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Comparison of influence of platform switching on marginal bone levels of dental implant - An in vivo study

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ABSTRACT:

Introduction: The osseointegration of dental implants has been widely described in the literature for success and survival of implant in oral cavity.¹ Therefore, the maintenance of osseointegration and a stable marginal bone level is necessary for the success of a dental implant. The concept of “platform switching” refers to use of prosthetic components of smaller diameter than the platform of the implant, this connection shifts the perimeter of the IAJ inward toward the central axis (i.e. the middle) of the implant.

Aims: Radiographic evaluation and comparison of crestal bone loss observed between platform match and platform switch design of implant abutment after prosthetic loading and analyse which design is better for minimising crestal bone loss.

Materials and methods: Two groups made of 15 samples each. Test group contains platform switch design while control group had platform match design of implants. Subjects were selected according to predefined selection criteria. Radiographic evaluation of marginal bone level was done after prosthetic loading of implant. Radiographs were taken by Paralleling method with help of patients bite index at the following intervals: At time of prosthetic loading(baseline), 1 month, 3 months, 6 months, 1 year recall visit. Bone loss was measured digitally with adobe photoshop software CS3 version 10.

Statistical analysis used: independent T test,

Results: Comparison between two groups showed that at end of 6month and 1year bone loss at mesial side was higher in platform match group and was statistically significant with p value of 0.027 and 0.002. Comparing distal side there was no statistically significant bone loss between two groups at any of the time interval.

Conclusions: The present study, with a follow-up of 1year, not only confirms the results of previous researchers but also establish a relationship between the extent of platform switching and the amount of marginal bone loss.

These findings could possibly be attributed to a wider space for horizontal repositioning of the biological width and/or a better distribution of loading stress at the bone/implant interface.

Keywords: platform switch, platform match, implant abutment junction, marginal bone loss

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