16064 POSTER DISPLAY
CLINICAL RESEARCH – SURGERY

Immediate loading of the edentulous multi-risk patient jaw – An up to 3-year cohort study

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Background: The issue of how to realize the transition from a failing dentition to an implant-supported prosthesis has been insufficiently addressed, especially in the multi-risk patient. In this case, implants are simultaneously placed in healed (H) and post-extraction (PE) sites to support an immediately loaded temporary full prosthesis. Distribution between H and PE sites in the mandible and the maxilla can vary. Information about respective failure rates and contributing factors to failure are needed.

Aim/Hypothesis: Objective of this cohort study was to record the failure rates of C1 and V3 implants (MIS) placed in H and PE sites in the mandible and the maxilla of the multi-risk patient following a 36 hours immediate loading protocol. Aim was to check the predictability of implants placed in PE and H sites.

Material and Methods: Patients with several health risks attended implant therapy because of a failing bridge relying on teeth in the mandible or maxilla or had an edentulous jaw. They required an immediate fixed solution. Patients were affected by at least 2 of the following risks- advanced period. disease, poor hygiene, bruxism, diabetes, smoking, cholesterol, cardiovascular issues and blood pressure. Implants were placed in either H and or PE sites, 4–7 implants in the mandible and 6–9 implants in the maxilla; some implants were also left unloaded. When insertion torque was ≥40 Ncm, multi-unit abutments (MUA) of various heights were affixed. Following impression, the lab prepared a temporary acrylic prosthesis. After 36 hours, the prosthesis was delivered. After 3 mo. in the mandible and 6 months. in the maxilla, the final prosthetic steps were undertaken and included the unloaded implants. Variables contributing to failure rates were investigated using the Kaplan-Meier survival estimate method and the Chi-square test.

Results: 215 imp (Ø3.3–5 × 8–16 mm) were placed in 16 mandibles and maxillae of 9 men and 17 women, median age 68.5 year. H PE sites were 47 49 in the mandible, 57 62 in the maxilla. C1 V3 imp were 101 1,114. MUAs of 1, 2, 3, 4–5 mm were 26, 56, 94, 39. 25 prostheses relied on implants placed in mixed H and PE sites, 13 in the maxilla; 2 relied on PE sites only, 1 in the maxilla; 5 relied on H sites only, 3 in the mandible. All imp passed the 1 year control 57 the 2 year and 21 the 3 year one. Failure rate was 2.3% in 4 patients during the healing time only; no temporization was interrupted. Failures were 1 in the mandible in a PE site and 4 in the maxilla, 3 in H sites and 1 in a PE. No variable was a significant contributor to implant failure. Failures occurred in mixed situations only, none when placed in H or PE sites only. In the maxilla, failure rate of H PE was 5.3% 1.6% ($P = 0.26$); in the mandible, failure rate of H PE was 0% 2.0%(NS). Most failures happened in the maxilla, in H sites but not in PE sites.

Conclusion and Clinical Implications: Immediately loaded prostheses relying on C1 and V3 implants placed in the multi-risk patient were highly predictable when 4–7 and 6–9 implants were placed in the mandible and the maxilla. More implants failed in the maxilla but not in PE sites. The low number of failures did not permit to identify any variable as a contributor to failure. Our experience showed that the multi-risk patient is willing to cope with implant failure as far as temporization is not interrupted during the healing phase.

16317 ORAL COMMUNICATION
CLINICAL INNOVATIONS

Bone changes above implant neck of subcrestally placed implants. Early report from RCT of implant and abutment level treatment

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Background: When implant is placed subcrestally, we have an unique situation, due to the presence of the bone above the implant neck. The changes of that bone are called ëbone remodelingí, which differs from ëbone lossí, involving bone changes below the implant neck. It is suggested that moving the restorative steps from the implant level to the abutment, reduces abutment disconnection (AD) and decreases remodeling of bone, situated above implant neck.

Aim/Hypothesis: To compare changes of the bone above the implant abutment junction after final crown delivery between, 1) implants with crowns mounted on a Ti-base fixed to the implant neck that underwent 4 ADs, 2) implants with crowns fixed to a 1-time abutment torqued to the implant during surgery that had no AD.

