



## 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  $\mu\text{m}$  (OsteoBiol<sup>®</sup> Gen-Os<sup>®</sup>, TecnoSS<sup>®</sup>, Giaveno, Italy) with a resorbable collagen barrier derived from equine pericardium (Fine 30 x 30 mm; OsteoBiol<sup>®</sup> Evolution, TecnoSS<sup>®</sup>) 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<sup>®</sup> Gen-Os<sup>®</sup> (TecnoSS<sup>®</sup>) and the grafted area was completely covered with a resorbable collagen membrane derived from equine pericardium (OsteoBiol<sup>®</sup> Evolution, TecnoSS<sup>®</sup>).

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<sup>®</sup>, 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".

### PERIODONTAL REGENERATION

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