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P-CP-78

PARAOXONASE-1 (PON1) ACTIVITY IN SERUM AND VARIOUS ANTICOAGULATED-PLASMA

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Background: Paraoxonase 1 (PON1) is a high density lipoprotein (HDL) associated enzyme that is known for its function to hydrolyze organophosphate (OPs) into a relatively harmless substance and inhibit oxidative modification of low density lipoprotein (LDL). It is among the commonly studied biochemical markers for cardiovascular diseases. PON 1 activity is usually measured in serum (from plain container) while some other relevant cardiovascular parameters require anti-coagulated plasma. Collection of blood in many types of container may increase the cost and require a larger amount of blood to be collected. Apart from plasma in lithium heparin, the reliability of plasma in other anti-coagulated container such as potassium-citrate, potassium- oxalate/sodium-fluoride and CPDA (from blood collection bag) on PON 1 activity have not yet been clearly ascertained. The aim of this study was to compare and to study the correlation between the PON1 activity in serum and in plasma collected in various anti-coagulated containers. **Methods**: An experimental study was carried out on 50 volunteers. Blood samples were collected in plain container and containers with potassium-EDTA, lithium-heparin, potassium-citrate, potassium-oxalate/sodium-fluoride and CPDA. Serum and plasma were analyzed for PON1 activity spectrophotometrically after the hydrolysis of substrates paraoxon. **Results:** The PON1 activity in plasma from lithium-heparin container was slightly reduced but not statistically different (p=0.062) from that of serum (272.95U/LÂ±85.11 vs 288.95Â±91). However, the PON1 activity was significantly reduced (p<0.001) to 224.13Â±74.78 U/L, 211.46Â±64.18 U/L, 184.32Â±60.06 U/L and 48.00Â±45.91 U/L respectively in plasma from potassium-citrate, CPDA, potassium-oxalate/sodium-flouride and potassium-EDTA container. There were significant positive correlations (p<0.001) between PON1 activity in serum with PON1 activity in all anti-coagulated plasma except for plasma in potassium-EDTA container (r=0.27, p=0.06). **Conclusion**: Our finding suggested that only serum and plasma in lithium-heparin container are suitable for the analysis of PON1 activity.

P-CP-79

EVALUATION ON THE I-CHEM VELOCITY DIAGNOSTIC iRICELL 2000 FULLY AUTOMATED URINALYSIS SYSTEM

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Introduction-Urinalysis is a simple routine clinical laboratory test that normally includes a number of parameters of physical and chemical characteristics in urine. Positivity of certain characteristics found in urine may followed by microscopic examination for further investigation. The information provided by the test is useful for various medical condition screening. The Core Laboratory Unit, Hospital Kuala Lumpur opts to turn to the new Iris Diagnostic iRICELL 2000 Fully Automated Urinalysis System that consists of two units of analysers; the Iris iChem Velocity which performs the biochemistry test using dipstick method and iQ 200 Urine Microscopy analyser which provides digital image captures. The objective is to achieve better TAT, efficient testing and accurate result. the evaluation test is executed to see the performance of the new system. **Method**- A total of forty fresh urine sample remainings were collected from the Urology Clinic outpatients. The urine sediments were examined by manual microscopy, Uriscan analyser and Iris Diagnostic iRICELL 2000 Fully Automated Urinalysis System. The protocols of the evaluations are comprised of a correlation study between the Iris iChem Velocity and the Uriscan Semiautomatic Urine Analyser for the urinary biochemistry strip testing; imprecision test using quality control materials; linearity study of the iQ 200 and correlation study for RBC and WBC in urine between Iris iChem Velocity and between iQ 200 Urine Microscopy analyser.**Result**-The concordance within one grade result is determined to be the indicator for acceptance in this evaluation for correlation study in the strip test. Agreement of the semi quantitative analytes concentration within one grade is seen in all parameters. While the the iQ200 shows consistent and precise microscopic readings. **Conclusion**-The automated systems demonstrated good concordance with the Uriscan Semiautomatic Urine Analyser and shows a slightly better sensitivity in analysis.

P-CP-80

INFLAMMATORY STATUS IN PATIENTS WITH LOW HIGH DENSITY LIPOPROTEIN AND CO-MORBIDITIES-MATCHED CONTROLS.

