Department of Orthodontics, Riga, Latvia, [4]Riga Stradins University, Department of Prosthodontics, Riga, Latvia

Background & Aim: Studies suggest that osteoporosis may compromise the mass and structural integrity of the jawbones. Cone-beam computed tomography (CBCT) is increasingly utilized in dental implant planning, enabling precise morphometric analysis of the mandibular structures and offering the potential for assessing osteoporosis risk. This study aims to investigate changes in mandibular cortical bone width (CTMI) in patients with reduced bone mineral density (BMD) and assess the prognostic effectiveness of CTMI in determining osteoporosis risk.
Methods: A retrospective case-control study design included 186 postmenopausal women (mean age 68.58 ± 7.82 years). BMD was evaluated using dual-energy x-ray absorptiometry (DXA) scans of the lumbar spine and femoral necks. Patients were classified into three groups based on their lowest T-score: normal BMD (T-score ≥ −1.0), osteopenia (T-score < −1.0 to −2.5), and osteoporosis (T-score ≤ −2.5). CBCT imaging was performed using the i-CAT Next Generation (KaVo Dental GmbH), to obtain a panoramic reconstruction of the mandible in the sagittal plane (layer thickness–3 mm). CTMI was measured as the distance between the superior and inferior cortical borders of the mandible at the projection of mental foramen. CTMI performance for osteoporosis prediction was assessed by AUC, with sensitivity, specificity, PPV, NPV from a dichotomous 2 × 2 table.
Results: Among participants, 35.5% had normal BMD, 46.2% had osteopenia, and 18.3% had osteoporosis. Average CTMI values were 3.53 ± 0.7 mm for normal BMD, 3.29 ± 0.9 mm for osteopenia, and 2.97 ± 0.8 mm for osteoporosis. A significant difference was observed between the normal BMD and osteoporosis groups ($p = 0.003$). CTMI showed moderate diagnostic accuracy (AUC = 0.66) with a sensitivity of 58.8%, specificity–67.1%, and a cutoff point–3.09 mm.
Conclusions: The mandibular cortical bone width (CTMI) in patients with osteoporosis is significantly reduced compared to those with normal BMD, suggesting its moderate diagnostic efficacy for assessing osteoporosis risk.
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PR428 | Implant Failure in Transcrestal and Lateral Window Sinus Augmentations: A Multivariate Analysis in a Retrospective Study

T. Mtanis[1], Y. Shafran[2], Y. Mayer[2,1], O. Ginesin[2,1], T. Asbi[2,1], H. Zigdon-Giladi[2,1], E. Gabay[2,1]
[1]Rambam Health Care Campus, Department of Periodontology and Implant Dentistry, Haifa, Israel, [2]Technion Institute of Technology, Rappaport Faculty of Medicine, Haifa, Israel

Background & Aim: Implant placement in the posterior maxilla may be frequently compromised due to alveolar bone loss and sinus pneumatization. Sinus augmentation is commonly performed to increase the vertical bone volume for implant placement. This retrospective cohort study aims to compare early implant failure rates within 6 months post-placement following lateral window (LW) or transcrestal (TC) sinus augmentation techniques. Intraoperative and postoperative complications were recorded.
Methods: Clinical records of all the patients, who were treated in the department of periodontology in Rambam health care campus which underwent either LW or TC sinus augmentations between 1 January 2015 and 31 December 2019. The data included demographic details, type of procedure, graft characteristics, complications during the procedure, postoperative complications, infections, implant survival and antibiotic regimen. Variables impact on implant survival was assessed by regression analysis.
Results: A total of 173 implants were included, 56 LW and 117 TC. Within the healing period of 6 months, 3 TC implants failed (1.73%) in average time of 5.33 months. Additional 13 implants failed in average time of 27.76 months, (10–69 months). The overall survival rate was 92.35%, up to 87 months. Survival rates of the LW and TC approaches were 96.4% versus 90.35%, respectively. LW demonstrated a 4-fold higher odds of implant survival. However, this difference was not statistically significant (OR: 4.18, 95% CI: 0.87–20.04, $p = 0.07$). Smoking was associated with 74% lower survival rates (OR: 0.26, 95% CI: 0.07–1, $p = 0.05$), while the effects of age, gender, graft characteristics, antibiotics and membrane perforation were minor. However, all implants with membrane perforation ($n = 11$) survived.
Conclusions: Within the limitations of the available data, both sinus augmentation techniques may be considered reliable for implant installation in the posterior maxilla. However, the LT approach may be more favourable for implant survival. Smoking may compromise implant survival.

PR429 | Survival Rate of Short Dental Implants in Patients With and Without Periodontal Disease History: An up to 20-Year Retrospective Study

M. Azevedo[1], F. Correia[1], M. Costa[1], M. Resende[1], R. Faria Almeida[1]
[1]Faculty of Dentistry of the University of Porto, Porto, Portugal

Background & Aim: When placing implants in patients with a history of periodontal disease, an increased risk of peri-implantitis and implant loss must be considered. This retrospective study aims to compare the survival rates of short implants in patients with and without a history of periodontal disease.
Methods: This retrospective study was conducted at a private clinic in Porto, Portugal, involving patients (both with and without a history of periodontal disease) who received short dental implants (≤ 8 mm) with at least one year of loading. All treatments were performed by the same clinician. Patients with periodontal disease received treatment for periodontitis prior to implant placement, followed by maintenance every 3 to 6 months. The Kaplan–Meier analysis was used to evaluate the occurrence of peri-implantitis and implant survival rates.
Results: The sample included 91 patients (64.8% with periodontal disease [PD] and 35.2% without [NPD]) and 183 short implants (65% PD, 35% NPD), with an average follow-up period of 14.3 years. The distribution of periodontal disease stages was as follows: Stage II (8.4%), Stage III (26.9%), and Stage IV (64.7%). Short implants showed a mean survival rate of 88.2% in the PD group and 96.9% in the NPD group, though this difference was not statistically significant. However, the incidence of peri-implantitis was higher in the PD group (21.8%) compared to the NPD group (6.25%).
Conclusions: Short implants demonstrated similar survival rates in patients with and without a history of periodontal