THE IMPORTANCE OF PROPHYLAXIS PASTES IN PREVENTING DENTAL CARIES

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Relevance. Prevention of dental caries is an integral part of population health programs and one of the important tasks of healthcare. The effectiveness of prevention methods depends not only on the well-coordinated work of doctors-dentists, but also from the patients themselves [1,4,5]. Literary reference. According to WHO and statistical literature data, the prevalence of caries in the Russian Federation is today it fluctuates between 98–100% [1,5]. The basis of the etiology of caries microbial factor lies in the teeth. It is the microorganisms contained in various types of plaque, oral fluid and on the oral mucosa cause the process demineralization of hard dental tissues. Dental plaque contains Str.mutans., Str. sanguis, Str.salivarius and other bacteria that are capable of producing dextran (polysaccharide). Dextran occupies a special position in the structure of the dental matrix raid. It is formed from sucrose and has high adhesive properties, which promotes fixation and growth of dental plaque [4,5]. Under the influence of enzymes and microorganisms, glucose and sucrose undergo a series of biochemical transformations, until the formation of lactic, acetic and propionic acids [2,5]. As a result their interaction, a set of acidic products of dental plaque is formed, demineralizing enamel components. Under dental plaque, directly on of the enamel itself, "local acidification" occurs (i.e., a local drop in pH to the mark 5.5–5.0). Already at this value, enamel demineralization processes occur. IN acidic environment, acid-producing microorganisms multiply well and attach to the surface of the teeth and along the gingival margin, which leads to the development caries [2]. Easily fermentable carbohydrates play a major role in the process development of dental caries. Plaque bacteria break down sugars to form the most acid and causing a pathological process of demineralization of enamel. Moreover, carbohydrates disrupt the imbalance in the microflora of the pellicle and increase the activity of Str. mutans, which causes plaque growth. Dental plaque contains a high amount immunoglobulins of classes A, G, M, lysozyme, amylase and other protein compounds. This causes various types of immunological reactions. Unfortunately, even good Hygienic oral care does not completely remove plaque. Biofilm growth and acid accumulation continue, creating a favorable environment for pathogenic bacteria that are resistant to acids, unlike non-pathogenic microorganisms. As a result, the pH decreases and growth continues microorganisms that produce acids in the biofilm. In connection with these processes it is necessary to influence the acid-base balance through the use of special hygiene

products, the main components of which contributed to changes in pH (transition from acidic to neutral side) [2]. Currently maintained relevance in the development of new hygiene products that affect various stages of pathogenesis of dental caries and periodontal diseases. Such a means became line of Colgate© toothpastes with sugar acid neutralizers, active substances, which are arginine, calcium carbonate, fluoride. These components affect the metabolism of biofilm, which reduces its pathogenicity, and in combination with fluoride, the anti-caries effect increases [1,2,3]. The purpose of our study was a comparative clinical evaluation of pastes with anti-caries effect and pastes with the effect of neutralizing sugar acids.

Materials and methods. 34 people were under observation, including 11 (32.4%) men and 23 (67.6%) women aged 18 to 65 years with dental caries, taking part in post-clinical testing of toothpaste with a neutralizer sugar acids and comparative assessment of its effectiveness. Sample of patients by based on age and gender characteristics was carried out randomly from among those who applied for an appointment with a dentist-therapist. To evaluate the effectiveness of toothpaste, The following criteria were selected: the cleaning function was determined using OHI-S index (Green-Vermillion), before the start of the study, 10 days after beginning of using the paste, as well as in the long-term periods of the study - after 1, 3 and 6 months follow-up. The ability to neutralize sugar acids was determined by dental plaque cariogenicity index (using methylene red), which was applied before and after using toothpaste. Acid activity dental plaque was determined colorimetrically by color change methylene red indicator from yellow at pH>6.0 to red at pH from 4.5 to 6.0. For a comparative assessment of the anti-caries effect of toothpaste with sugar acid neutralizers, all patients participating in the study were divided into 2 groups - main (n=17) and control (n=17). Patients the main group used a paste with neutralizers of sugar acids, and patients control group - standard pastes of therapeutic and prophylactic action with fluorides. The comparative assessment was carried out using the listed above criteria. The follow-up periods were 1, 3, 6 months of observation. Results of post-clinical testing of toothpaste with neutralizers sugar acids showed an improvement in the hygienic condition of the oral cavity up to characteristics of "good level of hygiene" according to OHI-S (1.2±1.31) in 27% of patients, "satisfactory level of hygiene" according to OHI-S (2.2±3.31) was determined after 10 days of using toothpaste with sugar acid neutralizers" in 73% patients; with the initial level of hygiene as "satisfactory" in 35% examined and "poor level of hygiene" with an average value of 3.8±2.47 – in remaining patients. In 1 patient, the level of hygiene did not change and was assessed as bad (OHI-S=3.4). 31 (91%) patients participating in the study underwent determination of dental plaque cariogenicity using methylene red and in 81% of cases received a decrease in the cariogenicity of plaque after regular using toothpaste with sugar acid neutralizers at least 2 times a day. All patients with the obtained result had a good level hygiene after the start of the study. Positive subjective assessment of the paste with neutralizers of

sugar acids such as: "The paste tastes good, cleanses well teeth – the feeling of smoothness remains for a long time, the feeling of freshness lasts for a long time after cleaning, does not have a pronounced mild taste" was given by 89% of those studied. Maintaining high levels of oral hygiene after 1, 3 and 6 months was diagnosed in 81%, 75% and 67% of patients, respectively. Results comparative evaluation of the effectiveness of toothpaste with sugar neutralizers acids showed that with similar equal indicators of hygienic status in comparison groups and equally stable skills in performing activities on individual oral care, the "good hygiene" indicator has been achieved in 73% of patients studied within 10 days of use in the main group, whereas in the control group similar values were determined only towards the end the first month of observation and only in 47% of the subjects. O reduction of cariogenicity plaque, after using hygiene products, evidence of the absence increase in dental caries according to the KPU value in the main group after 6 months observations, while in the control group an increase in caries was detected - the appearance new carious cavities in 3 people. The obtained indicators are confirmed and values of the dental plaque cariogenicity index using methylene red At initial diagnosis, 67% in the main and 65% in the control group, accordingly, we identified a persistent decrease in cariogenicity raid while saving the results obtained. In the long term - only 6 (17.6 %) of patients in the main group, plaque was assessed as cariogenic, while in comparison group - control, high cariogenicity of plaque remained in 39% researched.

Conclusion. The results of observations indicate that there is a pronounced anti-caries effect can be achieved through the use of products hygiene series of sugar acid neutralizers that affect the regulation microflora of the oral cavity. These data allow dentists to approach differentiated to the choice of products, taking into account the hygienic status patient, caries resistance of hard dental tissues.

LITERATURE:

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