isolates were Posaconazole resistant. 2. Posaconazole was active for 95% of isolated strains.

## Sepsis, Infection, Immunity P126

### The etiological factors of fungemia and the susceptibility of fungal strains isolated from patients hospitalized in The Infant Jesus Clinical Hospital in Warsaw

Swoboda-Kopec Ewa<sup>1</sup>, Netsvyetayeva Irena<sup>2</sup>, Sikora Magdalena<sup>3</sup>, Blachnio Sylwia<sup>4</sup>, Kawecki Dariusz<sup>5</sup>, Luczak Miroslaw<sup>6</sup>

<sup>1</sup>Dept. of Medical Microbiology Medical University of Warsaw, Poland, <sup>2</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>3</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>4</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>5</sup>Dept. of Medical Microbiology Medical University of Warsaw, <sup>6</sup>Dept. of Medical Microbiology Medical University of Warsaw (lkawecki@o2.pl)

**Introduction:** Blood stream infections are frequent complications occurred in patients with immune system disorders. In case of catheter related fungemia the main cause of infection could be the blood vessels catheters surface with adhered cells of yeastlike fungi.

**Aim of the Study:** Characterization of clinical isolates cultured from blood samples and blood vessels catheters tips. Analysis of the susceptibility of cultured strains to antifungal agents.

**Materials and Methods:** Clinical material taken to the analysis consisted of blood samples and blood vessels catheter tips from patients hospitalized in Clinical Hospital of Medical University in Warsaw from 2005 to the end of 2007 from Department of: General Surgery and Intensive Care Unit. The blood samples were examined in automatic system-Bact/Alert Microbial Detection System (Organon). Microbiological tests of venous catheter tips were performed by semi quantitative Maki's and/or quantitative culture method. The susceptibility testing was done according to quantitative method of E-tests (AB Biodisk).

**Results:** During analyzed period of time for mycological testing there have been taken over 2733 of clinical specimens. The positive cultures were obtained from 41 blood samples and/or catheter tips (1,5% of the total number of mycological cultures). 83 fungal strains were isolated: from blood samples 66 (79,5%), and from blood vessels catheter tips 17 (20,5%). There were separated the following groups of isolates: *Candida parapsilosis* - 46 (56%) isolates, *C. albicans* - 15 (18%), *Candida glabrata* - 6 (7%), *Candida tropicalis* - 4 (5%), *C. guilliermondii* - 4 (5%), *C. krusei* - 1 (1%), *C. inconspicua* - 1 (1%), *C. lusitanae* - 1 (1%) and 4 isolates of *Cryptococcus neoformans* (5%) and 1 isolate of *Rhodotorula glutinis* (1%). All isolates (100%) were susceptible for Amphotericin B and Caspofungin. Fungal strains n=16 (19%) were resistant to Fluconazole, n=12 (14%) were Itraconazole resistant and n=4 (5%) were Voriconazole resistant.

**Conclusions:** 1. The most often isolated species was *Candida parapsilosis*-56%. 2. *Candida albicans* formed group of 18% from all isolated strains. 3. All analyzed strains were Amphotericin B and Caspofungin susceptible.

## Gastrointestinal.3 P127

### Enteral immunonutrition improves postoperative reactivity of PBMC in gastric cancer patients

Szczepanik Antoni<sup>1</sup>, Scislo Lucyna<sup>2</sup>, Siedlar Maciej<sup>3</sup>, Czupryna Antoni<sup>4</sup>, Kulig Jan<sup>5</sup>

<sup>1</sup>1st Department of Surgery, Medical College, Jagiellonian University, Krakow, Poland, <sup>2</sup>Institute of CLinical Nursing, Faculty of Health Sciences, Medical College, Jagiellonian University, Krakow Poland, <sup>3</sup>Department of CLinical Immunology, Medical College, Jagiellonian University, Krakow, Poland, <sup>4</sup>1st Department of Surgery, Medical College, Jagiellonian University, Krakow, Poland, <sup>5</sup>1st Department of Surgery, Medical College, Jagiellonian University, Krakow, Poland (anszczep@poczta.onet.pl)

Several studies indicate that in surgical patients impaired reactivity of peripheral blood monocytes may be a predictive factor of postoperative outcome. Patients with low response of peripheral blood mononuclear cells (PBMC) to the endotoxin stimulation have worsened prognosis of postoperative sepsis survival. The aim of this study was to assess the influence of postoperative enteral immunonutrition on the postoperative production of IL12 and TNF alfa by LPS stimulated PBMC of gastric cancer patients. PBMC were isolated from the blood of 99 gastric cancer patients (54 standard enteral nutrition and 45 immunonutrition) preoperatively, in the 1st, 3rd and 7th postoperative day. Cells were stimulated with lipopolisaccharide LPS. The level of cytokines was measured wit specific ELISA kits. The levels of IL12 rose from the 3rd postoperative day in immunonutrition patients, but not in standard nutrition patients. In the 7th postoperative day IL12 level was 123 pg/ml in Standard nutrition group and 297 pg/ml in immunonutrition group. The difference was statistically significant (p=0,022). TNF alpha levels increased in immunonutrition group being stable in standard nutrition group. However the difference between groups was nonsignificant. These findings indicate that immunonutrition may improve postoperative function of PBMC in gastric cancer patients.

## Cardiovascular, Thoracic.1 P128

### Serum IL-6 and IL-1ra concentrations as a possible reason, not the result of postoperative complications after major lung resections for lung cancer

Szczesny Tomasz J<sup>1</sup>, Slotwiński Robert<sup>2</sup>, Szczygiel Bruno<sup>3</sup>, Stankiewicz Aleksander<sup>4</sup>

<sup>1</sup>Department of Thoracic Surgery, Cancer Center, Bydgoszcz, Poland, <sup>2</sup>Department of Thoracic Surgery, Olsztyn City Hospital, Olsztyn, Poland, <sup>3</sup>1. Department of Immunology and Nutrition, Medical Academy, Warsaw, Poland, <sup>4</sup>2. Department of Surgical Research and Transplantology, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>3</sup>Department of Human Nutrition, Medical Academy, Warsaw, Poland, <sup>4</sup>Department of Thoracic Surgery, Olsztyn City Hospital, Olsztyn, Poland (szczesny@lungcancer.med.pl)

The aim of the study was to assess value of Interleukin 6 (IL-6) and Interleukin 1 receptor antagonist (IL-1ra) concentrations in serum, sputum and drained pleural fluid, in early diagnosis of postoperative complications in lung cancer patients. Patients (n=48) treated with lobectomy or pneumonectomy, including 38 lung cancer patients (15 with complications and 23 without complications), and 10 patients with benign diseases (without postoperative complications) were analyzed. Serum IL-6 and IL-1ra concentration was measured before, at the end of surgery, and on postoperative day 1, 3, and 7, by ELISA test. Concentration of IL-6 and IL-1ra was also measured in sputum at the end of surgery and in pleural fluid on postoperative day 1. In the entire group, serum concentrations of IL-6 and IL-1ra were significantly elevated after surgery, in comparison with preoperative values. Serum and sputum IL-6 and IL-1ra concentrations were not significantly different between groups with and without complications. Elevated concentration of cytokines in pleural fluid of patients with complications, in comparison with lung cancer patients without complications, was observed for both IL-6 [90048 (33490-94768) pg/mL versus 6554 (2003-20636) pg/mL; p=0.001] and IL-1ra [67908 (52638-106694) pg/mL versus 16950 (16050-45470) pg/mL; p=0.003]. Sensitivity, specificity and cut-off point for IL-6 were 83%, 87% and 24626.6 pg/mL, and for

IL-1ra were 67%, 94% and 59653.2 pg/mL, respectively. Pleural fluid concentrations of IL-6 over 25000pg/mL and IL-1ra over 60000pg/mL indicate high risk of development of postoperative complications in lung cancer patients. Observation that elevated concentrations of IL-6 and IL-1ra in pleural fluid on the first postoperative day precede postoperative complications, supports the hypothesis that cytokinemia is a possible reason, not only the result of postoperative complications.

