

Stability assessment of immediately loaded alkali-etched implants

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To determine changes in stability of immediately loaded implants with an alkali-etched surface.

18 STI-BIO Implants dental implants were surgically placed in the mandible of patients ranging in age from 52 to 74 years. All implants were loaded immediately with ball attachments. Of the 18 inserted implants none failed over a subsequent 2 years period. The PeriotestTM (Medizintechnik Gulden) was used for implant stability measurement. Periotest values (PTVs) were taken at weeks by 0, 2, 4, 8, 12 and 26 by a single observer. Each measurement was repeated three times and average value was used. Evaluation of bone quality according to Lekholm and Zarb's classification was made during surgery for each site.

Across bone qualities 1,2 and 3; 8, 8 and 2 implants were inserted respectively. Initial PTVs were in the range of -3 to +1 with a mean value of -1,54 (SD=1,37, n=18). Final PTVs at 26 weeks were in the range from -6 to -1 with mean value -3 (SD=1,35, n=18). Student t-test analysis showed a statistically significant decrease of implant stability after 2 weeks ($p=0.01$), as well as significant subsequent increase over the following six weeks ($p=0,001$). The maximum of the PTV values were detected 2 weeks after insertion (Fig.1). It is assumed that the maximum represents a transition in the degree of stability from the time of primary bone contact to the development of early secondary bone contact during

healing. After this time, secondary stability increased and stabilized at about 8 weeks. The results indicated that alkali-etched implants exhibit a greater rate of stability increase than machined implants (Ti-Machined) and an rate implant stability increase comparable to acid etched and grit blasted implants.

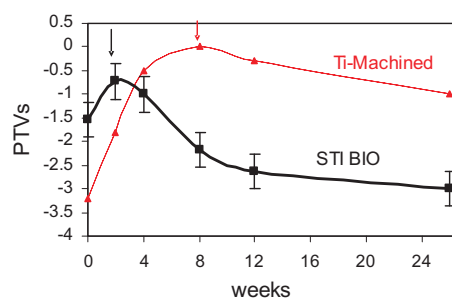


Fig. 1: Periotest values \pm SE measured for each time point

Based on the limited number of patient included, the implants with alkali-etched surface offer predictable and reliable results for immediate loading procedure in the edentulous mandible.

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