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Acta Medica Iranica

2009;47(4) : 171-176

Evaluation of Three Bone Substitute Materials in the Treatment of Experimentally Induced Defects in Rabbit Calvaria

Available online: October 18,2008

Abstract:

Objective:

The aim of present study was to evaluate the quality, density and thickness of newly formed bone in experimental defects treated with Combi-Pack®, Bio-Oss® and Biostite®.

Materials and Methods:

Eight New Zealand white rabbits were included in this randomized,blinded study. Four equal 3×6 mm bone defects were created on the frontal and parietal bones of each animal and three were immediately grafted with Bio-Oss®, Combi-Pack® and Biostite® while one was left untreated, serving as negative control. Histologic and histomorphometric analysis was performed four weeks after surgery.

Results:

Histomorphometric bone area and trabecular maturity was significantly higher in the Bio-Oss® and Combi-Pack® samples as compared to the Biostite® and control cases.The amount of remaining biomaterial was almost equal in the three experimental groups at the end of the study period. Neither foreign body reaction nor severe inflammation was seen in any of the specimens except for the Biostite® samples.

Conclusion:

It may be suggested that implantation of Bio-Oss® particles and Combi-Pack® blocks can promote bone regeneration more effectively than Biostite

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