

Basic Health Sciences

Poster

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Comparison of Ex-Vivo X-Ray changes in different groups of injectable biomaterials (JectOS, MIIG[®]X3, Osteopaste) in critical size defect of Rabbit Tibia Bone

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Introduction: Critical size defect (CSD) is defined as a defect that will not heal without intervention within the lifetime. The gold standard treatment for CSD is bone graft, although with some limitations. Substitute biomaterials were introduced to overcome the limitations. JectOS and MIIG[®] X3 are commercially available biomaterials in the market. Osteopaste is a local product produced by SIRIM. The objective of this study is to compare the radiological changes between Osteopaste, JectOS and MIIG[®] X3 in CSD in rabbit tibia bone. **Methods:** New Zealand White rabbits were divided into four groups: control group (Sham operation, n=3); Osteopaste treatment (n=12); JectOS treatment (n=12) and MIIG[®] X3 treatment (n=12). CSD was created at the right proximal tibia bone of the rabbits in each of the groups and the defects were filled with the biomaterial as assigned. Four animals from each group were sacrificed at 6 weeks, 12 weeks and 24 weeks respectively. The bones were harvested and x-ray imaging performed using SkyScan 1176 at 90kV, 281 μ A, resolution 4000x2672 with Aluminium 1.0mm. **Results:** The radiographic density at the CSD area was more prominent in the JectOS group throughout the 24 weeks. Meanwhile, in the MIIG[®] X3, full resorption occurred at 24 weeks. The Osteopaste group exhibited radiographic density in between that of JectOS and MIIG[®] X3. **Conclusions:** Different types of biomaterial exhibit different radiological changes over the period of bone healing.

KEYWORDS: critical size defect, osteopaste, bone biomaterial