## Orthopedic P129

### Distal revascularization of the right thumb – a case report

Szczęsny Grzegorz<sup>1</sup>, Górecki Andrzej<sup>2</sup>

<sup>1</sup>Department of Orthopaedics and Traumatology, Medical University, Warsaw, Poland, <sup>2</sup>Department of Orthopaedics and Traumatology, Medical University, Warsaw, Poland (g.szczesny@cmdik.pan.pl)

Finger replantations and revascularizations are salvage procedures enabling to restore hand function after injury. Nevertheless, those procedures at intraphalangeal joints, due to small diameter of blood vessels usually not exceeding 0.5 mm requiring precise microsurgical techniques, and high rate of complications with finger necrosis, are controversial.

**Patient and method:** We present the result of revascularization of right thumb at the intraphalangeal joint. 34 years old carpenter was admitted due to open fracture of the distal shaft of the proximal phalanx (non-complete amputation) of the right thumb at the intraphalangeal joint produced by high-speed rotating saw, with corresponding injury to neuro-vascular bundles, flexor and partially extensor tendons, and preservation of the 1 cm wide skin flap on the dorsal aspect of the finger. Thumb was stabilized intramedullary with K wire, and microsurgical reconstruction of one artery and vein restored its blood supply. Stability was supported by surgical reconstruction of injured tendons and wound closure. Antimicrobial and antithrombotic prophylaxes were implemented immediately after admission.

**Results:** Performed procedure allowed to restore finger vitality, which resulted in properly proceeding wound healing. Prolonged bone union required forthcoming secondary intervention with firm stabilization. Finally, the range of motion at the intraphalangeal joint was markedly reduced despite intense rehabilitation, but without functional significance for everyday life or occupational activity.

**Discussion:** Replantations of distal fingers are complicated by replants necrosis and terminalization in more than 50%, especially when corresponds with lacerated wound. Nevertheless, the possibility to restore finger length and function justifies the procedure.

## Cardiovascular, Thoracic\_1 P130

### Can mediastinal lymphadenectomy cause immunosuppression after lung cancer

Szczęsny Tomasz J<sup>1</sup>, Słotwiński Robert<sup>2</sup>, Szczygieł Bruno<sup>3</sup>, Stankiewicz Aleksander<sup>4</sup>

<sup>1</sup>1. Department of Thoracic Surgery, Cancer Center, Bydgoszcz, Poland, <sup>2</sup>2. Department of Thoracic Surgery, Olsztyn City Hospital, Olsztyn, Poland, <sup>3</sup>3. Department of Immunology and Nutrition, Medical Academy, Warsaw, Poland, <sup>4</sup>4. Department of Surgical Research and Transplantation, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland, <sup>5</sup>5. Department of Human Nutrition, Medical Academy, Warsaw, Poland, <sup>6</sup>6. Department of Thoracic Surgery, Olsztyn City Hospital, Olsztyn, Poland (szczesny@lungcancer.med.pl)

Twenty-three patients undergoing uncomplicated resection due to lung cancer (11 right lung cancer, 12 left lung cancer) were analyzed. In patients with right lung cancer systematic lymphadenectomy, while in patients with left lung cancer systematic sampling was performed. Serum IL-6 and IL-1ra concentration was measured before and after surgery, and on postoperative day 1, 3, and 7, as well as in sputum at the end of surgery and in pleural fluid on postoperative day 1 by ELISA test. Peripheral blood lymphocyte (PBL) count was measured

with flow cytometry. Time of surgery was higher in patients after right than after left thoracotomy (154.1 ± 31.29 vs 119.6 ± 24.81 minutes; p=0.008). The number of resected mediastinal lymph nodes was higher in patients after right than left thoracotomy (27.6 ± 7.6 versus 11.1 ± 8.1; p=0.00006). Postoperative decrease of PBL was significantly higher in patients after right than left thoracotomy (1.25 ± 0.37 vs 1.75 ± 0.64 × 10<sup>3</sup>/μL; p=0.04). No significant differences were found in serum, pleural fluid and sputum concentration of IL-6 and IL-1ra between patients after right and left thoracotomy, but a negative correlation between concentration of these cytokines in pleural fluid and a number of resected mediastinal lymph nodes was found (Spearman test for IL-6: r = -0.723; p<0.001; for IL-1ra: r = -0.768; p<0.001). Number of “positive” N2 lymph nodes did not correlate with cytokines’ pleural fluid concentration. Systematic lymphadenectomy of the mediastinum causes immunosuppression, measured by decrease of PBL and negative correlation between the number of resected mediastinal lymph nodes and concentration of IL-6 and IL-1ra in pleural fluid on postoperative day 1.

## Orthopedic P131

### Cemented hemiarthroplasty for stabilization of the comminuted trochanteric fractures in elderly patients

Szczęsny Grzegorz<sup>1</sup>, Biedrzycki Jerzy<sup>2</sup>, Górecki Andrzej<sup>3</sup>

<sup>1</sup>Department of Orthopaedics and Traumatology, Medical University, Warsaw, Poland, <sup>2</sup>Department of Orthopaedics and Traumatology, Medical University, Warsaw, Poland, <sup>3</sup>Department of Orthopaedics and Traumatology, Medical University, Warsaw, Poland (g.szczesny@cmdik.pan.pl)

Successful operative stabilization of the comminuted, trochanteric fractures in elderly patients is problematic due to advanced osteoporosis excluding stable osteosynthesis, poor physical activity and lack of cooperation during postoperative rehabilitation. On the other hand, the most intensively used operative techniques dedicated to trochanteric fracture stabilization, including stable fixation with dynamic hip screw, gamma nail, or flexible Ender nailing exclude the weight bearing of the operated extremity for a prolonged period of time. The aim of study was to analyze the usefulness of the cemented hemiarthroplasty for the treatment of patients with comminuted trochanteric fractures. We analyzed 26 patients (19 women and 7 men, 68–93 years old). For hip stabilization hemiarthroplasty was implanted on standard PMMA bone cement. Results. In each case stable fixation was obtained enabling weight bearing immediately after operation. Patients were allowed to weight their body weight from 3rd postoperative day.

**Discussion:** Hemiarthroplasty is an operative technique developed to restore function of an extremity lost in consequence of femoral neck fracture. It is implanted nowadays quite seldom, with growing number of total hip replacements. Nevertheless, it is still used in elderly patients, where minimal surgical approach is far more important than long-living implant. The ability of cemented hemiarthroplasty to restore function of an extremity with minimal operative intervention makes it useful for stabilization of comminuted trochanteric fractures. Basing on our results we concluded that it could be a method of choice for the treatment of the comminuted trochanteric fractures in elderly patients.

