

Resonance frequency analysis of implants inserted with a simultaneous grafting procedure: a 5-year follow-up study in man

ABSTRACT

It is well known that primary stability is a key factor for the long-term success of an implant-supported rehabilitation. Primary stability is determined by bone quality and quantity, implant geometry, and placement technique and it is strictly related to the level of primary bone contact. Different ways of measuring implant stability are available and in this study the Authors examined the resonance frequency analysis (RFA), representing a clinical, noninvasive quantitative assessment of the stability of an implant and its osseointegration level. In order to do this, 16 patients in need of maxillary and mandibular rehabilitation were selected. They received a total of 36 implants inserted using a single-stage procedure at the same time as reconstructive surgery and were distributed as follows: 19 implants were inserted in 10 patients treated with autologous bone (group A) and 17 implants were placed in 6 patients treated with a combination of 50% autologous bone (bone chips) and 50% deantigenated collagenated bone substitute of porcine origin (OsteoBiol® Gen-Os® and OsteoBiol® Putty, Tecnos®, Giaveno, Italy) (group B). The implant stability quotient (ISQ) values were measured during 5 years of follow up. The RFA values were recorded with the ISQ scale by means of a transducer attached to the implant via a screw and a frequency response analyzer (Osstell device).

CONCLUSIONS

At surgical re-entry in the 22 sites augmented in the maxilla and 14 in the mandible it was observed that the space under the titanium grid was filled completely by newly formed bone. Consequently, the Authors affirm that *"within the limitations of the present study, the results showed that implant stability increased over time and its changes were correlated with anatomical location and different types of grafts only in the early healing period. RFA measurements indicate predictable and stable long-term results for implants inserted in sites reconstructed with autogenous bone and with porcine bone substitute in addition to autologous bone"*.

DEHISCENCES AND FENESTRATIONS

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