Material and Methods: Bone level implant with platform switching (V3, MIS) were placed 1.5–2.0 mm subcrestally in 56 patients, which were enrolled in the study after application of inclusion criteria. After randomization, in test group 3 mm height intermediate multiunit abutment (CONNECT) was torqued to implant during the surgery, while other implants received regular healing abutment and served as a control. After 2 months of healing and 1 month of provisionalisation period, final Zr-based screw-retained restorations were delivered to both groups. After 1 month, post-delivery bone levels above implant necks were calculated and compared. Bone remodeling was measured as a first bone-to-Ti base or abutment contact above the implant neck. Mann-Whitney U test was used, statistical significance level was set to 0.05.

Results: 12 men and 44 women (mean age 46.1 ± 2.8 years) had 38 mandibular and 18 maxillary sites rehabilitated. All 56 implants integrated and were available for the evaluation in 1-month post-restorative evaluation. Implants in test group (multiunit abutment level) had 0.9 ± 0.48 mm (range, 0.35 to 2.2 mm) of bone remodeling at post-delivery evaluation, while control group with direct implant restoration had 1.61 ± 0.56 mm (range, 0.55 to 2.65 mm), making this difference statistically significant ($P < 0.0001$, Mann-Whitney U-test).

Conclusion and clinical implications: Within limitations of post-delivery evaluation, it can be concluded that use of intermediate multiunit abutment (CONNECT) significantly reduces crestal bone remodeling around subcrestally positioned implants.

15832 ORAL COMMUNICATION
CLINICAL INNOVATIONS

Implant neck or 1-time abutment level treatment? Early outcome of bone and soft tissue from a RCT

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Background: The '1 abutment-1 time' concept has been around for a long time. It suggests that moving the restorative steps from the neck level to the abutment would avoid abutment disconnection (AD) and disturbance of the peri-implant seal; this should decrease the marginal bone loss got around implants. Logically, a positive outcome should be seen from the early treatment stages. There is no study directly comparing this approach to multiple ADs. Strong evidence of the benefit of this concept is lacking.

Aim/Hypothesis: To compare peri-implant tissues parameters measured 1mo. after final crown delivery between, 1) implants with crowns mounted on a Ti-base fixed to the implant neck that underwent 4 ADs, 2) implants with crowns fixed to a 1-time abutment torqued to the implant during surgery that underwent no AD.

Material and Methods: A randomized prospective clinical trial was set up with 60 patients receiving a 'bone level' implant with platform-switching (V3, MIS) in mono-edentulous sites in posterior mandible and maxilla. All implants were placed about 1.5 mm subcrestally. In the test group, a 3 mm 1-time abutment (CONNECT) was torqued during surgery at 30 Ncm. In the control group, implants received a regular healing abutment. After 2mo. of healing, a temporary crown was prepared. In the test group, impression steps did not disturb the peri-implant seal; in the control group, the peri-implant seal was disturbed. After a 1mo. loading, a final Zr-based screw-retained crown mounted on a titanium base was delivered to both groups. One month after crown delivery, bone levels and peri-implant probing depths were measured and compared with the Mann-Whitney U test (=0.05). Bone loss was measured at the first bone-to-implant contact below the implant neck.

Results: 13 men and 47 women (mean age 48.3 ± 3.4 years) had 41 mandibular and 19 maxillary sites rehabilitated. All 60 implants integrated and were available for evaluation 1 month after delivery of the final prosthesis. For the test group (n = 30) with the ceramic crowns mounted on the platform of the 1-time CONNECT abutment that underwent no abutment disconnection, bone loss was 0.13 ± 0.23 mm (range, 0–0.75 mm). For the control group (n = 30) with the ceramic crowns mounted on Ti-base abutments directly affixed to the implant neck that underwent 4 abutment disconnections, bone loss was 0.67 ± 0.4 mm (range, 0–1.5 mm); the difference was statistically significant (P < 0.0001). Peri-implant probing depth was 2.24 ± 0.76 mm for the test group with the 1-time CONNECT abutment; it was 2.46 ± 0.81 mm for the control group with the prosthetic abutment directly affixed to the implant neck. The difference was not statistically significant (P = 0.414).

Conclusion and clinical implications: Within the limitations of this early evaluation 1 month after final crown delivery, it can be concluded that using the 1-time CONNECT abutment that turns 'bone level' implants into 'tissue level' implants significantly reduced the bone loss around conical connection implants placed 1.5 mm subcrestally.

