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STATISTICAL ANALYSIS OF THE CLINICAL COURSE OF CARIES IN PATIENTS WITH DIABETES MELLITUS

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Relevance. Diabetes mellitus is a global health issue with a steady increase in morbidity both worldwide and in the Republic of Belarus. The observed increase in the number of patients with diabetes mellitus necessitates comprehensive research on providing them medical assistance in all areas of health care, including dentistry.

Aim: to conduct a statistical analysis of the clinical course of caries in patients with diabetes mellitus.

Materials and methods. At the first stage of the research a systematic review of eLibrary and PubMed databases was performed. The keywords used included “diabetes mellitus”, “dental caries”, “pathogenesis” and “prevalence”. The search was limited to articles whose publication date is no longer than 10 years. The reference lists of relevant studies and reviews were manually searched for additional reports, giving preference to meta-analyses. Four articles considered the most reliable were chosen to demonstrate our concept. The second stage of the research (a retrospective multicenter study) involved the analysis of 1010 out-patient medical records of patients undergoing treatment for dental caries in three large dental polyclinics located in Minsk. The study included individuals aged 18 to 100 years who visited the healthcare facilities between January 1, 2024, and April 1, 2025. Primary attention was given to patients of periodontists and dental surgeons as diabetes mellitus significantly influences their scope of treatment, necessitating a thorough assessment of diabetic status during anamnesis collection. Patients were divided into age groups for the analysis of the following key indicators of dental health: gender, age, the DMFT index (The Decayed, Missing, and Filled Teeth index, is calculated for the assessment of caries prevalence), the CPI index (The Community Periodontal Index, is calculated for the assessment of periodontal status), the OHI-S (The Simplified Oral Hygiene Index, is used to assess oral hygiene status), and the presence and type of diabetes mellitus. All collected data were organized and systematized using Microsoft Excel.

Results and their discussion. Diabetes mellitus was identified in 46 out of 1010 individuals (4.55%), who formed the main study group. The remaining 964 individuals constituted the control group used for comparison. Initial assessment indicated a worse DMFT index in diabetic patients; however, considering the age-related prevalence of diabetes mellitus, these indicators were evaluated within age intervals of 18 to 60 years and over 60 years. Within these age groups no significant differences in DMFT index were found between the main group and the control group ($p > 0.05$). This contradicts literature data indicating a higher prevalence of caries in patients with diabetes mellitus in samples from the USA and China. In individuals with diabetes mellitus a low OHI-S value was observed, alongside a relatively high CPI value compared to the control group, suggesting higher motivation for oral hygiene practices among patients with DM. Analysis of the oral hygiene index in the main group and in the control group confirmed that patients with diabetes mellitus had lower OHI-S values than those without diabetes. Thus, more thorough oral hygiene allows them to alleviate their predisposition to more severe caries. This generally reflects a more attentive attitude towards their health among patients with diabetes mellitus, partly due to education in diabetes schools at endocrinological departments of healthcare organizations and effective educational activities by dentists.

Conclusion. According to the reviewed literature, patients with diabetes mellitus, a condition known to be an unfavorable prognostic factor, are at a higher risk of caries development. The practical part of the research shows that meticulous oral hygiene and consistent preventive strategies can significantly reduce the risk of caries among these individuals.