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Implant Stability Measurements of new implant surface in native bone compared to augmented sites.

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IMPLANT THERAPY
OUTCOMES, SURGICAL
ASPECTS

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Background and Aim

Background: Sinus lift procedures are considered a safe and predictable option for bone gain in the posterior maxilla. Several studies demonstrated that anorganic bovine bone is considered a predictable option for grafting the maxillary sinus and provide high implants survival rates. Modern surfaces chemically modified sandblasted and acid-etched with hydrophilic properties aims to decrease healing time and afford early loading of dental implants. However grafted sites may represent a challenge for early loading of implants compare to native bone.

Aim: The aim of this study was to evaluate the implant stability measurements using resonance frequency analysis (RFA) of a new surface implants placed in native bone and augmented sites at baseline and after 8 weeks.

Ostell used for RFA

Results

A total of 113 implants were performed in augmented sites and native bone (89 and 24, respectively) to allow fixed prostheses oral rehabilitation. Four implants failed and a survival rate of 96,46% was achieved after 6 months of provisional prosthetic rehabilitation. It was showed that the implants placed in the native bone (~60Ncm) presented higher values of insertion torque than the implants placed in grafted areas (~45Ncm) (see graphic 1). Regarding the RFA analysis, implants placed in grafted areas presented greater stability in relation to the implants placed in native bone in the period of 60 days. In addition, the RFA of the implants placed in native bone reduced at the period of 60 days in relation to the baseline period (graphic 2). All the implants presented an adequate value for the induction of occlusal loading (> 60).

Graphic 1. Insertion torque analysis.

Graphic 2. Resonance frequency analysis.

Conclusions

Within the limitations of the present study, RFA analysis demonstrated that the new implant surface presented adequate values for occlusal loading after 60 days of implant insertion in augmented sites. Considering the short term period evaluation (6 months) a good implant survival rate of 96,46% can be achieved for early loading in augmented sites.

References

- Corbella, S., Taschieri, S., Weinstein, R., & Del Fabbro, M. (2016). Histomorphometric outcomes after lateral sinus floor elevation procedure: a systematic review of the literature and meta-analysis. *Clin Oral Implants Res*, 27(9), 1106-1122. doi: 10.1111/clr.12702
- Pjetursson, B. E., Tan, W. C., Zwahlen, M., & Lang, N. P. (2008). A systematic review of the success of sinus floor elevation and survival of implants inserted in combination with sinus floor elevation. Part I: Lateral approach. *J Clin Periodontol*, 35(8 Suppl), 216-240. doi: 10.1111/j.1600-051X.2008.01272.x
- Polimeni, G., Xiropoulos, A. V., & Wikesjö, U. M. (2006). Biology and principles of periodontal wound healing/regeneration. *Periodontol 2000*, 41, 30-47. doi: PRD157 [pii]10.1111/j.1600-0757.2006.00157.x

Tomographic images

Methods and Materials

Seventeen edentulous patients with deficient bone high in the posterior maxilla (<5mm) were select according to tomographic analysis for bilateral sinus floor elevation. All procedures were performed by the same surgeon (TBP) with the lateral window approach using 100% anorganic bovine bone and collagen membrane over the window. After 8 months, a second tomographic exam was used for planning the placement of 6-8 dental implants with a sandblasting and acid etching surface maintained in an isotonic solution of 0.9% sodium chloride. The implants were maintained submerged in all patients. After 8 weeks, the re-opening surgeries were performed and provisional prosthetic rehabilitation was started. All implants were rehabilitated with splinted crowns. The insertion torque was measured at the day of the implants placement (baseline) while the resonance frequency analysis (RFA) was performed at baseline and after 60 days. The implants survival was evaluated after 6 months of provisional prosthetic rehabilitation.

Smartpegs for RFA

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