15854 POSTER DISPLAYCLINICAL RESEARCH – PERI-IMPLANT BIOLOGY

Early loading after 4 weeks of C1 implants with a B+ treated surface-effect on marginal bone level

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Background: Implant surface is a key-factor to achieve osseointegration. Surface modifications have been proposed to accelerate the integration process and shorten loading times below 3 mo. in the mandible and maxilla. Some authors suggested that part of MBL (marginal bone loss) might result from disuse atrophy; others reported reduced MBL after implementing shorter healing periods rather than longer ones. The effects of early loading, especially of implants with a B+ surface, on MBL is poorly documented.

Aim/Hypothesis: To evaluate peri-implant marginal bone loss around implants with a B+ modified surface loaded 4 (4 w) or 8 weeks (8 w) after implant placement in the mandible and in the maxilla. Marginal bone loss was compared between both groups at the milestone of 1-year after delivery of the final prosthesis.

Material and Methods: A randomized controlled clinical trial (NCT03059108) was set-up in which single implants were placed according to a 1-stage protocol and randomly assigned to two distinct loading groups- test (4 w after placement) or control (8 w). Implants were followed until the 1-year post-loading milestone. Variables that might affect the MBL were- age, gender, smoking, alcohol consumption, bone type, width of bone crest, soft tissue thickness, width of keratinized mucosa, mesio-distal distance to adjacent teeth and prosthetic abutment height. The distance between the implant to the adjacent teeth, the MBL on the mesial and distal sides and the bone levels of the adjacent teeth were recorded on periapical xrays with the Image J software. Each image was internally calibrated with the known implant diameter. The R software was used for the statistical analyses. The Wilcoxon rank sum test and the general linear model with pair-wise comparisons of means further evaluated by Tukey contrasts were used.

Results: A total of 29 patients (mean age 42, 25-58) received one implant each, 27 in the maxilla, 14 were loaded after 4 w. Change in MBL between placement and loading measured on the mesial (M) and distal (D) sides was statistically significant within each group (S, $P < 0.001$). No difference was observed between groups. From loading to the 1-year milestone, bone loss for the 4 w group was 0.17 ± 0.38 mm and 0.18 ± 0.22 mm on the M and D sides, respectively. For the 8 w group, M marginal bone increased by 0.09 ± 0.44 mm; on the D side marginal bone decreased by 0.13 ± 0.45 mm. Differences between 4 w and 8 w were not statistically significant (NS, $P = 0.24$, $P = 0.68$, M and D, respectively). Differences between groups at each time point were NS ($P > 0.20$) either. MBL after 1 year of loading was −0.23 ± 0.41 mm and −0.20 ± 0.32 mm on the M and D sides, respectively for the 4 w group; it was 0.00 ± 0.54 mm and −0.18 ± 0.43 mm for the 8 w group. None of the variables affected the MBL in a significant way, for any groups at any time point.

Conclusion and Clinical Implications: Early loading after 4 weeks of C1 implants with a B+ modified surface did not affect the MBL when compared to loading after 8 weeks, for any milestone until 1 year after prosthesis delivery. Within the limitations of the study, no variable under investigation affected the MBL in a significant way, not the soft tissue thickness, not the width of the keratinized mucosa and not the prosthetic abutment height.

16026 POSTER DISPLAY
BASIC RESEARCH

Physical Characterization and Osseointegration of 3 implants with distinct materials and surfaces

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Background: Dental implants are manufactured from various Ti grades and Ti alloys; diverse surface treatments are implemented. Subsequently, implants display distinct surface texture characteristics and composition. It has been claimed that 'because of the biphasic nature of the TiAlV alloy, sandblasting and acid-etching is typically not an appropriate treatment for alpha-beta alloys'. This issue needs to be addressed by comparing well physically characterized surfaces to osseointegration data.

Aim/Hypothesis: Aim was to compare in a rabbit model the osseointegration rates of well physically characterized surfaces of 3 distinct implant systems. Investigated implants were made of titanium cp and titanium alloy Gr. 23. Surface treatments were sandblasting-and-acid-etching and anodic oxidation.

