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Research Article

**COMPARISON OF EFFECTIVE USE OF VARIOUS ORAL
HYGIENE PRODUCTS****Prof., Grand Ph.D in Medical Sciences Admakin O. I., Dolgoplova M.V., Gutnikova T.S.,
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(Sechenov University)**Abstract.**

Due to insufficient dental education of the population, the percentage of caries prevalence reaches almost 100%. In studies conducted in recent years, the combination of basic and additional oral hygiene products usage, as well as the determination of the most effective algorithm for preventing the development of caries of contact and chewing surfaces, has been insufficiently covered.

The article considers and compares two algorithms for individual oral hygiene: using a manual toothbrush and dental floss; using a manual toothbrush and irrigator.

The study was carried out in two stages: conducting a medical and social research among students of the dental faculty and the clinical stage with the definition of hygiene indices (PHP, Quigley-Hein in Turesky modification) after performing each individual oral hygiene algorithm.

The results showed insufficient awareness of the need to use additional products for oral hygiene among students of the dental faculty. According to the results of the study, the "manual toothbrush + irrigator" algorithm was considered to be the most effective way of everyday hygienic oral care in order to prevent caries of the chewing and approximate tooth surfaces.

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INTRODUCTION:

According to the WHO, caries morbidity in different countries and among different groups of people varies from 80% to 98%. These statistics directly prove the need for effective prevention of caries.

The main role in the pathogenesis of dental caries is assigned to anaerobic microorganisms (*Streptococcus mutans* / *sanguis*, *Lactobacillus* and some *Actinomycetes*) and the acidic products of their vital activity (Leus P.A., 2008; Grudyanov A.L., 2004). The intensity of caries depends directly on the number and distribution of plaque on teeth, which necessitates an objective assessment of its presence and intensity. (Kuzmina E.M., 2003).

Therefore, the study and comparison of the effectiveness of various oral hygiene products can be used to identify the most preferred algorithm of daily hygiene in order to reduce the intensity of caries.

The relevance of research:

Due to insufficient dental education of the population, the percentage of caries prevalence reaches almost 100%.

Thus, of all the tooth surfaces, on molars the most affected one is in the groove region (Class I according to Black - occurrence is about 40%), on premolars - approximal i.e. contact surfaces (Class II according to Black - occurrence is about 37%), less frequently grooves, in incisors - more often approximal, less often - cervical surfaces. (Mikhalchenko A.V., Mikhalchenko D.V., Zakhvatoshina M.A., Filyuk, Basic Research. - 2014. No. 4-1. - P. 114-117;)

In studies conducted in recent years, the combination of basic and additional oral hygiene products usage, as well as the determination of the most effective algorithm for preventing the development of caries of contact and chewing surfaces, has been insufficiently covered.

In this regard, it seems necessary to optimize the process of oral hygiene, with a special emphasis on the prevention of caries of approximate surfaces and natural tooth cavities.

Purpose of the study:

Quality improvement of daily oral hygiene on the basis of comparing various options for using basic and additional hygiene products in order to prevent the development of caries of contact and chewing surfaces.

Objectives of the study

1. To conduct medical and social research among 3rd year students of the Faculty of Dentistry of the I.M. Sechenov First Moscow State Medical University (Sechenov University) to identify the level of awareness of oral hygiene regulations.
2. To determine dental faculty students hygienic status, depending on their nutritional habits and characteristics of their oral hygiene.
3. To conduct a comparative analysis of oral hygiene products based on the assessment of their effectiveness and ease of use.
4. To propose an algorithm for the optimal choice of everyday hygienic oral care to prevent the development of caries.

MATERIALS AND METHODS:

1. With the help of the google forms service, an anonymous survey and a clinical examination were conducted among 3rd year students of the Faculty of Dentistry. 135 people took part in the survey. The clinical examination included an oral examination and an index estimation of the hard tissues of the tooth.

2. The index of the efficiency of oral hygiene (PHP) Podshadley, Haley, (1968) and the Quigley-Hein plaque index in the Turesky modification were estimated. The questions of the survey concerned the presence of knowledge about individual oral hygiene regulations and practical skills to perform them.

3. Next, we carried out coloration of the teeth with a liquid plaque indicator. The coloration was carried out before and after cleaning the surface of the teeth from plaque using one of the proposed algorithms of individual hygiene.

Two algorithms of individual hygiene were proposed:

1. Combination of using a manual toothbrush and a dental floss: Teeth brushing was carried out according to the Leonard method "from red to white" (Kuzmina E.M. Prevention of dental diseases / E.M. Kuzmina. -M .: Study Allowance, 2003). Classical dental floss was used at all contact points by inputting it into the interdental space, pressing it on each tooth surface and removing soft plaque and food debris.

2. Combinations of a manual toothbrush and irrigator: Teeth brushing was carried out according to the Leonard method "from red to white". Participants of the survey were suggested to use individual nozzles for the irrigator; as well as the capacity of the irrigator was set in advance at an average value. Irrigator was used on all approximate surfaces of the

tooth, the direction of water jet was set at 90 degrees to the surface of the teeth and gums.