## Transplantation, Organ preservation\_2 P132

### Kidney transplantation in recipients with atherosclerosis of iliac arteries

Świercz Paweł<sup>1</sup>, Gałazka Zbigniew<sup>2</sup>, Szmidt Jacek<sup>3</sup>

<sup>1</sup>Department of General, Vascular and Transplant Surgery, Medical University, Warsaw, Poland, <sup>2</sup>Department of General, Vascular and Transplant Surgery, The Medical University of Warsaw, <sup>3</sup>Department of General, Vascular and Transplant Surgery, The Medical University of Warsaw (pswiercz@amwaw.edu.pl)



The influence of atherosclerosis in iliac arteries, often found during kidney transplantation, on patient and graft survival was not investigated. Standards of surgical approach are also not established. Study is based on 100 pairs of recipients of kidney transplant harvested from the same donor. In one of recipient from each pair atherosclerosis in iliac arteries was discovered (group A), while in the other there were no lesions (group B). Groups were compared in preoperative demographic and medical parameters, and operative factors. Modifications of operative approach depending on degree of occlusive changes in group A were analyzed. Graft and patient survival rates were estimated in five years period. Group A were older (average 8,76 year) and more frequently diabetic (20% versus 3%). The anastomotic time was 33 and 28 min in groups A and B, respectively. Renal artery and vein thrombosis occurred in one case in group A, none of group B, and in 3 patients in group A, one in group B, respectively. In recipients of group A with moderate atherosclerosis of hypogastric artery, it was anastomosed end-to-end with renal artery after thrombendarterectomy (63%). In cases of critical stenosis or total occlusion of hypogastric artery, graft artery was anastomosed to side of external (30%) or common (6%) iliac artery. In one patient transplanted kidney artery was connected to side of simultaneously implanted aorto-bifemoral prosthesis. Five ears survival rates of graft and patient were in group A 66% and 83%, and in group B 69% and 87% and were not significantly different. Results of kidney transplantation in recipients with atherosclerotic iliac arteries are good and comparable to these achieved in other patients. In this group one should perform additional vascular operation or modify the manner of arterial anastomosis during the transplantation.

## Oncology P133

### Evaluation of systemic inflammatory response based on serum concentration of selectins in patients operated on due to lung cancer

Świniarska Joanna<sup>1</sup>, Kowalewski Janusz<sup>2</sup>, Żekanowska Ewa<sup>3</sup>, Szczesny Tomasz J<sup>4</sup>

<sup>1</sup>Institute of Oncology, Bydgoszcz, Poland, <sup>2</sup>1. Institute Of Oncology, Bydgoszcz, Poland, <sup>2</sup>. Department Of Thoracic Surgery And Oncology, Medical University, Collegium Medicum, Toruń, Poland, <sup>3</sup>Department Of Pathophysiology, Medical University, Collegium Medicum, Toruń, Poland, <sup>4</sup>Institute Of Oncology, Bydgoszcz, Poland (szczesny@lungcancer.med.pl)

Inflammatory response plays an important role in carcinogenesis and in the response to surgical injury. Selectins are directly involved in these responses. The impact of pulmonary resection on serum selectins concentration is not clearly defined so far. The aim of this study was to assess the influence of pulmonary resection due to lung cancer on serum concentration of selectins. Prospective study was carried out in a group of 21 patients operated on due to lung cancer. Seventeen lobectomies and 4 pneumonectomies were performed. In all of them systematic lymph node dissection of the mediastinum was performed. Antithrombotic prophylaxis was covered by physical methods and by subcutaneous injection of low molecular weight heparin. The control group consisted of 39 healthy volunteers. Tests for three types of soluble human selectins (sP, sL and sE) were used to measure the concentration of particular selectins in venous blood. The statistical analysis was based on Mann-Whitney U-test and Friedman test. Among many factors, the influence of histological type of cancer, stage of the disease and duration of surgery was analyzed. Before surgery, serum concentration of selectins in control group and in the study group was similar. Histological type, stage of lung cancer and duration of surgical procedure did not influence serum concentration of selectins. However, the significant decrease of sL selectin concentration on the first postoperative day and sE selectin concentration on the seventh postoperative day were observed, in comparison with preoperative values. There was no significant difference in concentration of selectins between patients with pathological stage I and II lung cancer.

**Conclusions:** Pulmonary resection due to lung cancer results in significant activation of the immune system, as measured by decrease of soluble selectins L (on day 1 after surgery) and E (on day 7 after surgery), but not selectin P. Low molecular weight heparin may alleviate the immune response caused by surgical injury as well as decrease the risk of thromboembolic complications and cancer progression.

## Cardiovascular, Thoracic.1 P134

### Studies on the effect of Centrophoxine in ischemia-reperfusion rat heart model

Takacs Ildiko E<sup>1</sup>, Matyas Lili<sup>2</sup>, Nagy Katalin<sup>3</sup>, Peto Katalin<sup>4</sup>, Istvan Bak Edit Varga<sup>5</sup>, Miko Iren<sup>6</sup>

<sup>1</sup>Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary, <sup>2</sup>Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, <sup>3</sup>Gerontological Research Group of Third Department of Internal Medicine, Medical and Health Science Center, University of Debrecen, <sup>4</sup>Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen, <sup>5</sup>Department of Pharmacology, Medical and Health Science Center, University of Debrecen, <sup>6</sup>Department of Operative Techniques and Surgical Research, Institute of Surgery, Medical and Health Science Center, University of Debrecen (takasei@med.unideb.hu)

**Aim:** Studying the effect of Centrophoxine (CPH) on the heart injury caused by Reactive Oxygen Species (ROS) during ischemia-reperfusion (I/R).

**Methods:** Based on our earlier experiments we have chosen an ischemia-reperfusion rat heart model according to Langendorff, where the 15-minute global ischemia was followed by 30 minutes of reperfusion. We have observed the functional changes as incidence of the ventricular fibrillation (VF) and/or tachyarrhythmia (A) and the alterations of contractile parameters during reperfusion and determined the protein carbonyl content of the myocardium as the indicator of the protein oxidation caused by ROS released after I/R. For the comparative study of the treated and control groups, the rats CPH pre-treatment were carried out for 4 weeks with 100 mg/kg p.o., the control received the solvent (n=15/group).

**Results:** In the beginning of the reperfusion in 70% of the hearts VF and/or A occurred in which lasted till the 5–7th minutes, the contractile parameters showed the most radical changes in the same period in the control hearts. In the first minutes of the reperfusion the amount of the carbonyl content is significantly increased with nearly 30% after I/R. We investigated the effect of the CPH pre-treatment the most dominant changes in the functional and biochemical parameters. The incidence of the heart VF and/or A was decreased with 42,8%, the rise of the amount of the oxidised proteins and thus the degree of the protein damage has been significantly reduced (19,8%) by CPH pre-treatment.

**Conclusions:** We can find out that in the Langendorff-rat heart model, among other factors, the release of ROS play an important role in the I/R caused damage. Centrophoxine, the free radicals scavenger drug, it is well known to be a neuroenergetic substance in medicine, also protects the heart from the oxidative injury during I/R.

## Gastrointestinal.1 P135

### Prevalence and risk factors evaluation of eventration

Tchórzewski Marcin<sup>1</sup>, Twardy Iwona<sup>2</sup>, Dziki Adam<sup>3</sup>

<sup>1</sup>Department of General and Colorectal Surgery, Medical University of Łódź, Poland, <sup>2</sup>Medical University of Łódź, Poland, <sup>3</sup>Department of General and Colorectal Surgery, Medical University of Łódź, Poland (marcint@infocentrum.com)

Post laparotomy wound dehiscence – eventration is a serious surgical complication of abdominal surgery. Despite the advances in surgical technique, suture quality and ever improving intra and postoperative antibiotic therapy, eventration complicates 0,2% to 7% (mean 2%) laparotomies. Wound dehiscence results in additional surgery and extended hospitalization, it also increases mortality and morbidity rates and thus escalates the costs of treatment. The aim of the study was evaluation of prevalence and risk factors of eventrations in a group of patients who underwent serious abdominal procedures mainly colorectal cancer.

**Materials and methods:** retrospective analysis of 54 eventration cases which complicated 1249 laparotomies performed in the Department of General and Colorectal Surgery of Medical University of Łódź between 2005-2007 was done.

**Results:** Wound dehiscence was observed in 4.5% of all laparotomies. In 12.5% it was early and in 87.5% late dehiscence. In 9% of cases eventration occurred more than once. Males stated for 71.8% of analyzed group; 80.7% were patients with neoplastic disease, 16.1% with inflammatory bowel disease and the rest 3.2% with other causes like acute pancreatitis. All patients had tension-free sutures in addition to standard wound closure. In 44% of colon cancer patients with wound dehiscence the tumor was localized in the rectum. In 40% of cases patient had more than one laparotomy. Mortality rates were 25% and mean hospital stay 27.6 days. Abscess, infected fluid or intestinal contents were found at first laparotomy in the abdominal cavity of 37% patients who developed eventration. Most patients had reduced levels of serum protein and albumin.