Material and Methods: Implants belonged to the following groups: G1, Ti cp Grade 4, sandblasted-and-etched (Straumann, SLA, BL); G2, Ti cp Grade 4, anodic oxidation (NobelBiocare, TiUnite, Replace); G3, Ti Gr. 23 (TiAl6V4 ELI) sandblasted-and-etched (MIS, SLA, V3). Implant dimensions were: G1, Ø3.3x8 mm; G2, Ø3.5x8 mm; G3, Ø3.9x8 mm with a triangular neck and gap of 0.2x3.7 mm. Roughness (Sa) was determined between the threads with an optical profilometer (filter 250mic, area 500x1000 mic). Surface topography and element composition were observed under SEM/EDS (x20-4000). Surface composition was determined by XRD (2 teta : 30-80°), presence and size of Ti hydride needles (TiH-n) was determined on etched metallographic sections, segregation of Al and V at the alloy surface was determined by SIMS, concentration profile was gained using O- and Cs; ions at 500 eV. Implants of each group (n = 8x3) were implanted in the tibia of 6 rabbits for 45 days. Histological sections were prepared and BIC was measured.

Results: Under SEM, all surfaces looked differently- G1 and G3 displayed a macro and micro-texture for bone ingrowth; G3's macrotexture was rounder. G2 showed Ø 3-12mic canyon-like structures for bone ingrowth. Sa roughness of G1 G2 G3 implants was 2.56 1.10 1.89mic. XRD EDS led to distinct surface compositions- on G1, Ti alpha phase and Ti hydride; on G2, Anatase Ti oxide rich in P; on G3, Ti alpha and beta phases. The metallographic sections revealed- on G1, presence of 3-18 mic long TiH needles, TiH needles concentration was higher at the thread level; on G2, a rough porous 3-16 mic thick Ti oxide layer sitting on a lower density base, no TiH-n; on G3, Ti beta phase grains distributed among a Ti alpha phase matrix, no TiH-n. Concentration profile by SIMS on G3's surface showed an increased amount of O and depleted amounts of Al and V. After 45 implantation days, the BICs of the G1 G2 G3 groups were similar- 58.7 ± 1.8% 58.1 ± 1.6% 59 ± 2% (P = 0.94, NS); G3's gap was filled with bone.

Conclusion and Clinical Implications: Surface topography and composition of G1, G2, G3 were all different. Surface treatment of G1 and G2 generated new compounds at the implant surface, TiH on G1 and anatase rich in P on G2. TiH-n were found on G1 only. On G3, Al and V were depleted at the surface. Despite distinct surface characteristics and composition, osseointegration was similar for the 3 implant systems; G3's gap was filled with bone. Sandblasting-and-etching was an appropriate treatment for the TAV alpha-beta alloy implant.

15944 POSTER WITH ORAL PRESENTATION
CLINICAL RESEARCH – SURGERY

Factors affecting implant failure and crestal bone loss. A study of 220 implants placed by students

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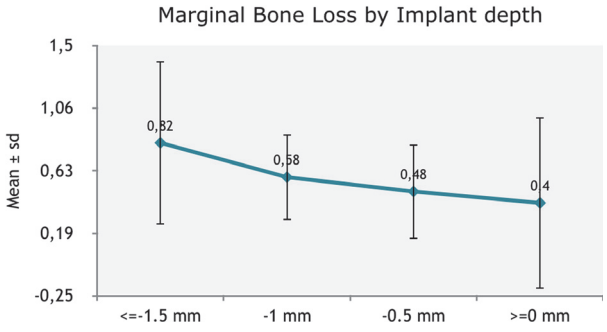
Background: Scientific literature demonstrated that implant therapy is highly reliable. Contributing factors to failures and marginal bone loss (MBL) have been documented. However, most of our knowledge stems from implants placed by experienced teams in university settings with strict selection criteria or in private offices. Studies on implants placed by inexperienced clinicians like students in non-selected patients are scarce; they should be more representative of the daily reality of implant therapy.

Aim/Hypothesis: Objective of this study was to identify contributing factors to implant failure and MBL of C1 and V3 implants (MIS) placed by inexperienced post-grad. students in the attending flow of patients. Contributing variables were related to the patient, the local site, surgical and prosthetic protocols.

