



IMPROVEMENT OF ORAL HYGIENE STATUS IN CHILDREN INFLUENCED BY MOTIVATION PROGRAMS

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ABSTRACT

Background: Providing and maintaining proper oral hygiene is related with the control of initiation and progression of dental caries and periodontal diseases.

Objective: To accentuate on the application and effectiveness of standardized motivational program for oral hygiene in children with assessment of OHI-S Green-Vermillion.

Methods: The study includes 200 children from 3 to 6 years of age. Comparison and evaluation of effectiveness of toothpastes with different fluoride concentrations regarding proper hygiene status in children. Application of OHI-S by Green-Vermillion. Examined children are divided into two groups. The first group consists of 100 children divided into two subgroups. The subgroup of children aged from 3 to 5 years washed their teeth with toothpaste containing 500 ppm F. The subgroup of children at the age of 6 used toothpaste containing 1000 ppm F. Concerning the second, control group of 100 children no specific motivation activities were provided.

Results: Among children being influenced by standardized motivation program combined with application of toothpaste with 500 ppm F, 45% show better oral hygiene level. Among children influenced by standardized motivation program and toothpaste of 1000 ppm F, 20% of them are with improved oral hygiene status. Reduction of the OHI-S values in children from 3 to 5 years is established from 1.92 to 1.16. In children at the age of 6 OHI-S is reduced from 1.67 to 1.14.

Conclusion: 1. All children improve their oral hygiene status after a period of training and motivation.

2. In children at high decay risk standardized motivation program should be combined with additional prophylactic approaches.

Key words: oral hygiene index, motivation, fluoride concentrations.

INTRODUCTION:

Providing and maintaining proper oral hygiene is related with the specifics of initiation and progression of dental caries and periodontal diseases [1]. Dental plaque control, especially plaque's qualitative and quantitative characteristics, makes an impact on oral microflora. Restriction of the amount of *Streptococcus mutans* and

suppression of the colonization and growth of Gram (-) microorganisms are established as consequences of regular and optimal oral hygiene procedures [2].

Clinical effects of oral hygiene measures are being demonstrated on local and individual level. The local effect of oral hygiene correlates with considerable reduction of tooth decay lesions, influencing also their progression. The individual effect concerns the regularity between oral hygiene status and teeth affected by caries. Children who are providing optimal oral hygiene measures for their teeth and gums are with significantly smaller number of decayed teeth, compared with those who neglect oral hygiene cares [3].

Efficient technique of teeth brushing, performed with fluoride-containing tooth pastes, ensures minimization of the risk of tooth decay [4]. These pastes deliver the daily needs of fluorides for post-eruptive maturation and remineralization of the enamel tissue. Fluorides increase the resistance of enamel. These have anti-bacterial effect, suppressing microorganisms' enzyme metabolic processes [5]. Fluorides inhibit microorganisms' capacity for adherence to enamel surface [6].

The aim of this study is to accentuate on the application and effectiveness of standardized motivational program for oral hygiene in children with assessment of OHI-S Green-Vermillion.

Tasks: The following tasks are related with fulfillment of the formulated aim:

1. To evaluate the initial oral hygiene status in children aged from 3 to 6 years and compare it with their oral-dental state after performance of clinical oral hygiene procedures in clinical trials with age-dosed fluoride toothpastes.

2. Application of a standardized program for oral hygiene motivation in the experimental group for a period of one month.

3. To record and compare the oral hygiene status in the groups after a period of one month.

MATERIALS AND METHODS:

The study includes 200 children from 3 to 6 years of age. We compared and evaluated the effectiveness of toothpastes with different fluoride concentrations regarding proper hygiene status in children. OHI-S by Green-Vermillion was applied. Examined children were divided

into two groups. The first group consists of 100 children divided into two subgroups. The subgroup of children aged from 3 to 5 years washed their teeth with toothpaste containing 500 ppm F. The subgroup of children at the age of 6 used toothpaste containing 1000 ppm F. Concerning the second, control group of 100 children no specific motivation activities were provided.

Procedures of proper oral hygiene motivation were performed following an exact protocol:

- Visualization of plaque on teeth surfaces using a coloring tablets; comments with the children and their parents about the relation between intensity of teeth colorization and thickness of dental plaque;

- Demonstration on a plastic model of upper and lower jaw the correct sweeping and in circles performed movements of tooth brushing; accentuation on the distal sectors of upper and lower teeth alignments, especially the zone of molars;

- Records of gingival bleeding degree applying a periodontal probe (WHO) or dental floss;

- Demonstration of proper oral hygiene condition with active participation of the so-called live model (that means a child who strictly performs all the essential oral hygiene procedures resulting in maintenance of excellent individual oral hygiene status);

- Show of interactive cartoons and implementation of test pictures, thus stimulating children's willingness to brush properly;

Protocol of oral hygiene re-motivation cares was conducted after a period of 2 weeks.

The motivation program for both of the experimental and control groups were carried out by a dental specialist with the compliance of parents. Children of the test group were instructed to brush their teeth at home in the morning after breakfast and in the evening after the last meal with duration of three minutes. The individual oral hygiene status of children of the experimental and control groups was

registered before involvement into the motivational program.

