OsteoBiol® by Tecnoss

Immediate loading of 3 mm-diameter implants as an alternative to horizontal bone augmentation for placing 4 mm-diameter implants: one-year post-loading results from a multicentre randomised controlled trial

M Esposito[1]
C Barausse[2]
R Pistilli[3]
P Bellini[4]
J Buti[5]
P Felice[2]

1 | Department of Biomaterials, The Sahlgrenska Academy at Göteborg University, Sweden
2 | Odontostomatologic Surgery, Department of Biomedical and Neuromotor Sciences, University of Bologna, Italy
3 | Oral and Maxillofacial Unit, San Camillo Hospital and private practice, Rome, Italy
4 | Unit of Dentistry and Oral-Maxillo-Facial Surgery, University of Modena and Reggio Emilia, Italy
5 | Unit of Periodontology, UCL Eastman Dental Institute, London, UK

ABSTRACT

When crestal bone resorption leads to a residual bone width of less than 5 mm, normally it is very challenging to replace the missing teeth with implants of standard diameter. In these cases, clinicians must choose between a horizontal augmentation procedure or the use of narrow implants with a diameter of 3 mm or less. As augmentation procedures can be technically demanding, are expensive, and can also be associated with significant postoperative morbidity and complications, in this study the Authors aimed to evaluate the effectiveness of immediately loaded 3 mm-diameter implants as an alternative to horizontal bone augmentation procedures in order to use implants with a conventional diameter of 4 mm. This parallel-group multicentre randomised controlled trial was designed with a follow-up to the fifth year of function in order to evaluate the outcome of the procedures over time and this report presents the results up to 1 year after loading. Forty-five partially edentulous patients were selected and randomised, according to a parallel-group design, to receive one to three 3.0 mm-diameter implants to be loaded immediately or horizontal crest augmentation with a granular bone substitute (OsteoBiol® *mp3*®, Tecnoss®, Giaveno, Italy) covered with a bone lamina (OsteoBiol® *Lamina*, Tecnoss®). After 6 months of healing, in the augmented sites 4 mm-diameter implants were placed and left unloaded for 4 months.
Both tested interventions provided satisfactory outcomes, but 3 mm-diameter implants were associated with fewer complications and failures, and could be loaded immediately.

CONCLUSIONS

Although 5- to 10-year post-loading data are necessary in order to draw reliable conclusions, the treatment with 3 mm-diameter implants exhibited better results than those achieved with horizontal augmentation and 4 mm-diameter implants. This, combined with the fact that it is less invasive, faster, cheaper, and associated with less morbidity and marginal peri-implant bone loss, lead the Authors to conclude that *"it may be the preferable option"*.

ORIGINAL ARTICLE
Clinical Trials in Dentistry
2020;02(3):61-76

Grafted with

BONE SUBSTITUTE
OsteoBiol® *mp3*®

BARRIER
OsteoBiol® *Lamina*

HOR

Abstract author: Cristina Rodighiero, dental journalist, free publication, not for resale. Printed by Tecnoss® Dental s.r.l.