Material and Methods: 130 C1 and 90 V3 implants Ø 3.3–5 × 8–16 mm long were placed in 99 patients. All surgeries were performed by inexperienced postgraduate students under supervisor attention. After 3 months of healing, the prosthetic steps were carried out. Failures and MBL were investigated at the 1 year recall after prosthesis delivery. Variables were divided into factors related to the patient (gender, age, smoking, periodontal disease, diabetes, oral hygiene), implant items (type, diameter, length, prosthetic abutment height and type), local site (jaw, site number, soft tissue thickness, biotype, amount of keratinized mucosa (KM), pocket depth (PD) at follow-up, surgical protocol (implant placement depth, bone sinus grafting, healing protocol, insertion torque), prosthetic variables (screw-retained, cemented, crown implant ratio). A generalized linear model and generalized estimating equations were used to identify contributing factors to implant failure and MBL.

Results: 8 early failures were recorded, no implant failed after loading; survival rate was 96.4%. No variable significantly affected implant failure. Implants placed in perio. patients were at higher risk (OR = 5.6) but the difference was not statistically significant (NS, $P = 0.11$). Overall mean MBL was 0.53 mm, difference between C1 and V3 implants was NS ($P = 0.11$); difference between Mx (0.60 mm) and Md (0.46 mm) was NS ($P = 0.05$). Several variables affected MBL- gender (female 0.60 mm > male 0.44 mm, $P = 0.02$), implant diameter (MBL Ø3.3 = 0.99 mm, MBL Ø5 = 0.39 mm, $P = 0.001$), depth (d) of implant placement (for $d = 1.5$ and 2 mm, MBL = 0.82 mm; for $d = 1$ mm, MBL = 0.58 mm; for $d = 0$ mm, MBL = 0.40 mm, $P = 0.003$), KM height (when no KM MBL = 0.73 mm, any added mm of KM up to 4 mm decreased MBL by 0.06 mm, $P = 0.037$), PD at follow-up (MBL associated with deeper PD, 0.12 mm more MBL for every mm of PD > 3 mm, $P = 0.034$). In contrast, thickness of gingiva, biotype, prosthetic abutment height, abutment type MUA vs Ti-base did not affect the MBL.

Conclusion and Clinical Implications: The failure rate of C1 and V3 implants placed by inexperienced students was as low as 3.6%. A high survival rate of 96.4% was achieved, similar to published data from experienced practitioners. No contributing factor was identified for implant failure. Several factors have been shown to contribute to MBL; they were- gender (female), implant diameter, depth of implant placement, presence of KM, PD depth. In contrast, thickness of gingiva, prosthetic abutment height were not found to affect MBL.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0,4
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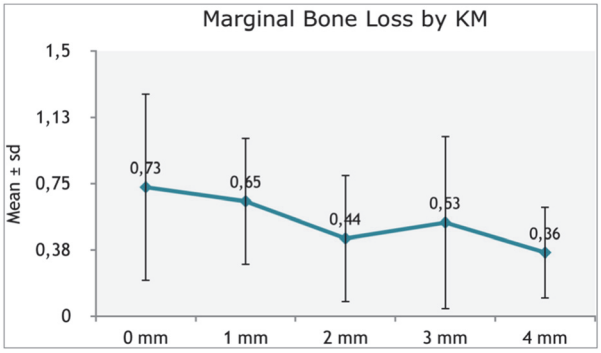
-1 mm
-0.5 mm
>=0 mm


Marginal Bone Loss by KM
Mean ± sd
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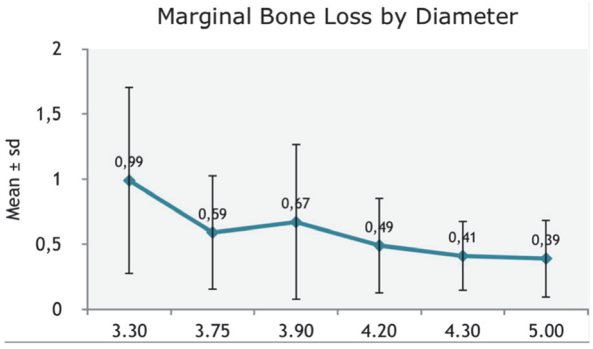
0,53
0,36
0 mm
1 mm
2 mm
3 mm
4 mm