RESULTS:

Among children being influenced by standardized motivation program combined with application of toothpaste with 500 ppm F, 45% show better oral hygiene level. Among children influenced by standardized motivation program and toothpaste of 1000 ppm F, 20% of them are with improved oral hygiene status (Figure 1).

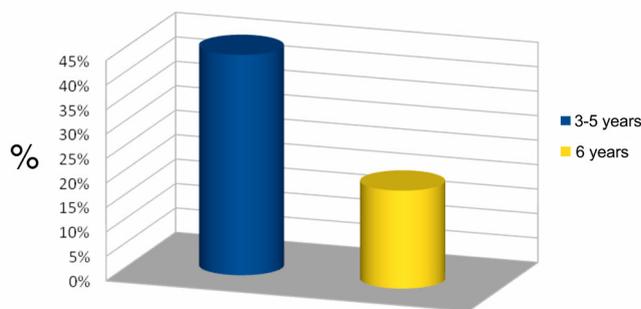


Figure 1. Evaluation of effectiveness of motivational program

% of children aged from 3 to 5 years, influenced by the motivation program;

% of children at the age of 6 influenced by the motivation program;

Concerning the fulfillment of the first task we assessed the initial oral hygiene status in children aged from 3 to 6 years prior to the application of the motivational program and clinical oral hygiene measures and afterwards. Results have been presented in Table 1. Reduction of the OHI-S values in children from 3 to 5 years is established from 1.92 to 1.16. In children at the age of 6 OHI-S is reduced from 1.67 to 1.14 (Table 1, Figure 2).

No Group studied children	OHI-S Green Vermillion-children from 3 to 5 years before motivation program	OHI-S Green Vermillion-children at the age of 6 before motivation program	OHI-S Green Vermillion-children from 3 to 5 years after motivation program	OHI-S Green Vermillion-children at the age 6 after motivation program
I – test group –using paste with F-/500ppm -for the age of 3 to 5 years; for the age of 6 years-1000ppm/	1,92	1,67	1,16	1,14
II - control group	1,52	1,61	0,88	1,27

Table 1. Results of the indices before/after washing of the teeth and oral cavity, and then conducting motivational program and clinical oral hygiene:

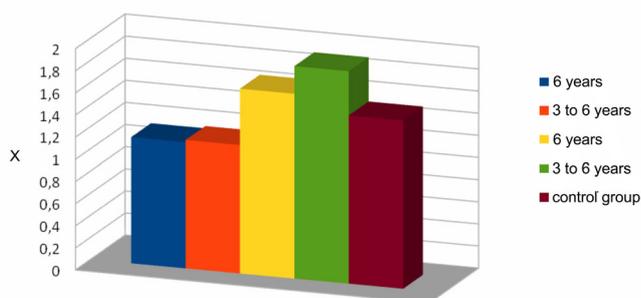


Fig. 2. OHI-Green-Vermillion values in children from the test group before/after washing teeth (according to date in table 1)

1. The group of 6 years old children before application of the motivation program;
2. The group of 3 to 6 years old children before application of the motivation program;
3. The same group of 6 years old children after the motivation program;
4. The same group of 3 to 6 years old children after the motivation program;
5. Control group

The initial oral hygiene status in the two groups is as follows: in the test group OHI-S index equals to 1.92 and in the control group OHI-S amounts to 1.52. Therefore, children of the experimental group are characterized with worse oral hygiene state compared with these of the control group.

Regarding fulfillment of the second task we applied a motivational program with clinical and individual oral hygiene procedures in the experimental group for a period of one month. The results of the level of oral hygiene received for the period of motivation in both groups are shown in columns 4 and 5 of table 1. Even after the performance of the motivational program significant differences in oral hygiene and the efficiency of brushing and washing teeth with toothpaste containing F have been detected. The study confirms the benefits of fluoride

toothpaste in prevention from tooth decay. For children aged 6 years and more fluorides concentration in pastes has to amount to 1000 ppm F. Concerning children assessed at high risk of caries we have to take into consideration the necessity of alimentary regime corrections. Essential is the control of type, consistency and frequency of consumption of carbohydrates, consumption of snacks, carbonated beverages and fruit juices [5, 6, 7].

The accomplishment of the third task is related with comparison of the oral hygiene status in both groups after a period of one month from the outset of the program.

Depending on the OHI-S values obtained, children were grouped into:

- Children with OHI-S which rates from 0 to 1 are characterized with very good oral hygiene status;
- Children with the index of OHI varying from 1 to 2 are determined to be with satisfactory oral hygiene state;
- Children with OHI-S values in the interval from 2 to 3 are in poor oral hygiene condition, related with a definite high risk of developing caries.

DISCUSSION:

The results of this study accentuate on the essential role of motivation programs for improvement of oral hygiene state and dietary regime in children of high risk of tooth decay. For children in moderate and low risk of caries these programs are also significant in order to preserve and maintain their proper oral-dental status [1, 8, 9, 10].

CONCLUSIONS:

1. All children improve their oral hygiene status after a period of training and motivation.
2. In children at high decay risk standardized motivation program should be combined with additional prophylactic approaches related with optimization of the dietary regime.
3. In the experimental sub-group of children aged 6 years and over, applying fluorides-containing toothpastes of 1000ppm F, participants have been evaluated with better oral hygiene records compared with the sub-group of these aged from 3 to 5 years using pastes of 500ppmF.

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