**Conclusions:** High rates of eventrations correlate with colon surgery in cancer patients. Rectal cancer, consecutive surgery, male gender, infected contents in peritoneal cavity and reduced levels of proteins and albumins are risk factors of eventration.

## Transplantation, Organ preservation.1 P136

### Ion disorders and graft function in kidney transplantation

Tejchman Karol<sup>1</sup>, Domański Leszek<sup>2</sup>, Sulikowski Tadeusz<sup>3</sup>, Ostrowski Marek<sup>4</sup>

<sup>1</sup>Department Of General Surgery And Transplantation, Szczecin, Poland, <sup>2</sup>Department Of Nephrology, Transplantation And Internal Medicine, <sup>3</sup>Department Of General Surgery And Transplantation, <sup>4</sup>Department Of General Surgery And Transplantation (karols20@med.pam.szczecin.pl)

The study's purpose was analysis of dynamics of ions' concentration alterations during 30 minutes of reperfusion and graft early function in patients after kidney transplantation. The examined group consisted of 51 recipients: 22 men, 29 women in average age 48.91±13.16 years. The blood sample for gas analysis was taken 9 times from group of 15 examined patients during operation using catheter placed in arteriovenous fistula 0, 1, 3, 5, 10, 15, 20, 25, 30 minutes after unclamping renal vessels. Blood samples were analyzed using Corning 278 apparatus, measuring inter alia serum concentrations of Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>2+</sup> (also with pH correction). The evaluation of temporary acid-base balance state was made on the basis of common parameters: pH, pCO<sub>2</sub>, [HCO<sub>3</sub><sup>-</sup>], BE. Examined patients were in general anesthesia with stable external conditions (O<sub>2</sub> saturation, heart rate, blood pressure, temperature), also with constant tidal volume and rate. Additionally hematocrite, oxygen saturation and hemoglobine concentration were also taken into consideration. Evaluation of graft function was based on amount and start of urine output as well as serum concentrations of creatinine, urea, uric acid and ions (Na, K). The analysis showed increasing parameters of metabolic acidosis with compensatory serum pCO<sub>2</sub> growth. There was insignificant decrease of [Na<sup>+</sup>] and [Ca<sup>2+</sup>] in the first minute of reperfusion, but statistically significant increase of [K<sup>+</sup>], corresponding with hematocrite in first 3 minutes. Maximal values of [Na<sup>+</sup>] and [Ca<sup>2+</sup>] were observed in 5th minute, during decreasing [K<sup>+</sup>] with minimum in 10th minute. Decrease of [Na<sup>+</sup>] and [Ca<sup>2+</sup>] had similar dynamics, but it was different to corresponding alterations of hematocrite, which proves it was not simply an effect of intraoperative fluid refill. Examination of graft condition and its function showed that dynamics of perioperative acid-base disorders may play a role of delayed graft function risk factor.

## Hepatobiliary.2 P137

### Giant hepatic hemangioma; treated with enucleation after selective portal ven

Tekin Ahmet<sup>1</sup>, Sahin Mustafa<sup>2</sup>, Küçükartallar Tefik<sup>3</sup>, Cakir Murat<sup>4</sup>, Yıldırım Erkan<sup>5</sup>, Esen Hasan<sup>6</sup>

<sup>1</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>2</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>3</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>4</sup>Selcuk University, Meram Medical Faculty, Department of General Surgery, Konya, Turkey, <sup>5</sup>Baskent University, Konya Hospital, Department of Radiology, Konya, Turkey, <sup>6</sup>Selcuk University, Meram Medical Faculty, Department of Anesthesiology, Konya, Turkey (sabinmu@hotmail.com)

Hemangioma is the most common benign tumor of the liver and it is often asymptomatic. It occurs in all age but predominantly in women. They often do not need to be removed or treated. Conservative treatment of the liver hemangioma is preferred because of the minimal risk of complications. However, they may be large, produce a mass effect and severe complications. Surgical resection provides the only consistently effective method of treatment and is indicated for symptomatic lesions, rapidly enlarging masses, rupture, profound thrombocytopenia and an uncertain diagnosis. In our report, we presented a symptomatic giant hemangioma which has been evaluated as inoperable at other centers because of its volume. We treated the patient with enucleation after making the case operable by reducing the size with selective portal vein embolisation.

## Orthopedic P138

### Recall of last vaccination date in adult patients receiving a tetanus booster in the emergency department

Thompson Simon<sup>1</sup>, Ryan Audrey<sup>2</sup>, Weise Martin<sup>3</sup>

<sup>1</sup>St Marys Hospital, Paddington, UK, <sup>2</sup>St Mary's Hospital, Paddington, <sup>3</sup>St Mary's Hospital, Paddington (s.m.thompson@ic.ac.uk)

**Introduction:** Maintenance of effective immunity against tetanus requires regular injections with vaccine. Patients who attend the emergency department (ED) with injuries susceptible to tetanus are therefore routinely asked if their boosters are up to date and given the vaccine if they are not. The majority of which may require Orthopaedic referral. Those with poor recall also require the injection, as access to written confirmation of their vaccination record is usually not available in the ED. Many of those patients may well be up to date and therefore do not actually need the vaccine. We therefore wanted to know how many patients receive boosters because of poor recall.

**Methods:** For 100 consecutive adult patients requiring a tetanus booster injection, our emergency nurse practitioners recorded whether they did so because they remembered that their boosters were not up to date or because of poor recall.

**Results:** 57 patients received the booster because they were not up to date and 43 because of poor recall.

**Discussion:** Do you remember YOUR last tetanus vaccination? Almost half of the patients in our series were given the injection because they did not. Like other injections, tetanus boosters are painful, have potential side effects and take up valuable nursing time. To ensure that only those receive the vaccine who really need it, a system that allows ready access to vaccination records should be developed.

## Orthopedic P139

### The effect of volar tilt on functional outcome of the wrist in distal radius fracture

Thompson Simon<sup>1</sup>, Francis Randhir<sup>2</sup>, Baco Abdul<sup>3</sup>

<sup>1</sup>St Marys Hospital, Paddington, UK, <sup>2</sup>St Mary's Hospital, Paddington, <sup>3</sup>St Mary's Hospital, Paddington (s.m.thompson@ic.ac.uk)

**Introduction:** Treatment and outcome of distal radius fractures are variable. We measured the effect of volar tilt on functional outcome. Methodology We studied 132 patients, age range 45–85, with distal radius fractures. According to Frykman's Classification 24.2% were Type I, 22% Type II, 10.6% Type III, 4% Type IV, 3% Type V, 5% Type VI, 8% Type VII, and 22.7% Type VIII. The mean follow up was 16 months. Patients were treated with standard methods, depending on fracture classification. AP and lateral radiographs monitored progression. We formed 3 groups: Group 1 neutral or positive volar angle; Group 2 dorsal angulation between –1 and –15 degree; Group 3 –16 degree or more. Grip strength (hydraulic hand dynamometer), and range of movement were translated into a percentage of function recovered by comparison with the uninjured side. The functional results were graded using the modified clinical scoring system of Green-Bradway into three groups: mild, moderate, or severe. Analysis was performed using SPSS. Results Type of motion Injured side Non-injured side Average wrist flexion

54.92 ± 13.01 57.12 ± 13.24 Average wrist extension 51.66 ± 12.753 53.56 ± 12.95 Average ulnar deviation 25.53 ± 7.1 26.29 ± 6.13 Average radial deviation 19.92 ± 8.67 22.197 ± 7.07 Average pronation 74.34 ± 13.24 78.67 ± 12.98 Average supination 78.45 ± 14.2 81.02 ± 13.34 Average Hand Grip 40.30 ± 11.2 pounds 45.63 ± 13.9 pounds 36% achieved excellent results, 25% good, 27% fair, and 10% poor results. Group 1 achieved the best results. A significant association was shown between functional outcome and volar tilt ( $p < 0.001$ ).