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Introduction:Atherosclerosis has been established to be a chronic inflammatory process. High density lipoprotein (HDL) plays a vital role in the reverse cholesterol transport pathway and has been shown to exert anti-inflammatory effects. Low HDL level is well established to be associated with increased risk of coronary artery disease. **Objectives**:To compare the inflammatory status between subjects with low HDL and normolipaemic controls. **Methods**:Fifty one subjects with low HDL levels and 52 age, gender ethnic, hypertension, diabetes, and smoking status matched normal controls were recruited for this study. Fasting serum samples were collected to analyse for IL-6 and hsCRP levels. Enzyme-linked Immunosorbent Assay (ELISA) was performed to identify the concentration of IL-6, while the concentration of hsCRP was measured by using an automated analyser (Cobas Integra 400, Roche Systems, Germany).**Results:**There was no significant differences in IL-6 (mean ± SEM: 2.82 ± 0.24 pg/ml vs 3.16 ± 0.25 pg/ml, P > 0.05) and hsCRP (mean ± SEM: 4.82 ± 1.15 mg/l vs 2.28 ± 0.45 mg/l, P > 0.05) levels between patients and controls. Furthermore, there was no correlation noted between IL-6 and hsCRP.**Conclusion**:There is insignificant difference in the inflammatory status between subjects with low HDL and hypertension, diabetes and smoking status matched controls. This suggests that the co-morbidities play a role in inflammatory status.

P-CP-81

THEAFLAVINS-RICH FRACTION REDUCES LIPOPOLYSACCHARIDE-INDUCED EXPRESSION OF ADHESION MOLECULES IN VASCULAR ENDOTHELIUM

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Introduction:Atherosclerosis is a chronic inflammatory process during which activated vascular endothelium leads to increased expression of adhesion molecules and subsequent recruitment of monocytes to the endothelium. The effects of theaflavins, major polyphenolic compound in black tea, on the expression of adhesion molecules in activated endothelial cells in atherogenesis are still unclear. Objective:To investigate the cytotoxic effects of theaflavins-rich fraction (TsRF) on human umbilical vein endothelial cells (HUVECs) and TsRF effects on the expression of adhesion molecules (E-selectin, VCAM-1 and ICAM-1) in HUVECs during lipopolysaccharide (LPS)-induced inflammation.Methods:Cytotoxicity was assessed by methyl-thiazol-tetrazolium assay using TsRF (Organics Herbs, China) with concentrations ranging from 1.6 to 200ug/ml which were added to HUVECs (Cascade Biologics, USA). HUVECs were treated with 1µg/ml LPS (Sigma, USA) and TsRF 10,20,30,40 and 50µg/ml and incubated for 16 hours. Protein and RNA expression were determined using ELISA (Bender MedSystem, Austria) and qPCR (BioRad iCycler, USA) respectively. Results:TsRF ≤ 50ug/ml exhibited ≥ 80% cell viability. TsRF 10-50ug/ml reduced E-selectin($p < 0.0001$), VCAM-1($p < 0.0001$) and ICAM-1($p<0.05$) levels in LPS-stimulated HUVECs.Compared to controls, the lowest levels of E-selectin(1194.7 ± 0.2 vs. 1885.6 ± 0.7 pg/ml, $p < 0.0001$) and ICAM-1(1457.5 ± 1.4 vs. 1468.2 ± 1.6, $p<0.05$) were observed at TsRF 50ug/ml, while VCAM-1(1732.9 ± 0.4 vs. 1759.5 ± 4.7 pg/ml, $p < 0.0001$) were shown at TsRF 20ug/ml corresponding to percentage inhibition of 36.6%, 0.73%, and 2.1% respectively. TsRF 10-50ug/ml reduced gene expression of E-selectin ($p < 0.0001$), VCAM-1($p < 0.0001$), ICAM-1($p<0.0001$). TsRF 40ug/ml demonstrated the lowest gene expression of E-selectin, VCAM-1 and ICAM-1 (0.6 ± 0.1 vs. 2.4 ± 0.3 fold, $p < 0.0001$; 0.4 ± 0.2 vs. 2.5 ± 0.1 fold, $p < 0.0001$; 0.2 ± 0.0 vs. 2.3 ± 0.4 fold, $p<0.0001$ respectively).Conclusion:TsRF inhibits expression of adhesion molecules, hence attenuating endothelial activation and inflammation. This suggests the potential benefits of black tea in the preventive and treatment of atherosclerosis.