A comparative study of the regenerative effect of sinus bone grafting with platelet-rich fibrin-mixed Bio-Oss and commercial fibrin-mixed Bio-Oss: an experimental study.

Authors: Xuan F, Lee CU, Son JS, Jeong SM, Choi BH

Publication Date: 2014

Abstract:

Anorganic bovine bone (Bio-Oss) particles are one of the most popular grafting materials. The particles are often mixed with platelet-rich fibrin (PRF) or a commercial fibrin (Tisseel) to form a mouldable graft material. The objective of this study was to compare the potentials of PRF-mixed Bio-Oss and Tisseel-mixed Bio-Oss to enhance bone regeneration in a canine sinus model. Six mongrel dogs were used in this study. After elevating the sinus membrane in both maxillary sinus cavities, an implant was placed into the sinus cavity. In one of the sinus cavities, the PRF/Bio-Oss composite was grafted, and the Tisseel/Bio-Oss composite was grafted in the other sinus cavity. After a 6 month healing period, bone formation in the graft sites and bone-implant contact were evaluated. The mean osseointegration rate was 43.5 +/- 12.4% and new bone formation rate 41.8 +/- 5.9% in the PRF/Bio-Oss composite sites. In the Tisseel/Bio-Oss composite sites they were 30.7 +/- 7.9% and 31.3 +/- 6.4%. There were statistically significant differences between the groups. The findings from this study suggest that when platelet-rich fibrin is used as an adjunct to Bio-Oss particles for bone augmentation in the maxillary sinus, bone formation in the graft sites is significantly greater than when Tisseel is used.