**Discussion:** The failures in maintaining the volar angle in this study were age, poor bone quality, and fracture personality.

**Conclusion:** The results of this study supported the concept of restoration of volar tilt to achieve a good functional outcome.

## Transplantation, Organ preservation\_2 P140

### 31P high resolution NMR spectroscopy of the human hepatic bile secreted after liver transplantation

Toczyłowska Beata<sup>1</sup>, Kacka Agata<sup>2</sup>, Chalimoniuk Małgorzata<sup>3</sup>, Nyckowski Paweł<sup>4</sup>, Giercuskiewicz Dorota<sup>5</sup>, Krawczyk Marek<sup>6</sup>

<sup>1</sup>Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences, Warsaw, Poland; <sup>2</sup>Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Warsaw, Poland; <sup>3</sup>II Department of Anesthesia and Intensive Therapy, Medical University of Warsaw, Poland; <sup>4</sup>Department of Cellular Signaling, Medical Research Centre, PAS, Warsaw, Poland; <sup>5</sup>Department of General, Transplantation and Liver Surgery, Medical University of Warsaw, Poland; <sup>6</sup>II Department of Anesthesia and Intensive Therapy, Medical University of Warsaw, Poland; <sup>6</sup>Department of General, Transplantation and Liver Surgery, Medical University of Warsaw, Poland (beatat@ibb.waw.pl)

We hypothesize that NMR spectroscopy in vitro of human bile may provide information about the status of hepatocytes. It may also be an additional tool in assessment of the graft function following liver transplantation. The bile samples ( $n=9$ ) were obtained from the bile duct at the end of liver transplantation just before completion of homeostasis and surgical closure of the wound. Control samples ( $n=8$ ) were obtained from patients having biliary tract surgery, when revision of bile ducts was necessary. Bile samples (1.5 ml) were frozen at  $-80^{\circ}\text{C}$  until analyzed. Statistical analysis was done for the signal intensity. High resolution  $^{31}\text{P}$  NMR spectroscopy was used for analysis of human hepatic bile obtained from the graft after liver transplantation. Ratio of all phosphate-containing compounds in the native bile were analyzed as well as concentration of one of the compound relative to external standard. Three signals of the native bile were analyzed: phosphoethanolamine (PE), lysophosphatidylcholine (LPtDC), and sum of the phosphatidylcholine (PtdC) and phosphocholine (PC). LPtDC signal was very low in the transplanted liver group and was not possible to do statistical analysis. We also analyzed concentration of PE compared to the external standard ( $\text{H}_3\text{PO}_4$ ), which signal in the  $^{31}\text{P}$  spectrum is extended from the reference signal. Concentration of the PE in transplanted liver group was significantly higher (Mann-Whitney test,  $p < 0.05$ ) than in the control group. Ratio of PE/(PtdC + PC) differed significantly for both groups (Mann-Whitney test,  $p < 0.01$ ). These results indicated that  $^{31}\text{P}$  NMR spectroscopy in vitro could be used for analysis of the graft function and early signs of rejection. Its also may suggest that liver dysfunction is due to PtdC and PE pathways disturbance.

## Oncology P141

### Individual differences of checkpoint effector kinases expression in resectable colorectal neoplasms

Trzcinski Radzislav<sup>1</sup>, Stawińska Magdalena<sup>2</sup>, Cygankiewicz Adam<sup>3</sup>, Mik Michał<sup>4</sup>, Dziński Adam<sup>5</sup>, Krajewska Wanda<sup>6</sup>

<sup>1</sup>Department of General and Colorectal Surgery, Medical University of Lodz, Poland; <sup>2</sup>Department of Cytochemistry, University of Lodz; <sup>3</sup>Department of Cytochemistry, University of Lodz; <sup>4</sup>Department of General and Colorectal Surgery, Medical University of Lodz; <sup>5</sup>Department of General and Colorectal Surgery, Medical University of Lodz; <sup>6</sup>Department of Cytochemistry, University of Lodz (trzcinski.radek@poczta.onet.pl)

After DNA damage specific mechanisms that prevent cell cycle progression are activated in mammalian cells. Checkpoint kinases 1 and 2 (Chk1 and Chk2) are proposed to be key mediators in the network of genome surveillance pathways of cell response to genotoxic stress. Defects in Chk1 and Chk2 kinases are suggested to contribute to the development of hereditary and sporadic cancers. Both proteins are serine/threonine kinases activated by ATM (Ataxia Telangiectasia Mutated) and ATR (Ataxia Telangiectasia Related) in the presence of DNA double strand breaks. Alterations in the expression of Chk1 and Chk2 and their phosphorylated forms in colorectal cancer and their potential significance for colon tumorigenesis were studied. Fresh-frozen samples of 19 colorectal carcinoma, of which 7 were in stage A, 5 in stage B and 5 in stage C (according to Dukes scale) and 2 hyperplastic tissues, were analysed. Each sample was accompanied with section of normal colonic mucosa at the proximal resection margins. The expression of studied proteins in inactive (non-phosphorylated) and active (phosphorylated) forms was analyzed by Western blot and ELISA tests in presence commercially available antibodies (Santa Cruz Biotechnology, Cell Signaling Technology) that recognize non-phosphorylated and phosphorylated Chk1 and Chk2. Level of protein expression in Western blot technique was estimated by Integrated Optical Density-IOD (Gel-Pro Analyzer; Media Cybernetics) and in ELISA test by absorbance measurement at 490nm (Microplate Reader; BIO-RAD).

**Conclusions:** 1. Relative amounts of phosphorylated Chk1 and Chk2 decrease in approx. 50% of studied colon cancer samples; however, in some cases (25–30%) the relative amount of activated form of both kinases was found to elevate. 2. Reduced expression of Chk2 and activated Chk2 (pChk2) may be an important inactivating mechanism contributing to the development of colon neoplasm. 3. The amount of pChk2 protein increases in correlation with cancer progression into lymph nodes.

## Gastrointestinal\_3 P142

### Monitoring the depth of anesthesia with auditory evoked potentials during bariatric

Trzebiecki Janusz<sup>1</sup>, Lisik Wojciech<sup>2</sup>, Wierzbicki Zbigniew<sup>3</sup>, Mayzner-Zawadzka Ewa<sup>4</sup>, Chmura Andrzej<sup>5</sup>

<sup>1</sup>Department of Anesthesiology and Intensive Care, The Medical University of Warsaw, Poland; <sup>2</sup>Department of General Surgery and Transplantation, The Medical University of Warsaw, Poland; <sup>3</sup>Department of General Surgery and Transplantation, The Medical University of Warsaw, Poland; <sup>4</sup>Department of Anesthesiology and Intensive Care, The Medical University of Warsaw, Poland; <sup>5</sup>Department of General Surgery and Transplantation, The Medical University of Warsaw, Poland (wojciech.lisik@um.edu.pl)

One of the latest continues consciousness state monitoring methods during general anaesthesia is auditory evoked potentials (AEP) registration in the AAI (A-line Arx Index) scale. The MEDLINE database was searched electronically for articles for the period of 1980 through January 2008 and we did not find any rapport of AEP usage during bariatric surgery procedures.

