

Gladka O.M.

Application of magnesium containing drugs for teeth remineralisation

Kharkiv National Medical University, Therapeutic dentistry department,

Kharkiv, Ukraine

Introduction. Caries is the most common disease of hard tooth tissues in worldwide populations and the issue of its prevention remains one of the most important problems in dentistry. The results of macroelements study (calcium, magnesium and phosphorus) represent a certain interest, because it can characterize remineralization capacity of teeth. **The purpose of research.** Improved efficiency of caries prevention in patients through use of magnesium containing medication with a focused impact on enamel mineral composition. **The tasks of the research:** 1. Study the microelement composition of tooth enamel in the control group and main group. 2. Evaluate the clinical efficacy of the proposed method of tooth mineralization and develop the recommendations for its practical implementation.

The materials and methods of research. Research of a chemical compound of hard tissues of 30 teeth at 30 patients, age from 19 - 25 years, by acid enamels biopsy method (V.K.Leonteva, V.A.Distel). Patients have been divided into two groups: 1st – control group - patients with low level of caries intensity (CFE=0) and the 2nd basic group - with high level of caries intensity (CFE=8). The recommendation to the 2nd group patients was application of 5 % magnesium sulfate solution and rubbing in the enamel magnesium containing drug on a basis of bishofit –«Elixir for oral cavity» by tooth brush 2 times a day during 1 month. In the received biopsy studied quantity of calcium, magnesium and phosphorus by the atomic-emission spectroscopy with the inductive-connected plasma method. Data were analyzed by Student's method. A p-value <0.05 was considered statistically significant. **Results.** In the control group the exit level of Ca^{2+} was $41,82 \pm 0,18 \mu\text{g/ml}$, PO_4^{3-} $19,79 \pm 0,25 \mu\text{g/ml}$, Mg^{2+} $0,64 \pm 0,02 \mu\text{g/ml}$, and Ca/P molar correlation was $1,64 \pm 0,03$. In the basic group the exit level of Ca^{2+} $37,66 \pm 0,5 \mu\text{g/ml}$, PO_4^{3-} $22,53 \pm 0,12 \mu\text{g/ml}$, Mg^{2+} $0,38 \pm 0,01 \mu\text{g/ml}$ and Ca/P molar correlation was $1,33 \pm 0,02$. After the course of preventive measures the enamels acid stability of the 2nd group patients has raised, that proves by increasing

level of Ca^{2+} to $41,51 \pm 0,43 \mu\text{g/ml}$, Mg^{2+} to $0,65 \pm 0,01 \mu\text{g/ml}$ and decreasing level of PO_4^{3-} to $19,9 \pm 0,18 \mu\text{g/ml}$, Ca/P molar correlation was $1,61 \pm 0,03$. In 1 month after the prevention the exit level of Ca^{2+} was $41,03 \pm 0,39 \mu\text{g/ml}$, Mg^{2+} $0,59 \pm 0,01 \mu\text{g/ml}$ and PO_4^{3-} $20,22 \pm 0,12 \mu\text{g/ml}$, Ca/P molar correlation was $1,57 \pm 0,02$. **Conclusion.** Persons with a high level of caries had reduced levels of Ca^{2+} and Mg^{2+} and a high level of PO_4^{3-} in the enamel biopsy. Using this caries prevention complex containing of 5 % magnesium sulfate solution and mineral balm of bishofit – «Elixir for oral cavity», helps to increase the levels of Ca^{2+} and Mg^{2+} , decrease the level of PO_4^{3-} in the enamel biopsy, thereby reducing the development of dental caries by stabilization of Ca/P molar correlation.