122 | Topic Implant Surgery

## The novel osteotome sinus floor elevation by tissue-engineered bone

Nakamura S[1], Yamada Y[2], Ito K[1], Kohgo T[1], Yoshimi R[1], Okabe K[1], Hibi H[2], Ueda M[1]

*[1]Department of Oral and Maxillofacial Surgery, Nagoya University Graduate School of Medicine, Nagoya, Japan, [2]Center for Genetic and Regenerative Medicine, Nagoya University School of Medicine, Nagoya, Japan*

**The objectives of the investigation:** The purpose of this prospective study is to evaluate the effects of injectable tissue-engineered bone (TEB) on osteotome sinus floor elevation for the severe bone resorption of the alveolar arrest in the maxilla with simultaneous implant placement for earlier bone regeneration and by minimal invasive operation.

**Experimental methods used:** This new technology, TEB bone regeneration, used mesenchymal stem cells (MSCs) as cells of three elements in tissue engineering and PRP, which provides signal molecules, as an autologous scaffold. The new regenerated mineralized tissue was evaluated by radiographic examination, computed tomography (CT) and orthopantomograph. Twenty-three implants were placed in 8 patients using osteotome sinus floor elevation with injectable TEB.

**Results:** The residual vertical height of bone between the sinus membrane and nature bone was 7.6 ± 1.8 mm on average. The mean lift-up bone height of osteotome sinus floor elevation by TEB technology was 5.5 ± 1.6 mm. And no perforations of the Schneider membrane were detected.

**Conclusions:** This new application, osteotome sinus floor elevation technique with TEB technology, would stably predict the earlier success of bone formation and dental implants, reduce patient burden, and provide minimally invasive cell therapy for the patient instead of sinus floor elevation.

123 | Topic Implant Surgery

## Osteotome sinus floor elevation without grafting material: a 3-year follow-up

Nedir R[1], Vazquez L[2], Nurdin N[1], Szmukler-Moncler S[1], Bernard JP[2], Bischof M[1]

*[1]Swiss Dental Clinics, CDR Clinique de Soins Dentaires, Vevey, Switzerland, [2]Department of Stomatology and Oral Surgery, School of Dental Medicine, University of Geneva, Geneva, Switzerland*

**Objectives:** In a previous study (Nedir et al. 2006), the predictability of an osteotome sinus floor elevation procedure with ITI-SLA implants without grafting material was evaluated in maxilla with limited residual bone height (RBH). Implants have now been inserted for at least 3 years. The endo-sinus and crestal bone levels (CBL) are reported herein for the same patient group.

**Material & methods:** 25 ITI-SLA implants were placed in 17 patients to rehabilitate 16 molar and 9 premolar sites with 4 single crowns and 13 fixed partial dentures. Most implants (21/25) were 10 mm long. The mean RBH was 5.4 ± 2.3 mm. At the 1-year control, all implants were clinically stable and showed a mean endo-sinus bone gain of 2.5 ± 1.2 mm and CBL of 1.2 ± 0.7 mm. At the 3-year control, endo-sinus bone gain and CBL were measured on apical radiographs.

**Results:** Three years after placement, all implants fulfilled success criteria. The mean endo-sinus bone gain was 3.1 ± 1.0 mm and the mean CBL was 0.9 ± 0.7 mm. During the last two years, 21 sites have kept on slightly gaining bone under the sinus and CBL has not increased except for three implants (+0.3 mm).

**Conclusion:** All implants gained endo-sinus bone during the first year and this gain has slightly increased for most of them over the two following years. The CBL, limited after one year, has stabilized over the two following years of survey. Despite a limited RBH at implant placement, the endo-sinus bone gained during the first year lead to a predictable long-term implant function.

124 | Topic Implant Surgery

## Immediate and early loading of straumann® slactive implants

Guerra F[1], Zollner A[2], Nicolau P[1], Jeffrey G[3], Korostof J[4], Krafft T[5], Bragger U[6], Reis R[1], Tondela J[1]

*[1]Universidade de Coimbra, Coimbra, Portugal, [2]Universitat Witten-Herdecke, Witten, Germany, [3]Florida Institute for Periodontics and Dental Implants, Boca Raton, FL, USA, [4]University of Pennsylvania, Philadelphia, PA, USA, [5]Private Practice, Weiden i.d. Oberpfalz, [6]Universitat Bern, Bern, Switzerland*

**Objective:** The purpose of this presentation is to show the 5 and 12 months results (survival rates), of a 3-year prospective randomized controlled multicenter study of the new chemically modified SLActive surface in immediate and early loading in the posterior region.

**Methods:** Patients of both genders ≥ 18 years of age with one or more missing teeth in the posterior maxilla or mandible were enrolled in this study. Following implant placement, patients either received a temporary restoration on the day of surgery (immediate loading) or 28–34 days after surgery (early loading); restorations with a single crown or 2–4 unit bridges; loading was done in all 4 bone type qualities if primary stability was achieved. Permanent restorations (PR) were placed 20–23 weeks following surgery. Standardized radiographs were taken at baseline, at PR and at 12 months.

**Results:** At 5 months, 266 patients were enrolled in this study (118 male and 148 female), and a total of 383 implants were placed, 322 implants could be evaluated for bone level changes between surgery and 5 months post surgery, 170 immediate and 152 delayed. Mean bone level changes over both groups were 0.70 mm. Mean patient age was 46.3 ± 12.8 years. Implant survival rates were 98% and 97% in the immediate and early group respectively. Besides these preliminary results we will report on the descriptive 12 months data and a study update indicating the actual status of our research.

**Conclusions:** Results show good implant survival rates despite aggressive protocol. (Financial support by ITI Foundation)