RESULTS AND DISCUSSION:

The prevalence of caries according to dental inspection was 100%. Of these, 45% were caries on the chewing surfaces, 32% were caries on the approximate surfaces.

So, it confirms that the prevalence of caries is very high, and the contact and chewing surfaces of the tooth are most susceptible to its occurrence.

The survey was conducted among 135 people, of which the proportion of men was 27.3% (37 people), and the share of women was 72.7% (98 people), respectively.

The age of the subjects: 86.4% (117) - from 18 to 25 years old, 9.1% (12 people) - up to 18 years old and 4.5% (6 people) - over 25 years old.

31.8% (43 people) change their toothbrush every two months; equivalent results were also met by those who change a toothbrush once every three months. Every six months, a toothbrush is changed by 25% of the interviewed, i.e. 34 people and 11.4% (15 people) of the respondents change their brush "as it is." Consequently, most of the dental students are aware of the need for timely replacement of the toothbrush.

63.6% (86 people) brush their teeth 2 times a day, and 4.5% (6 people) do it more than two times a day, what is more 15.9% (21 people) of the respondents never skip brushing their teeth, and 20.5% (28 people) brush their teeth poorly or in a hurry. 31.8% (43 people) brush their teeth once a day. Periodically 84.1% (114 people) of the respondents miss brushing. Periodically 79.5% (107 people) of the respondents brush their teeth in a hurry or poorly. Thereby, we can conclude that not all students of the relevant faculty know about the rules of oral hygiene or neglect the existing knowledge.

The duration of brushing teeth for 59.1% (80 people) is 2-3 minutes, 15.9% (21 people) of the respondents brush their teeth for more than 3 minutes, 18.2% (25 people) about 1 minute and 6.8% (9 people) - 10- 30 seconds. Statistics show that the largest percentages of interviewed students know the requirements for the duration of brushing. Failure to comply with the temporary rules for brushing teeth was still noted in a fairly large percentage of the subjects.

31.8% (43 people) of respondents visit the dentist twice a year, and 18.2% (25 people) visit the doctor at intervals of not less than six months. Once a year, the dentist is visited by 11.4% (15 people) of the respondents, and as a necessity - 38.6% (52 people) of the interviewed. These statistics directly prove the correlation between the prevalence of caries among the population and the need for constant monitoring by a dentist.

Often use additional hygiene products 15.9% (21 people) of students surveyed, 45.5% (61 people) use additional oral hygiene products only occasionally and 38.7% (52 people) very rarely or never. Of the additional hygiene products, dental floss is most often used, 40.9% (55 people) of the respondents use it, 18.2% (25 people) sometimes or often use irrigator and 15.9% (21 people) sometimes or often use brushes for interdental spaces. The lack of education on the need for using additional methods of hygiene is also one of the factors of high rates of caries prevalence, especially on the approximate surfaces of the tooth due to the inability to remove plaque on the contacts of teeth using basic hygiene products. 65.9% (29 people) use mouthwash.

The following results were obtained after coloring:

1. The result of coloring held before one of the proposed algorithms of oral cavity individual hygiene:



2.The result of coloring after conducting the proposed algorithms of oral cavity individual hygiene:
The top block of each photo shows the result of coloring after the “manual toothbrush + dental floss” algorithm; the bottom block shows the result of coloring after the “manual toothbrush + irrigator” algorithm





Thus, we can conclude that the most effective individual hygiene algorithm is while using a manual toothbrush and irrigator at the same time. This is confirmed by the smaller percentage of detection of food debris and dental plaque when colored on approximal and chewing surfaces after using a manual toothbrush and the irrigator, rather than after using a manual toothbrush and dental floss.

CONCLUSION:

1. We conducted a medical and social study among students and revealed a low level of students awareness of additional oral hygiene products.
2. The hygienic status of students was evaluated at the initial visit and after using each of the individual hygiene algorithms. Initially, high values of hygienic indices were recorded: the average result for the group was PHP - 1.3 (satisfactory), Quigley-Hein in

Turesky modification - 2.5. As a result of the “manual toothbrush + dental floss” algorithm implementation, the following average values were: PHP — 0.8, Quigley-Hein in Turesky modification — 1.8. When implementation of the second individual hygiene algorithm “manual toothbrush + irrigator”, the average values were: PHP - 0.6, Quigley-Hein in Turesky modification - 1.3.

3. When comparing the proposed algorithms, the greatest effectiveness of the “manual toothbrush + irrigator” variant was revealed regarding the variant with the use of dental floss. This is the result of dental floss low effectiveness in cleaning the approximate surfaces of the tooth from food debris and plaque regarding the irrigator. Ease of use is a subjective factor and is determined by the user of additional oral hygiene products.

4. It was concluded that the “manual toothbrush +

irrigator” algorithm is the most effective way of everyday hygienic oral care to prevent caries of the chewing and approximal tooth surfaces.

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