EAO EUROPEAN ASSOCIATION FOR OSSEOINTEGRATION
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Bone changes above and below the implant-abutment junction of subcrestally placed implants after 1 year post-delivery from a RCT.

ABSTRACT n°78ZHP

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* Speaker

Type of presentation : Oral Communication
Topic :
- Clinical innovations

Date of submission : Sunday 3 May 2020 at 9:21 pm

Background:
In subcrestally placed implants,there is a presence of the bone above the implant neck.The changes of that bone are called ‘bone remodeling’,which differs from ‘bone loss’,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),disturbance of the peri-implant seal and decreases bone remodeling,situated above implant neck,and bone loss,regarding the bone situated below implant neck.

Aim/Hypothesis:
To compare bone changes above and below the implant-abutment junction after 1 year post-delivery between,1) implants with crowns mounted on a Ti-base affixed to the implant neck that underwent 4 ADs,2) implants with crowns affixed to a 1-time abutment (torqued 30N on surgery) that underwent no ADs.

Materials and Methods:
A randomized controlled prospective clinical trial was set up with 74 patients receiving a 'bone level' implant with platform-switching (V3, MIS) in mono-edentulous sites in posterior mandible and maxilla.All implants were placed 1.5 mm subcrestally. In the test group,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, 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 1mo. loading,a final Zr-based screw-retained crown mounted on a titanium base was delivered to both groups.1 y. after final crown delivery,bone levels were measured and compared with the Mann-Whitney U test ($p<=0.05$).Bone loss was measured at the first bone-to-implant contact below the implant neck,while bone remodeling was measured as a first bone-to-Ti base or abutment contact above the implant neck.

Results:

Fourteen men, 28 women (mean age 48.3 3.4 years) had 23 mandible and 19 maxillary implants evaluated after 1 year. In the test group (n=24), bone loss after 1 year was 0.06 0.17 mm (range, 0.0-0.6 mm). In the control group (n=18), implants had 0.27 0.58 mm (range 0.0-2.4 mm) of bone loss, difference statistically not significant (p=0.322). Implants in the test group after 1 year had 0.73 0.40 mm (range 0.0 - 1.65 mm) of bone remodeling, while control group had 0.83 0.47 mm (range 0.05-1.80 mm), difference was not statistically significant (p=0.453). In the control group bone loss after 1 year compared to early bone loss after final crown delivery was reduced by 0.325 mm (p=0.013), while in the test group it remained stable (0.00 mm; p=0.279) Bone remodeling also did not change statistically significant in both groups (test group; p=0.583; control group; p=0.948) compared to early and 1 year remodeling after final crown delivery.

Conclusions and Clinical Implications:

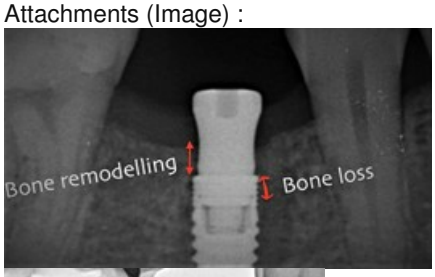
Within the limitations of this study, it can be concluded that using the 1-time Connect abutment that turns 'bone level' implants into 'tissue level' implants can reduce bone loss and bone remodeling after 1 year around conical connection implants placed 1.5 mm subcrestally, although the difference was not statistically significant. Further studies are needed to confirm that.

Acknowledgements:

Attached files:

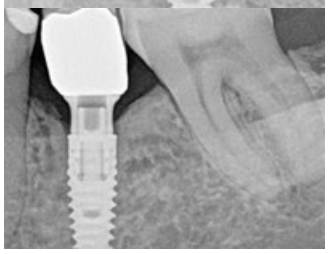
Pièce jointe PDF 1 Clinical and X-ray photos

Attachments (Image) :



Bone loss and bone remodeling explanation

Connect-abutment 1 year post-delivery



Implant level regular Ti-base 1 year post-delivery

DECLARATION OF CONFLICTS OF INTEREST

Conflicts of interest in the last three years, with the following companies :

- Clinical research / scientific work : No
- Consultant, expert : No
- Courses, trainings : No
- Advertising material : No
- Invitations to national or international conventions : No
- Shareholding : No
- Possession of a patent or inventor of a product : No

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The effect of soft tissue thickness on crestal bone loss of early loaded implants

ABSTRACT n°IWULT

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Type of presentation : Oral communication
Topic :
- Clinical research – peri-implant biology

Date of submission : Tuesday 12 May 2020 at 11:30 am

Background:
: CBL around implants is a multifactorial process with multiple etiology. Several factors like thickness of the gingiva at the implant site have been identified to affect early in time the amount of CBL. Most of the studies have been generated with implants loaded after more than 2 months following surgery. To the best of our knowledge, there is no experimental or clinical study comparing the effect of the gingiva thickness on early loaded implants.

Aim/Hypothesis:
To retrospectively evaluate the effect of soft tissue thickness on crestal bone loss of early loaded implants after 1 and 5 years.

