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TREATMENT OF DENTAL CARIES IN CHILDREN AND ADOLESCENTS

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ABSTRACT

The article describes the features of the treatment of dental caries in children and adolescents. To date, there are many methods and means for the treatment of dental caries in children and adolescents, but despite this, the problem of treatment has not been fully resolved. The researchers agreed that the treatment of dental caries in children and adolescents should be comprehensive, aimed at increasing the body's resistance and enhancing remineralization of hard dental tissues.

Relevance. Currently, children and adolescents have a high prevalence and intensity of dental caries, there is a tendency to increase the growth of complicated forms of caries [2,5,8]. With untimely treatment of caries, foci of chronic odontogenic infection are formed, which serve as sources of sensitization of the body, have an adverse effect on the course of many diseases of internal organs and systems [1,4,5,7].

The treatment of dental caries in children and adolescents remains an extremely important and at the same time complex task and consists of a number of general and local activities.

The aim is to study the features of the treatment of dental caries in children and adolescents and improve treatment outcomes.

Materials and methods. Treatment of initial caries consists in conducting local pathogenetic therapy aimed at increasing the resistance of hard dental tissues, carried out by using remineralizing drugs.

The principle of remineralizing therapy is to compensate for the mineral elements lost by the enamel during the period of partial demineralization while preserving the organic matrix of the enamel. Remotherapy mechanism consists in the fact that calcium, phosphorus, fluorine ions, administered by application or electrophoretic, due to increased enamel permeability in the focus of demineralization, diffuse into the enamel and are sorbed in the organic matrix, forming an amorphous crystalline substance or replacing free places in the enamel apatite crystals that have not collapsed. This leads to normalization of permeability as a result of the new formation of hydroxyapatite crystals. As remineralizing agents use:

■ Applications of 10% calcium gluconate solution and 2% sodium fluoride solution.

■ Application of 10% calcium gluconate solution lasts 15-20 minutes, 2% sodium fluoride solution - 2-3 minutes. The course includes 10-15 procedures 2 times a year.

■ Application of 3% Remodent solution: session lasts 15-20 minutes. During the year, 3-5 procedures are carried out. The time of each procedure is 15-20 minutes.

■ Use of a calcium-containing gel.

■ Electrophoresis of 10% calcium gluconate solution on the area of hard teeth for 5 minutes, for a course of 15-20 procedures, followed by the application of sodium fluoride.

■ Rubbing a fluoride disk "Ftorglikofoskal": a course of 10 sessions twice a year every six months.

■ Coating of teeth with varnishes, gels: fluorine varnish, fluodent, elmex, fluocal, remin-pro, bifluoride, ToothMousse, R.O.C.S. MedicalMinerals, film "Diplen F", "Enamel-sealing liquid", "Cervitek", "Radogel F", "Belagel F", "Gluftored".

As part of "Remin Pro" three components are combined: hydroxyapatite, fluorine and xylitol. Hydroxyapatite fills the most minimal superficial foci of hard tissue destruction and thus can prevent hypersensitivity. Fluorine, in turn, ensures the transition of hydroxyapatite into an acid-resistant and remineralized form - fluorapatite. Xylitol also has cariesstatic properties, since under the action of cariogenic bacteria, the sugar substitute xylitol does not turn into a metabolic product - lactic acid, which has a damaging effect. Also, this component stimulates salivation. Remin-pro does not contain casein, which can cause allergic reactions.

With the initial and superficial caries of a milk tooth, silvering is used. Silvering is the treatment of caries-affected teeth with silver preparations, after which a film of reduced silver is formed on the surface of the tooth. Silvering is not a method of treating caries, but if the child is too small, negatively minded, or treatment is impossible for any other reason, silvering is used, it helps to slow down the carious process and “delay the moment”.

