

“INTENSITY OF DENTAL CARIES AND LEVEL OF CALCIUM AND MAGNESIUM IN SALIVA IN 12-YEAR-OLD CHILDREN”

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Abstract Motivated by new challenges and insights, our paper represents an attempt to recognize the complexity of the etiology of dental caries in children, where the specific goals and focus of the research are aimed at the effects of saliva and its constituent components, therefore we directed the investigations to the following components: is there a significant inverse relationship between the intensity of dental caries and the level of calcium and magnesium in saliva and whether the examined salivary parameters and their optimal concentrations can be used as a diagnostic tool for caries activity. The research included 71 respondents, 26 female and 45 male aged 12 years. For the determination of calcium values in saliva we used ready-made tests - from BioTek Instruments, Inc. headquartered in Winooski, VT, USA. The principle of the methodology of the colorimetric test for the determination of calcium in saliva is based on the fact that calcium ions from the sample, saliva, in an alkaline environment react with the O-cresolphthalein complex, forming a complex with a purple color that absorbs light at 570 nm-578 nm. The intensity of the color was proportional to the concentration of calcium ions in the sample. For the determination of magnesium values in saliva we used ready-made tests - from BioTek Instruments, Inc. headquartered in Winooski, VT, USA. The principle of the method is with a photometric colorimetric test for the determination of magnesium in saliva, where in an alkaline environment magnesium ions from the sample, saliva, react with xylydyl blue, diazonium salt and form a complex with a purple-red color that maximally absorbs light at 520-546 nm. The intensity of the color is proportional to the concentration of magnesium ions in the sample. The examined relationship between the values of calcium and magnesium in the saliva of children with permanent dentition and the presence of the dental has a distinctly low negative insignificant correlation ($p>0.05$). The increase in the values of calcium in the saliva of children with permanent dentition decreases with the presence of dental caries in children, distinctly insignificant. The examined relationship between the values of magnesium in the saliva of children with permanent dentition and the presence of the dental has a distinctly low negative non-significant correlation ($p>0.05$). The increase in magnesium values in children with permanent dentition is followed by a drop in the occurrence of dental caries in children, which is clearly insignificant.

Key words: dental caries, calcium, magnesium, permanent dentition