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Carotid Artery Calcifications on Panoramic Radiographs Among Dental Patients

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Objectives The study aimed to identify carotid artery calcifications (CACs) on panoramic radiographs among dental patients visiting VUL ZK and analyse the relationship between CACs and demographic variables: age and sex.

Methods The research involved a convenient sample of 3000 panoramic radiographs obtained from participants aged 45 years and older, visiting Vilnius University Hospital Zalgiris Clinic in the period from 2014 to 2020. Demographic data, namely, sex and age were collected for analysis. The investigator's ability to accurately identify carotid artery calcifications (CACs) was assessed through the evaluation of intra-observer agreement (IOA), which was considered as satisfactory. Statistical analyses were conducted using the IBM SPSS 26.0 statistical package using Mann-Whitney and Chi-square tests.

Results The required anatomical area was visible on 2287 panoramic radiographs (76.2%): 1326 (58.0%) women and 961 (42.0%) men. Mean age of the population was 59.13 years (SD = 9.973): 58.42 years (SD = 9.815) for men and 59.63 years (SD = 10.064) for women). CACs were found in 197 (8.6%) patients, of which 115 (5.0%) were unilaterally and 82 (3.6%) bilaterally. More CACs were found in men 103 (4.5%) than in women 94 (4.1%), $p = 0.002$. The prevalence of both unilateral and bilateral CACs increased with age, $p < 0.001$. The type of lesion was not statistically dependent on gender.

Conclusions CACs were detected in 8.6% of patients aged 45 years and older. The presence of CACs on panoramic radiographs increased with patients' age, and they were more prevalent in men. Our results show that dentists may play a crucial role in identifying patients at risk of cardiovascular diseases.