



## 27. EVALUATION OF THE PATHOLOGY OF THE FIRST PERMANENT MOLAR IN CHILDREN FROM LOCATIONS WITH LOW CONCENTRATIONS OF FLUORINE IN DRINKING WATER

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**Introduction.** The low concentration of fluoride in drinking water can have negative effects on children's oral health. For a maximum cariopreventive effect, fluoride must be administered endogenously during the mineralization period of the teeth.

**Aim of study.** Evaluation of the pathology of the first permanent molar in subjects aged 12 and 15 years from a geographical region of the Republic of Moldova with low fluoride concentration in drinking water.

**Methods and materials.** The medical records of 126 children aged 12 and 15, living in an area in the south of the Republic of Moldova, where the concentration of fluoride in drinking water is low, were analyzed. The subjects were ordered into 2 age groups: I group - 12 years (59 subjects) and II group - 15 years (67 subjects), later each group was subdivided into 2 other subgroups: A - girls and B - boys, depending on gender. Respectively, 31 subjects were included in group I A, subgroup I B - 28 subjects, II A - 32 subjects and II B - 35 subjects. Dental caries frequency indices, DMFT and DMFS caries intensity index, molar incisor hypoplasia (MIH) frequency index and missing first permanent molar were analyzed in both study groups.

**Results.** In the given locality the concentration of fluoride in the drinking water is low  $\cong 0.5$  ppm. The frequency of dental caries was 100% in all four study subgroups. The intensity of dental caries varied according to age: in the 1st group the DMFT index = 4.5, and the DMFS index = 8.1. In study group II, the DMFT index = 6.3, and the DMFS index = 12.9. The MIH frequency was 8.73% overall, and the highest frequency was in the group of 15-year-old boys – 11.42%. Premature loss of the 6-year-old molar was diagnosed in 12.69%, and missing first molar was most frequently diagnosed in 15-year-old boys – 17.5%. The serious case was diagnosed in a 15-year-old male subject who was missing 3 first permanent molars.

**Conclusion.** In areas with low fluoride concentration in drinking water, the frequency of dental caries is very high - 100%. The values of the dental caries intensity indices, both DMFT and DMFS exceed the values of the average level of dental caries intensity, placing these subjects in the group of subjects with high dental caries intensity. MIH falls within the global MIH frequency limits. Premature loss of the first permanent molar reaches alarming levels of up to 17.5%. Consumption of water with a low concentration of fluoride during the period of formation and mineralization of dental hard tissues presents an increased risk of dental caries and premature loss of permanent teeth.