**Patients and methods:** Our group enclosed 15 patients (27–54 years, BMI  $49 \pm 6$  kg/m<sup>2</sup>) prepared for bariatric surgery. The consciousness level measurement with AEP (AEP monitor/2 version 1.61, Danmeter A/S, Denmark). Sedation was performed with propofol TCI (Target Controlled Infusion) 3–6 mcg/ml and analgesia with fentanyl. Servin's weight correction formula was adopted for propofol dosage maintenance. We evaluated: consciousness level – AAI scale, influence of muscular tone and surgical electrocoagulation on AAI, time to extubation and TCI value during extubation. Results Level of AAI correlated with clinical depth of sedation and enabled to maintain proper dosage of propofol. The interdependence between AAI elevation and muscular strength return or surgical electrocoagulation during abdominal wall dissection were stated. In all patients the consciousness return based on AAI was adequate to clinical status and TCI value. The mean value of propofol effect site concentration during extubation was  $2, 08 \pm 0, 36$  mcg/ml. The mean time to extubation were  $12, 69 \pm 4, 39$  min.

**Conclusions:** The depth of anaesthesia monitoring during bariatric surgery enables to adopt TCI propofol dosage. The muscular action and surgical electrocoagulation create changes in AAI reading. The adequate AAI level secures the intraoperative amnesia.



## Gastrointestinal\_1 P143

**The effect of octreotide on intraperitoneal adhesion formation**

Uzunkoy Ali

*Harran University School of Medicine, Turkey (aliuzunkoy@yahoo.com)*

**Aim:** Intraperitoneal adhesions is one of the problems of abdominal surgery. It was aimed in this study to investigate the effect of octreotide on intrabdominal adhesion formation in rats with intestinal anastomosis

**Methods:** Forty Wistar-Albino rats were randomly assigned of five groups. Laparotomy, ileal resection and anastomosis were performed in all rats. No medication was given in first group as control group. Isotonic saline solution was intraperitoneally given in second group and octreotide was intraperitoneally given in third group. Octreotide was subcutaneously given in fourth group. Fourteen days later after first operation, relaparotomy was performed and the number of intraperitoneal adhesion bands and the strength and the extent of fibrous bands were evaluated.

**Results:** The total scores for intraperitoneal adhesion bands were significantly reduced in the rats given octreotide intraperitoneally and subcutaneously when compared the rats in other groups ( $p < 0.05$ ).

**Conclusion:** Octreotide given intraperitoneally or subcutaneously has beneficial effect in reducing postoperative intraperitoneal adhesions. The underlying mechanism may be the effects of octreotide on fibrinolysis or adhesion formation mediators

## Gastrointestinal\_2 P144

**Can pre-operative 'Enhanced Recovery' information alter patients' recovery rate expectations and improve outcomes following colorectal surgery? A Randomised Controlled Trial**Walter Catherine<sup>1</sup>, Joseph Biju<sup>2</sup>, MacFie John<sup>3</sup>, Drew Philip<sup>4</sup>, Monson John<sup>5</sup>

<sup>1</sup>Academic Surgical Unit, Castle Hill Hospital, Hull, UK, <sup>2</sup>Academic Surgical Unit, Castle Hill Hospital, Hull, UK, <sup>3</sup>Scarborough Hospital, UK, <sup>4</sup>Academic Surgical Unit, Castle Hill Hospital, Hull, UK, <sup>5</sup>Academic Surgical Unit, Castle Hill Hospital, Hull, UK (cwalter@nhs.net)

**Background:** The aim of this study was to assess whether pre-operative 'Enhanced Recovery' Information Leaflets (EILs) altered patients' predicted and actual recovery rates following colorectal surgery.

**Methods:** Adults undergoing elective colorectal procedures at 2 UK centres were randomised to receive 1 of 2 pre-operative information packs: either the Standard Information Leaflet (SIL) alone (control); or a detailed EIL (outlining Enhanced Recovery philosophies and recovery rates) and SIL together (intervention). Patients' predicted post-operative recovery rates were recorded by questionnaires before and after administration of these leaflets. Patients were analysed in three groups: the positive responders – who gave decreased recovery rate predictions after post-information; the static group – unchanged predictions; and the negative responders – recovery rate predictions increased post-information, using SPSSv14.0.

**Results:** Fifty-one of the Sixty-four patients entered into the trial completed the questionnaires. There was no difference between the control and intervention groups proportions of negative, static or positive responders with 24% : 40% : 36% and 27% : 15% : 26% ( $p = 0.12$ ) respectively. Nor were there any differences in the groups length of stays (LOS), with a mean 11 days (SD 5.05) for the control group and a mean 10 days (SD 3.4) for the intervention group (Mann-Whitney U Test  $p = 0.852$ ). Within the control group alone, no difference was seen in the proportions of men and women acting as positive and negative responders ( $p = 0.62$ ). In the intervention group the negative : positive responder ratio for females was 63% : 37% compared to 14% : 86% for men ( $p = 0.05$ ). Actual LOSs in positive responders were significantly shorter than in negative responders with a median of 9 days (mean 10, SD3) and 12 days (mean 13, SD6) respectively

**Conclusions:** Male patients receiving EILs are significantly more likely to be positive responders than the female patients, or patients not receiving the EIL; and positive responders demonstrate reduced LOSs when compared to the negative responders.

## Gastrointestinal\_1 P145

**Does Enhanced Recovery Lead to Enhanced Anxiety After Colorectal Surgery? A Controlled Clinical Trial**Walter Catherine<sup>1</sup>, Joseph Biju<sup>2</sup>, MacFie John<sup>3</sup>, Drew Philip<sup>4</sup>, Monson John<sup>5</sup>

<sup>1</sup>The Academic Surgical Unit, Castle Hill Hospital, Hull, UK, <sup>2</sup>The Academic Surgical Unit, Castle Hill Hospital, Hull, UK, <sup>3</sup>Scarborough Hospital, UK, <sup>4</sup>The Academic Surgical Unit, Castle Hill Hospital, Hull, UK, <sup>5</sup>The Academic Surgical Unit, Castle Hill Hospital, Hull, UK (cwalter@nhs.net)

**Aims:** The aim of this study was to assess if management within Enhanced Recovery Programmes (ERP) alters patients' perioperative anxiety levels after elective colorectal surgery.

**Methods:** Sixty-four consecutive, consenting, adult patients attending pre-assessment clinics for colorectal procedures at 2 centres were assigned to either standard surgical care (Control) or an ERP (Intervention), according to institution of admission. Twelve core elements of the ERPs management were identified and their application to each patients' care recorded. The Hospital Anxiety and Depression Scale (HADS) was used to assess anxiety at recruitment, admission, discharge and 6 week follow-up. SPSSv14.0 was used to compare differences in baseline variables between patients and the clinical management elements and anxiety scores (calculated as ratios of normal scores to high scores) between the control and intervention centres.

**Results:** Forty-eight patients (75%) completed the study. There were no differences in patients' baseline variables between the 2 groups. The ERP centre applied a mean of 7 (SD 2) enhanced recovery care elements (of a maximum 12 audited) to patient care, compared to 4.5 (SD 2) for the control centre ( $p < 0.001$ ). HADS (normal : high) anxiety level ratios at recruitment (24 : 11 & 10 : 14  $p = 0.074$ ), admission (18 : 16 and 11 : 12,  $p = 0.913$ ) and 6 week follow-up (24 : 5 and 11 : 9,  $p = 0.073$ ), were similar between the control and ERP groups respectively. HADS anxiety at discharge was greater in the ERP patients (10 : 9) compared to the control (25 : 4)  $p = 0.026$ . Lengths of stays were similar in both the control and ERP groups, with medians of 9.5 days (mean 10.5; SD 4.5 and 4 respectively).

**Conclusion:** Our results suggest colorectal patients treated within an ERP may have a greater number of patients with high anxiety levels at discharge. A good-quality randomised controlled trial would help investigate this further.

