

## 15694 POSTER DISPLAY CLINICAL RESEARCH – PROSTHETICS

### Factors influencing marginal bone loss at a hydrophilic implant design placed with or without GBR procedures: A 5-year retrospective study

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**Background:** Preserving the peri-implant bone level is key for the longevity of an implant-supported prosthesis. In cases with non-optimal bone conditions, guided bone regeneration (GBR) procedures may be applied which might challenge the long-term peri-implant bone preservation.

**Aim/Hypothesis:** The aim of the present study was to retrospectively evaluate the survival rate and factors affecting marginal bone levels around implants with a hydrophilic surface after 5 years in function when placed with or without GBR procedures.

**Material and Methods:** The study group consisted of 51 consecutive patients previously treated with 159 hydrophilic implants (Neoss ProActive Straight implants) scheduled for annual check-ups with clinical and radiographic examinations during 5 years. Additional subgroup analysis was performed for patients receiving implants with or without GBR procedures, 91 and 68 implants respectively. The study group had a range of different length implant-supported prostheses, allowing both 1- and 2-stage surgical procedures with either delayed or immediate loading. Marginal bone levels were measured from peri-apical radiographs taken at placement and annual check-ups. Patient-, procedure-, and implant related factors was statistically analysed to evaluate their effect on marginal bone remodeling.

**Results:** Two implant failures, one from each sub-group, occurred during the first year in function resulting in an overall cumulative survival rate (CSR) of 98.7% following 5 years of loading. Thus, CSR for implants treated with or without GBR procedures were 98.9% and 98.5% respectively. The total marginal bone loss measured  $0.7 \pm 0.7$  mm from insertion to 1-year and  $0.8 \pm 0.6$  mm from insertion to 5 years. Between 1 year and 5 years no ( $0.0 \pm 0.5$  mm) marginal bone loss was recorded. No implants showed more than 3 mm bone loss after 5 years. Age, gender, implant position, biotype, implant diameter, implant length, indication, surgical loading protocol, and ISQ at prosthesis delivery were found to affect bone remodeling. No significant differences or correlations were seen for GBR, smoking, jaw, bone quantity, bone quality, sinus lift, and ISQ at implant placement.

**Conclusion and Clinical Implications:** The present implant design performed well with only few implant failures and minimal marginal bone loss after 5 years of loading, irrespective of placement with or without GBR. Marginal bone remodeling around implants is a complex phenomenon, which is affected by many patient-, procedure- and implant-related factors which needs to be further investigated.