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Comparison of magnesium-enriched hydroxyapatite and porcine bone in human extraction socket healing: a histologic and histomorphometric evaluation.

ABSTRACT

After tooth extraction, the physiological reduction of alveolar height and width may cause problems with implants placement, especially in the anterior upper arch where bone volume preservation is essential for both biological and aesthetic reasons. In order to counteract bone resorption in fresh sockets and avoid invasive ridge augmentation procedures, the use of several biomaterials has been proposed. Thanks to its excellent biocompatibility and bioactivity, hydroxyapatite is widely used in bone grafting and it has a good potential as a scaffold for bone tissue engineering. The aim of this study was to compare the use of synthetic magnesium-enriched hydroxyapatite (MHA) with that of a xenogenic bone substitute consisting of cortico-cancellous porcine bone (PB) (OsteoBiol® Apatos, Tecnoss®, Giaveno, Italy), in fresh sockets by means of histological and histomorphometric analyses. Histological examinations revealed newly formed bone, biomaterial particles, connective tissue and an absence of inflammatory cells in all treated sites.

CONCLUSIONS

The histological findings from the present study showed that cortico-cancellous PB and MHA could be used successfully for ridge preservation. Moreover, they both resulted safe and biocompatible. The authors concluded that *"within the limits of this study, the results showed similar biological behaviour with respect to bone formation and resorption for magnesium-enriched hydroxyapatite and porcine bone used for socket preservation"*.

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