

CBCT Evaluation of Bone Density in Maxillary Canines and Premolars Area in Patients with Periodontitis

Objectives: to evaluate alveolar bone density in maxillary canines and premolars areas in patients with periodontitis according to cone-beam computed tomography examination.

Materials and methods: 42 cone-beam computed tomograms of adult patients with generalized and molar-incisor pattern periodontitis aged from 19 to 58 years (mean age 37.8 ± 12.3) were obtained and examined at Dental Medical Center of Bogomolets National Medical University. Measurements of CBCT bone density of 3 mm^2 area of medullar, vestibular and palatal cortical bone surrounding maxillary canines and premolars were made by InVesalius v.3.1 software. Results in Hounsfield units (HU) were presented as means and standard deviations and statistically analyzed with t-test using MedStat v.5.2 software. Statistical significance was set at $p < 0.05$.

Results: the mean values of CBCT bone density were as follows: 634.5 ± 272.5 HU (medullar bone), 1524 ± 305.4 HU (vestibular cortical bone), 1312 ± 260.3 HU (palatal cortical bone) in canines area and 512.4 ± 167.6 HU (medullar bone), 1452 ± 305.7 HU (vestibular cortical bone), 1088 ± 222.7 HU (palatal cortical bone) in premolars area. There was not revealed statistically significant difference in bone density values between maxillary canines and premolars areas.

Conclusions: even though the values of bone density of individual patients in canines area were a little bit higher than in premolars area, it was not found a statistically significant difference between bone density values in maxillary canines and premolars areas among examined population. Further research is needed in order to find more evidence and use bone density values for prognosis of periodontitis course and treatment planning.

Key words: cone-beam computed tomography, bone density, periodontitis, cuspid, bicuspid.

The authors declare the absence of any conflict of interest.