Materials and Methods:
44 tapered implants with platform switching (C1®, MIS) were crestally placed in the posterior mandible and maxilla to rehabilitate edentulous sites; healing followed a 2-stage surgical protocol. The implants were loaded after six to eight weeks. Mesial and distal crestal bone loss (CBL) and soft tissue thickness (STT) were measured on standardized panoramic radiographs. Thin gingiva sites were 21, average thickness was 2.0 ± 0.3 mm; thick gingiva sites were 23, average thickness was 3.0 ± 0.8 mm. Success rate and crestal bone loss were measured after 1 and 5 years. The t-test was used to compare the CBL differences between groups; significance was set at 0.05.

Results:
: No early loaded implant failed at the 1- and 5-year of follow-up; the success rate was 100%. After 1 year, the CBL of the thin and thick gingival groups were 0.96±0.49 and 0.55±0.41 mm, respectively; the difference was statistically significant (p=0.004). After 5 years, the CBL of the thin and thick gingiva groups increased to 1.12±0.84 and 0.65±0.69 mm, respectively; the difference however was not statistically significant (p=0.052). Pairwise comparison of CBL between the 1- and 5-year follow-up for the thin and thick gingiva groups showed no statistically significant differences.

Conclusions and Clinical Implications:

Within the limitations of this study, early loading of C1 implants within 6 to 8 weeks is considered to be safe. After 1 year, CBL was more pronounced at sites with a thin gingiva; at 5 years the difference between the groups was levelled. Between 1 and 5 years, the CBL increased slightly but not in a statistically significant way.

Acknowledgements:

DECLARATION OF CONFLICTS OF INTEREST
Conflicts of interest in the last three years, with the following companies :

- Clinical research / scientific work : ISTANBUL UNIVERSITY DENTISTRY FACULTY DEPARTMENT OF ORAL IMPLANTOLOGY
- Consultant, expert : No
- Courses, trainings : No
- Advertising material : No
- Invitations to national or international conventions : No
- Shareholding : No
- Possession of a patent or inventor of a product : No

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Osseoconduction of a sandblasted and etched titanium alloy surface in type IV bone: a human histologic evaluation

ABSTRACT n°Y9ZG9

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* Speaker

Type of presentation : Poster display
Topic :
- Clinical research – peri-implant biology

Date of submission : Wednesday 13 May 2020 at 12:08 am

Background:
Machined surface implants placed in type IV bone of poor density are at a higher risk of failure than implants placed in normal and dense bone quality. Implants with a sandblasted and etched (SAE) textured surface placed in a poor bone quality environment has been documented to decrease the risk of failure when compared to machined surface implants. Histologic information about the osseoconduction capacity of SAE titanium alloy surfaces placed in sites of poor bone density in humans is scarce.

Aim/Hypothesis:
To evaluate the osseoconduction of a SAE titanium alloy surface placed in human type IV bone. The bone-implant contact (BIC) was compared to the initial expected BIC (IE-BIC) as proposed by Trisi 2002. Aim was to determine if the surface is bone neutral (BIC=IE-BIC) or bone conductive (BIC>IE-BIC).

Materials and Methods:
Four edentulous patients were scheduled to receive dental implants (C1, MIS) to support a full-arch prosthesis. Each patient received 2 additional customized implants (Ø3.5x8mm, V3, MIS) to be harvested after healing; 4 implants were placed in the mandible and in the maxilla. After 6mo they were retrieved with the surrounding bone and undecalcified histologic slices were prepared. The bony environment of each implant side was assessed. Sides that displayed a type IV bone were included in the study. They were: the vestibular and palatal sides of 2 implants placed in the maxilla, the palatal side of another maxillary implant and the vestibular side of a mandibular implant, 6 implant sides. BIC was first measured on the 6 implant sides; then IE-BIC was evaluated according to Trisi et al. (2002) by superimposing the profile of the implant threads 0.25mm away from its actual position; IE-BIC was determined as the percentage of bone contact that intercepted the implant surface on each side.

Results:

The mean BIC of the 6 sides in contact with type IV bone of poor density was 62.5±10.6% (min 45.4% - max 77.1%); the mean IE-BIC was 33.1±4.4% (min 26.5% - max 40.9%). The BIC was superior to the IE-BIC; this SAE titanium alloy surface can be considered as bone conductive. The BIC/IE-BIC ratio was 1.81±0.38. The BIC of each of the 6 sides was higher than the corresponding IE-BIC; it varied between +33% and +151%.

Conclusions and Clinical Implications:

This limited number of human histology samples documents for the first time that the present SAE titanium alloy implant surface is not bone neutral but osseoconductive when placed in a poor bone density environment in humans; the average BIC was 1.81 higher than the IE-BIC. This may explain the predictable clinical behavior of implants with this SAE textured titanium alloy surface in the posterior area of the maxilla.

Acknowledgements:

The authors wish to acknowledge the participation of Dr Mihaela Trifan to this study.

DECLARATION OF CONFLICTS OF INTEREST

Conflicts of interest in the last three years, with the following companies :

- Clinical research / scientific work : MIS
- Consultant, expert : MIS
- Courses, trainings : No
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- Invitations to national or international conventions : MIS
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