## Transplantation, Organ preservation\_1 P146

**The risk of HBV transmission in liver transplantation from anti-HBcore antibodies praesented donors**Wasiak Dariusz<sup>1</sup>, Kosieradzki Maciej<sup>2</sup>, Czerwiński Jarosław<sup>3</sup>, Pacholczyk Marek<sup>4</sup>, Małkowski Piotr<sup>5</sup>, Chmura Andrzej<sup>6</sup>

<sup>1</sup>Dept. of Surgical & Transplantation Nursing Medical University of Warsaw,

<sup>2</sup>Dept. of General Surgery & Transplantology Medical University of Warsaw, <sup>3</sup>Dept. of Surgical & Transplantation Nursing Medical University of Warsaw, <sup>4</sup>Dept. of General Surgery & Transplantology Medical University of Warsaw, <sup>5</sup>Dept. of Surgical & Transplantation Nursing Medical University of Warsaw, <sup>6</sup>Dept. of General Surgery & Transplantology Medical University of Warsaw (wasiakdar@poczta.onet.pl)

**Patients and methods:** From 2000 till now 200 liver transplantations have been performed. Assessment of donor anti-HBcore antibodies has been implemented since 2003 but non-routinely, and finally has been done in 80 out of 152 (52.6%) of all liver donors, including 49 livers retrieved until 2003. Only in 3 harvested and transplanted livers HBc Ab was positive, in 77 it was negative, in the rest 121 donors tests have not been performed at all. Two recipients of HBc positive liver graft were anti-HBcore negative and one was anti-HB core positive. During qualification to transplantation all recipients had prophylactic anti-HBV vaccination. In all cases after transplantation lamivudine treatment was administered, as well as three drugs immunosuppression therapy, and additionally anti-HBs globulin if necessary. Recipients of anti-HBc positive livers had HBV PCR test 2 months post-transplant.

**Results:** All three recipients of anti-HBc(+) liver turned HBV PCR positive 2 months after transplantation. Seven months later, HBc(+) recipient showed no further HBV replication, tested with PCR, while 2 HBc(–) recipients who

received HBc(+) graft continued to have HBV viremia. Liver function in all of them is still satisfactory. Ninety-two HBV-negative recipients received a transplants from 121 HBc-non-tested donors. Two of those developed de novo HBV-hepatitis (2,2%).

**Conclusion:** The risk of HBV transmission from the HbsAg-negative donor non-tested for anti-HBc in Poland is approximately 2,2%. The risk of HBV active viremia in the HBc(−) recipients who received liver from HBc(+) is much higher than in HBc(+) recipients. Further studies to show if transplantation from HBc(+) donor to HBc(+) recipient is safe are needed.

## Gastrointestinal\_2 P147

### Preoperative evaluation of esophageal cancer by fluorodeoxyglucose positron emission tomography

Watanabe Go<sup>1</sup>, Itami Atsushi<sup>2</sup>, Tanaka Eiji<sup>3</sup>, Nomura Akinari<sup>4</sup>, Okabe Hiroshi<sup>5</sup>, Sakai Yoshiharu<sup>6</sup>

<sup>1</sup>Department of Surgery, Kyoto University, Kyoto, Japan, <sup>2</sup>Department of Surgery, Kyoto University, <sup>3</sup>Department of Surgery, Kyoto University, <sup>4</sup>Department of Surgery, Kyoto University, <sup>5</sup>Department of Surgery, Kyoto University, <sup>6</sup>Department of Surgery, Kyoto University (gowata@kuhp.kyoto-u.ac.jp)

**Background:** Esophageal cancer has a poor prognosis because of extensive spread to lymph nodes, even in early disease. A correct preoperative diagnosis is thus essential for deciding the treatment of choice. The development of [18F]fluorodeoxyglucose positron emission tomography (FDG-PET) has improved the detection of systemic spread, such as distant hematogenous and lymphatic metastases, in various malignant diseases. We assessed the value of FDG-PET for preoperative diagnosis in patients with esophageal cancer.

**Methods:** Fifty-nine patients with esophageal cancer who underwent esophagectomy without any preoperative therapy were studied retrospectively. The diagnosis of esophageal cancer was confirmed histopathologically on biopsy. Multidetector computer tomography (MDCT) was performed in all patients for staging, and FDG-PET was done in 58. Lymph node metastasis on CT was diagnosed on the basis of the minor axis of lymph nodes on 7-mm slices, according to widely used Japanese criteria: a minor axis of more 5 mm was classified as N1 metastasis, and a minor axis of more 7 mm was classified as N2, N3, and N4 metastasis.

**Results:** The sensitivity of FDG-PET for the diagnosis of lymph node metastasis was 50% in the neck, 30% in the upper mediastinum, 0% in the lower mediastinum, and 36% in the abdomen. The specificity of FDG-PET was 100%, 100%, 88%, and 100%, respectively. As compared with MDCT, FDG-PET was less sensitive and more specific for the preoperative diagnosis of esophageal cancer. When lymph node metastasis was detected on FDG-PET, the mean number of lymph nodes with pathologically confirmed metastasis was 3.7, which was significantly higher than of the mean number of metastatic lymph nodes when no metastasis was detected on FDG-PET (0.9). Evidence of lymph node metastasis on FDG-PET was associated with significantly more extensive spread of metastases on pathological analysis. Lymph node metastasis on FDG-PET did not significantly correlate with the 5-year survival rate.

**Conclusions:** FDG-PET did not contribute to preoperative diagnostic accuracy in this small study of patients with esophageal cancer. However, the detection of lymph node metastasis on FDG-PET correlated with the amount and spread of lymph node metastases as confirmed by pathological analysis. Studies of larger numbers of patients might show that the detection of lymph node metastasis on FDG-PET is one predictor of survival.

## Education P148

### Consultant general surgeons' opinions of anatomy in surgical training

White Richard D<sup>1</sup>, Edmonds Katy M<sup>2</sup>, Fraser Rachael A<sup>3</sup>, Kachroo Naveen<sup>4</sup>

<sup>1</sup>Department of Anatomy and Clinical Skills, University of Newcastle-Upon-Tyne Medical School, UK, <sup>2</sup>Department of Anatomy and Clinical Skills, University of Newcastle-Upon-Tyne Medical School, UK, <sup>3</sup>Department of Anatomy and Clinical Skills, University of Newcastle-Upon-Tyne Medical School, UK, <sup>4</sup>Department of Anatomy and Clinical Skills, University of Newcastle-Upon-Tyne Medical School, UK (katyedmonds@google.com)

**Introduction:** In the past few years, changes have been made to undergraduate medical curricula and post-graduate surgical training, with further modifications anticipated. This study was formulated following a decision to remove anatomy demonstrating posts from surgical rotations in our deanery. We investigated the perceptions of general surgeons towards the anatomy knowledge of surgical trainees, and what alterations could be made with respect to anatomy in surgical training as a result.

**Methods:** An online questionnaire link was e-mailed to all consultant general surgeons in the deanery. The questions focussed on the attitudes of the consultants towards anatomy demonstrator posts, anatomy teaching at medical school, the anatomy knowledge of surgical trainees and anatomy in post-graduate surgical examinations.

**Results:** Of the 46 respondents: \* 80% said anatomy was extremely important to clinical practice \* 91% stated that there should be more emphasis on teaching anatomy at medical school \* 91% felt surgical trainees possess insufficient anatomy knowledge \* 65% said the MRCS examinations test an insufficient level of anatomy knowledge \* 63% stated that in the long-term, four months spent demonstrating anatomy is preferable to four months in a clinical surgical speciality

**Conclusions:** It is widely accepted that a good knowledge of anatomy is essential in the work of general surgeons. However, changes to undergraduate medical curricula and post-graduate surgical training mean that the anatomy knowledge of surgical trainees is both suboptimal and inadequately tested by the MRCS examinations. Consultant general surgeons recognise the importance of anatomy demonstrator posts in surgical training and favour their inclusion in future rotations. Results were fed back to both the medical school and the deanery, with the outcome that anatomy demonstrating remains an option for doctors wishing to pursue a career in surgery.