Marginal Bone Loss by Diameter
Mean ± sd
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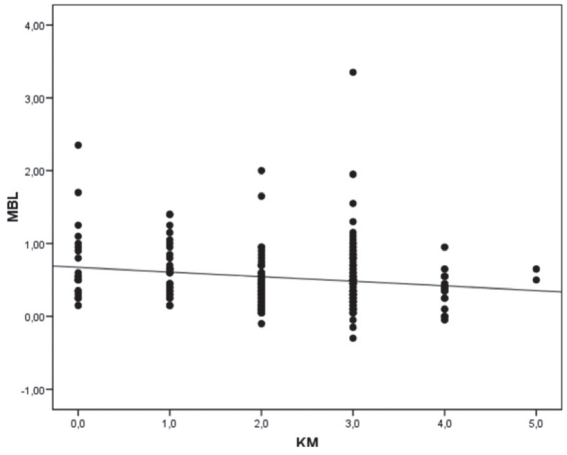
5.00


MBL
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0,0
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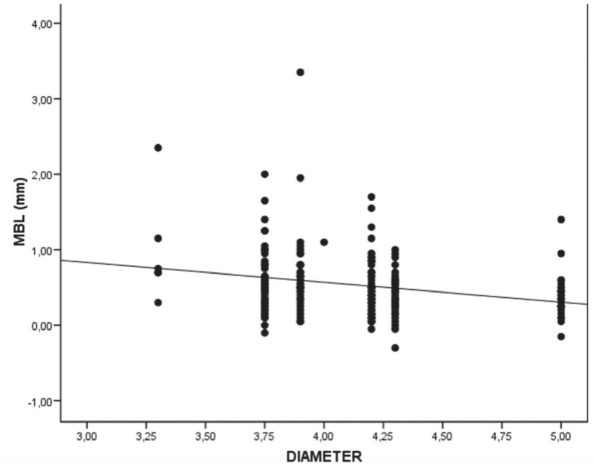
KM


MBL (mm)
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-1,00
3,00
3,25
3,50
3,75
4,00
4,25
4,50
4,75
5,00
DIAMETER

16006 POSTER DISPLAY
CLINICAL RESEARCH – SURGERY

Survival rate and bone loss of immediately loaded tilted long implants: An up to 1.5-year follow-up

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Background: The All-on-4 protocol to rehabilitate edentulous jaws is a procedure in which 4 implants are placed in the anterior jaw. The two medical implants are straight and the 2 distal ones are tilted; tilted implants can be as long as 18–20 mm. Beyond the scope of pterygoid and zygomatic implants, the fate of ≥18 mm long tilted implants (LTI) has been scarcely addressed with regard to implant failure due to bone overheating and specific features of marginal bone loss related to the crestal position.

Aim/Hypothesis: Objective was to document the success rate and radiographic outcomes of long tilted implants used in an All-on-4 protocol in private practice. Specific bone loss features of long tilted implants were compared to tilted and straight 10–16 mm long (STD) implants when placed crestally and subcrestally.

Material and Methods: In a single private practice, 234 SEVEN (MIS) implants were placed in 36 maxillae and 22 mandibles of 36 edentulous patients (21 women, 15 men, mean 57.1 year) using the All-on-4 MULTIFIX protocol; 146 were inserted in the maxilla. Implants were 70 LTIs (66 in max, 4 in mand), 46 tilted and 113 straight STD implants. All received a per-operative multi-unit abutment (MUA); bone profiling was done at 174 sites. 36 straight implants and the distal side of 112 angulated MUAs were placed subcrestally. Implants were loaded within 3–5 hours with a screw-retained full-arch prosthesis. Radiographic data were recorded post-op (baseline) and at the 1 year and 1.5 year follow-up. Crestal bone loss (CBL) was measured on both sides from panoramic radiographs using the Image J software with internal calibration. Success rate and CBL were compared for LTIs versus angulated STDs versus straight STDs. Bone features specific to the distal side of angulated MUAs in subcrestal position versus the mesial side were also recorded.

