

## Posterior atrophic jaws rehabilitated with prostheses supported by 6 mm long 4 mm wide implants or by longer implants in augmented bone. One-year post-loading results from a pilot randomised controlled trial

### ABSTRACT

Insufficient bone height is a problem for an adequate implant placement in atrophic jaws. In these cases, the alternatives are to use short implants or to place longer implants after bone augmentation. As there are few short-term randomised controlled trials comparing the effectiveness of prostheses supported by short implants with those supported by longer implants placed in augmented bone, the aim of this trial was to evaluate whether 6 mm long by 4 mm wide dental implants could be an alternative to implants at least 10 mm long placed in bone augmented with bone substitutes in posterior atrophic jaws. A total of 20 patients with bilateral atrophic mandibles and 20 patients with bilateral atrophic maxillae, were randomly allocated according to a split-mouth design to receive one to three 6 mm long and 4 mm wide implants, or implants at least 10 mm long in augmented bone. The augmentation procedure consisted in the insertion of an interpositional block of collagenated cancellous equine bone (OsteoBiol® Sp-Block, Tecnos®, Giaveno, Italy) in mandibles or a mix of cancellous and cortical porcine-derived collagenated bone having a granulometry of 250 to 1000 µm (Osteo-Biol® Gen-Os®, Tecnos®) in maxillary sinuses. The grafted areas were covered with a collagen resorbable barrier (Fine 30 × 30 mm, OsteoBiol® Evolution, Tecnos®) derived from equine pericardium. At mandibular grafted sides, implants were placed 3 months after augmentation, whereas implants were inserted in maxillae simultaneously to sinus lift procedures. Outcome measures were prosthesis and implant failures, any complication and radiographic peri-implant marginal bone level changes. All maxillary implants and prostheses were successful, whereas 2 mandibular prostheses could not be placed on implants at least 10 mm long due to graft failures. There were no statistically significant differences in implant and prosthesis failures, though significantly more complications occurred at grafted sites in mandibles, but not in maxillae. Patients with mandibular 6 mm-long implants lost an average of 1.05 mm of peri-implant bone at 1 year and patients with mandibular implants at least 10 mm long lost 1.07 mm, with a statistically significant difference. Patients with maxillary 6 mm-long implants lost an average of 1.02 mm of peri-implant bone at 1 year and patients with maxillary implants at least 10 mm long lost 1.09 mm, with a statistically significant difference. There were no statistically significant differences in bone level changes up to 1 year between 6 mm and at least 10 mm-long implants in both jaws.

### CONCLUSIONS

Based on the results, the Authors concluded that *“Short implants might be a preferable choice to bone augmentation, especially in posterior mandibles since the treatment is faster, cheaper and associated with less morbidity. However, 5 to 10 years post-loading data from larger trials are necessary before being able to produce reliable recommendations”*.

### LATERAL ACCESS SINUS LIFT & VERTICAL AUGMENTATION

135

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