## Gastrointestinal\_3 P149

### Changes in the quality of life early after bariatric surgery

Wierzbicki Zbigniew<sup>1</sup>, Lisik Wojciech<sup>2</sup>, Krawczyk Agnieszka<sup>3</sup>, Trzebiecki Janusz<sup>4</sup>, Dziurawicz-Kozłowska Agnieszka<sup>5</sup>, Chmura Andrzej<sup>6</sup>

<sup>1</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>2</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>3</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland, <sup>4</sup>Department of Urology, The Medical University of Warsaw, Poland, <sup>5</sup>Department of Medical Psychology, The Medical University of Warsaw, Poland, <sup>6</sup>Department of General Surgery and Transplantology, The Medical University of Warsaw, Poland (wojciech.lisik@am.edu.pl)

**The aim:** The subjective evaluation of the changes in the health-related quality of life (HRQL) of patients underwent RYGB and VBG procedures early after surgery.

**Patients and methods:** Between 2001–2007 160 patients developed bariatric surgery (122 women, 38 men; 96–VBGs; 64 – RYGBs). Average weight–143 kg, BMI= 48,7 kg/m<sup>2</sup>, and body fat – 51,3%. All patients were instructed about the necessary improvements in their behavior and diet in the postoperative period and continued during the post op follow up: 2 weeks, 1,3,6 months after surgery.

**Results:** 98% of patients considered, that bariatric procedure improved their health, 92% admitted that complies with the dietary suggestions and has healthy lifestyle with adequate exercise. 85% of patients was satisfied with the outcome of the operation. The most bothersome problems 6 months postoperatively were: feeling cold in 80% of, increased hair loss in 70%, nail brittleness in 56% of patients. There were also changes in the nutritional habit such as repugnance to meat in 73%, more willingness consume dairy and fish products. In the assessed group there were no statistically significant differences between the sexes and between the groups with VBG and RYGB procedures.

**Conclusions:** As a result of a continuing education most patients improved their lifestyle and changed their nutritional habits. Their self-assessment

regarding their appearance and coping with the everyday life improved substantially. Some of their problems that arose during the early postoperative period did not influence substantially their overall assessment of the results of the procedure.

## Gastrointestinal\_1 P150

### Sex differences in rheological properties among morbidly obese patients

Wiewióra Maciej<sup>1</sup>, Wyleżoł Mariusz<sup>2</sup>, Słowińska Ludmiła<sup>3</sup>, Sosada Krystyn<sup>4</sup>, Piecuch Jerzy<sup>5</sup>, Żurawiński Wojciech<sup>6</sup>

<sup>1</sup>Department of General and Bariatric Surgery and Emergency Medicine in Zabrze, Medical University of Silesia, Katowice, Poland, <sup>2</sup>Department of General and Bariatric Surgery and Emergency Medicine in Zabrze, Medical University of Silesia, Katowice, Poland, <sup>3</sup>Chair and Department of Biophysics in Zabrze, Medical University of Silesia, Katowice, Poland, <sup>4</sup>Department of General and Bariatric Surgery and Emergency Medicine in Zabrze, Medical University of Silesia, Katowice, Poland, <sup>5</sup>Department of General and Bariatric Surgery and Emergency Medicine in Zabrze, Medical University of Silesia, Katowice, Poland, <sup>6</sup>Department of General and Bariatric Surgery and Emergency Medicine in Zabrze, Medical University of Silesia, Katowice, Poland (m-wiewiora@ilen.pl)

**Background:** The RBC rheological properties play an important role in determining blood flow resistance in microcirculation, because they are one of the important determining influences on blood viscosity and are known to be altered in obese patients. Because there are usually sex differences in type of obesity we decided to evaluate rheological properties among male and female patients qualified for surgical treatment of obesity.

**Methods:** We studied 38 morbidly obese patients (21 females and 17 men) who were qualified for bariatric surgery in our Department. Median age and body mass index (BMI) were among women 43 years (range 19–58) and 47.2 (range 35–66) and among men 46 years (range 24–66) and 51.6 (range 37.6–61.5). The RBC deformability at different shear stresses and aggregation parameters: aggregation index (AI), syllectogram amplitude (AMP) and aggregation half-time (t1/2) were measured by Laser-assisted Optical Rotational Cell Analyser–LORCA. Blood and plasma viscosity measurements were measured by a cone-plate viscometer (Brookfield DV-II).

**Results:** Whole blood viscosity was significantly higher in obese men in shear rates of 150s<sup>-1</sup>, 300s<sup>-1</sup> and 450s<sup>-1</sup> (median: 4.78 mPas *versus* 4.26 mPas, p=0.002; 4.66 mPas *versus* 4.02 mPas, p=0.005; 4.42 mPas *versus* 3.83 mPas, p=0.003). The hematocrit was higher in men group (p=0.027). No differences among obese women and men in age, BMI, plasma viscosity and fibrinogen concentration (2.99g/l *versus* 3.27g/l; p=0.059) were observed. Elongation index of RBC was significantly lower in women than in men in 0.54, 0.97, 1.75, 3.16 and 5.69 Pa shear stresses (median: 0.082 *versus* 0.094, p=0.008;

0.159 *versus* 0.171, p=0.032; 0.234 *versus* 0.266, p=0.024; 0.314 *versus* 0.343, p=0.021; 0.411 *versus* 0.445, p=0.041). We did not observe differences in aggregation parameters.

**Conclusion:** This study showed sex differences in some hemorheological parameters expressed by increase blood viscosity in obese men and decrease RBC deformability in obese women.

## Gastrointestinal\_2 P151

### Studies of CD4 lymphocytes and NK cells in course of experimental colitis in rats

Ziemniak Piotr<sup>1</sup>, Drozda Rafał<sup>2</sup>, Trzcinski Radzisław<sup>3</sup>, Cielecka Justyna<sup>4</sup>, Kołomecki Krzysztof<sup>5</sup>, Dzik Adam<sup>6</sup>

<sup>1</sup>Department of General Surgery, MSWiA Hospital, Łódź, Poland, <sup>2</sup>Department of General Surgery, MSWiA Hospital, Łódź, <sup>3</sup>Department of General and Colorectal Surgery, Medical University of Łódź, <sup>4</sup>Department of General Surgery, MSWiA Hospital, Łódź, <sup>5</sup>Department of General Surgery, MSWiA Hospital, Łódź, <sup>6</sup>Department of General and colorectal Surgery, Medical University of Łódź (trzcinski-radek@poczta.onet.pl)

**Introduction:** Inflammatory bowel disease (IBD) is a disease of unclear aetiology. Besides genetic and environmental factors, it is mediated by disturbances in the immunological system of the body. There are no clear data indicating which of the immunological cells have major influence on the development of inflammatory process in the intestines. Therefore, the authors decided to investigate the role of those cells in aetiopathogenesis of unspecific inflammatory processes.

**Methods:** Concentrations of CD4 and CD8 lymphocytes and NK cells were measured both in blood and lymph nodes in rats, in which colitis was induced according to a surgical IBD model of Wickbom's method. The measured concentrations were compared to intensity of inflammatory process in intestines.

**Results:** Obtained results allow to conclude that both CD4 and CD8 lymphocytes could play a role in induction and development of IBD. The results do not suggest, however, NK cells' participation in aetiopathogenesis of inflammatory bowel disease.

**Conclusions:** Significant differences in the percentage of Th helper lymphocytes (CD4) can suggest a possible role of those cells in aetiopathogenesis of IBD. Statistically significant increase in Tc/Ts cells (CD8) percentage both in peripheral blood and caecum mesentery lymph nodes can suggest a possible role of this lymphocyte population in development of inflammatory bowel disease. Results of mean NK lymphocyte content in peripheral blood and rat caecum mesentery lymph nodes do not support a role of those cells in development of inflammatory bowel disease.



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