Results: All patients passed the 1 year control, 13 pat 20 prosth 80 imp passed the 1.5 year control. No implant failed; overall success rate was 97.9% (5imp. with CBL ≥ 1.2 mm on both sides). Success rate of straight and tilted implants was 96.6% and 99.1%. At bone profiled sites bone remained slightly away from the machined MUA surface; it migrated apically down to the neck level; the same applied to the distal side of angulated MUAs. A bone densification (BD) feature was observed at straight and tilted implants; at tilted implants BD happened only on the distal side. In the mandible, BD frequency was 25.0% (11 44) for the tilted and 2.3% (1 44) for the straight; in the maxilla, it was 38.9% (28 72) for the tilted and 6.8% (5 74) for the straight. Mean CBL of straight versus tilted implants was 0.28 ± 0.51 mm versus 0.28 ± 0.54 mm. Mean CBL of LTI versus tilted STD was 0.25 ± 0.53 mm versus 0.32 ± 0.56 mm. At tilted implants, mean CBL mesial side versus distal was 0.39 ± 0.60 versus 0.17 ± 0.46 mm. 75.4% of implant sides had a 0–0.5 mm CBL.

Conclusion and Clinical Implications: The All-on-4 MULTIFIX protocol with SEVEN implants in the maxilla was as predictable as in the mandible. Overall success rate was 97.9%; it was 96.6% for the straight implants and 99.1% for the tilted ones. Overheating during placement of long tilted implants was not a concern. Bone densification at the distal sides of the tilted implants was more frequent (38.9%) in the maxilla than in the mandible (25.0%). CBL was similar for straight and tilted implants, and for LTIs and tilted STDs.

15891 POSTER DISPLAYCLINICAL RESEARCH – PERI-IMPLANT BIOLOGY

Do crestal bone levels change gradually with time? An up to 7.5-year study on SEVEN and C1 implants

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Background: The distinction between survival rates and success rates has been around for several decades; it is widely used to compare implant performance over time. Survival rates consider functioning implants only while success rates includes the measurement of crestal bone loss (CBL) over time on both proximal implant sides. To be considered as a success, the accepted criteria of CBL is 1.0-1.5 mm during the first year and then 0.20 mm per additional year. This concept supposes a gradual CBL over time.

Aim/Hypothesis: Aim of the study was to measure the CBL as a function of time for 2 distinct time periods on 2 different implant systems. The CBL over a period of 2.5-5.5 years was first considered on an implant with a conical connection; then a 4-7.5 year period was considered on an implant with an internal hex.

Material and Methods: A total of 62 implants (36 SEVEN, 26 C1, MIS) have been placed in the mandible and were followed over time. Follow-up time of the C1 was 31 to 69 months (median 55)- follow-up time of the SEVEN implants was 48 to 91 months (median 79). Crestal bone loss around the implants was measured on panoramic radiographs on the mesial and distal sides. Implants on unreadable radiographs were excluded. Implants that underwent clear radiographic signs of peri-implantitis (noticeable U-shape bone defect) and implants that had a CBL difference between the mesial and distal sides > 1.2 mm were considered to have suffered from a non-'physiological' progressive CBL. They were not included in this survey because the aim of this study was to measure a 'physiological' homogeneous progressive bone loss that is supposed to occur with time at a rate of 0.20 mm per year of function after the first year. The Kendall rank correlation coefficient was used to test the association strength between CBL and time.

Results: Mean CBL of the C1 implants was 1.11 ± 0.73 mm; mean CBL of the SEVEN implants was 1.44 ± 0.72 mm. The difference was statistically significant (Mann-Whitney U test, $P = .021$; $P < .05$). For the shorter interval of follow-up with the C1 implants- during the 2-3 year interval CBL was 1.13 ± 1.43 mm, during the 3-4-year interval CBL was 1.30 ± 0.51 mm; during the 4-5-year interval CBL was 1.05 ± 0.87 mm; during the 5-6-year interval CBL was 1.00 ± 0.54 mm. The Kendall correlation coefficient was = -.031; therefore, no association between CBL and time was found. For the longer interval of follow-up with the SEVEN implants- during the 4-5-year interval CBL was 1.41 ± 0.74 mm; during the 5-6 year interval CBL was 1.33 ± 0.48 mm; during the 6-7 year interval CBL was 1.28 ± 0.77 mm; during the 7-8 year interval CBL was 1.70 ± 0.78 mm. The Kendall correlation coefficient was = .052; therefore, no association between CBL and time was found.

Conclusion and Clinical Implications: Within the limitations of this study, the present data obtained with the SEVEN and the C1 implant systems are suggesting that there is no association between crestal bone loss and time of implantation for periods between 2.5 to 7.5 years. The amount of CBL widely used to assess survival rates of implants and compare implant performances over time might need refinement.