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PERIODONTAL REGENERATION

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Healing of gingival recessions using a collagen membrane with a demineralized xenograft: a randomized controlled clinical trial

ABSTRACT

Gingival recessions commonly associated with compromised esthetics, root hypersensitivity, higher incidence of root caries, and compromised plaque control and their treatment is performed via so-called mucogingival therapy. In order to promote the root coverage, it is possible to adopt the principles of guided tissue regeneration (GTR). As a variety of non-resorbable and absorbable barrier membranes has been used with clinical outcomes similar to those achieved by traditional procedures, the aim of this study was to compare the efficacy of two surgical techniques: coronally advanced flap (CAF) alone or in combination with the use of an absorbable membrane plus a demineralized xenograft (GTRF) for the treatment of gingival recession in a prospective randomized controlled clinical trial.

16 nonsmokers with 20 Miller Class I or Class II buccal gingival recessions at canines or premolars were included in the study. 10 defects were randomly assigned by coin toss to be treated by a CAF only (control sites), and the remaining 10 defects were treated by the GTRF method (test sites). The barrier device used was a collagen membrane (OsteoBiol® Evolution, TecnoSS®, Giaveno, Italy) and the bone substitute used was a demineralized xenograft (OsteoBiol® Gel 40, TecnoSS®).

The results following both procedures appeared equivalent, providing good root coverage, gain in clinical attachment levels, healthy nonbleeding sulcus and increase of keratinized tissue.

CONCLUSIONS

Even if both treatments resulted in a significant reduction of recession and gain in clinical attachment level, the Authors found that the increase in keratinized tissue from baseline to 6 months was slightly greater for the GTRF group than for the CAF group and the test group experienced a statistically significant increase in gingival thickness ($+0,71 \pm 0,21$ mm) from baseline to the 6-month evaluation. Consequently, the Authors concluded that *“both procedures offer a predictable, simple, and convenient means of root coverage in Miller Class I and II recession defects, but the GTRF-supported procedure resulted in more keratinized tissue and a significant increase in gingival thickness than the CAF-only approach”*.



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The effectiveness of a resorbable bone substitute with a resorbable membrane in the treatment of periodontal infrabony defect - a multicenter randomised controlled trial

ABSTRACT

In order to regenerate the function and aesthetics of lost periodontal tissues following a periodontal disease, the use of guided tissue regeneration (GTR), bone grafting and enamel matrix derivatives (Emdogain) has been suggested. However, in the literature it has been reported that GTR and Emdogain alone for the treatment of infrabony defects seem to be not so effective; on the contrary, it has been suggested that the use of bone grafts seems to be more promising. Based on the consideration that there is a need of a deeper evaluation of the use of bone grafts in such clinical situations, the Authors conducted a multicenter RCT with the aim to evaluate the efficacy of a bone substitute represented by a mix of cancellous and cortical porcine-derived bone, with a granulometry of 250 to 1000 µm (OsteoBiol® Gen-Os®, TecnoSS®, Giaveno, Italy) with a resorbable collagen barrier derived from equine pericardium (Fine 30 x 30 mm; OsteoBiol® Evolution, TecnoSS®) versus an identical open flap debridement intervention for the treatment of deep infrabony defects.

Of the 97 patients with infrabony defects included in this trial, 49 patients were randomly allocated to the BG group (grafting with a bone substitute covered with a resorbable barrier) and 48 to the OFD group (open flap debridement), according to a parallel group design in five European centres. Infrabony defects of the patients allocated to the BG group were overfilled with loosely packed granules of OsteoBiol® Gen-Os® (TecnoSS®) and the grafted area was completely covered with a resorbable collagen membrane derived from equine pericardium (OsteoBiol® Evolution, TecnoSS®).

Both bone grafting and open flap debridement lead to improvements in periodontal conditions but the use of a bone substitute in conjunction with a collagen resorbable membrane yielded significantly better statistical results. The BG group obtained significantly greater statistical PAL gain (mean difference = -0.8 mm, 95% CI [-1.51; -0.03], P = 0.0428), PPD reduction (mean difference = -1.1 mm, 95% CI [-1.84; -0.19], P = 0.0165) and RAD gain (mean difference = -1.2 mm, 95% CI [-2.0; -0.4], P = 0.0058) compared to the OFD group.

CONCLUSIONS

Based on the results, the Authors concluded that “the use of a bone substitute covered with a resorbable membrane yielded significantly better statistical clinical outcomes than open flap debridement in the treatment of periodontal infrabony defects deeper than 3 mm, with regard to PAL gain, PPD reduction and RAD gain”. With reference to conflict of interest, the Authors stated that this trial was partially funded by TecnoSS®, however “data belonged to the authors and by no means did the manufacturer interfere with the conduct of the trial or the publication of the results”.

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