Silvering is carried out with a 40% solution of silver nitrate, silver fluoride preparations "Saforide" or its analogues "Argenat" by VladMiVa. Silvering is recommended for 3 visits every day, 2 times a year. For the prevention and stabilization of the carious process in persons with high enamel resistance, a combined calcium-containing preparation Calcium D 3 Nycomed is simultaneously recommended (in 1 tablet 500 mg of elemental calcium and 200 IU of vitamin D 3) prescription scheme - children from 6 to 11 years old, 1 tablet per day day course 20 days 2 times a year; adolescents from 12 to 15 - 1-2 tablets per day, a course of 25 days, 2 times a year.

Superficial caries in the decompensated form is treated by filling. After the preparation of the carious cavity, fluoride cement (50 grams of phosphate cement powder + 2.5 grams of sodium fluoride powder), glass ionomer cements are used for filling. In cases of caries with damage to the proximal surfaces, after preliminary remineralization of the walls and bottom of the defect, it is necessary to form a cavity and restore the shape of the tooth. Care must be taken with superficial fissure caries of permanent teeth in children with incomplete mineralization [6]. Pathogenetic therapy of caries in children and adolescents Pathogenetic therapy of dental caries in children and adolescents is carried out in the treatment

of caries in the stain stage, superficial, medium and deep caries. It consists of measures aimed at increasing the stability of hard tissues of the tooth and raising the level of nonspecific resistance of the body.

Pathogenetic therapy of caries includes the treatment of concomitant diseases of general pathology, which are conditions for the progression of the carious process.

The most common cause of a decrease in the immunobiological reactivity of the organism in children is diseases of an infectious-allergic nature, colds, long-term, diseases of the gastrointestinal tract, metabolic disorders, etc.

Prevention of the development of foci of infection and intoxication in the child's body, and if any diseases of general pathology are detected, and timely treatment by specialists of other profiles, is an important link in the complex of pathogenetic therapy for children suffering from dental caries.

A balanced diet plays an important role in increasing the body's resistance, regulating metabolism, and improving the processes of tooth mineralization.

With a balanced diet, optimal quantitative and qualitative relationships are provided between the main nutrients and biologically active substances - proteins, fats, carbohydrates, vitamins and minerals.

A person needs a certain amount of nutrients, equal to his energy consumption and corresponding to age.

So, the daily diet for a child up to 2 months should be 1/5 of his body weight, at 2-4 months - 1/6, at 4-6 months - 1/7, at 6-9 months - 1/8. For children aged 3 to 5 years, it should be approximately 1500 g, at 5-7 years old - 1800 g, at 7-11 years old - 2000-2300 g. consume an average of 80-100 g of proteins, 400-500 g of carbohydrates, 80-100 g of fats (of which 10% due to vegetable oils), up to 0.1 g of vitamins, up to 20 g of salts (including 10 g of table salt) .

The daily balance of water for a person is 2.3-4.5 liters. Of this amount, 800-1000 ml is contained in the solid part of the diet, 300-400 ml is formed in the body. The remaining 1200-1300 ml is conventionally called free liquid. It consists of drinks, water, juices, soups, milk, etc.

The amount of nutrients depends on the degree of mineralization of drinking water and especially on the content of fluorine in it.

With a lack of fluorine (less than 1 mg / l), salts of Ca, phosphorus, iron, manganese, fluorine, and vitamin B 1 must be added to food. Fluorine is introduced into the body in the form of tablets or solution in the following dosages: children under 2 years of age daily 0.25 mg of sodium fluoride, from 2 to 4 years - 0.5 mg, over 4 years - 1 mg. "Natrium fluoratum" - lozenges for children (orange, mint). For the prevention of caries in children during the entire period of tooth formation: at the age of 2-6 - 1.1 mg, over 6 years old - 2.2 mg 1 time per day.

The tablet is kept in the mouth until completely resorbed (between meals). It is not recommended to use drugs containing calcium at the same time. The best results were obtained with the simultaneous administration of sodium fluoride orally and local treatment.

Teeth with fluorine varnish, gel, fluoridisk "Ftorglikofoskal" or applications of 0.5-2% sodium fluoride solution. Local treatment of teeth with fluoride

preparations is carried out at least once a month until the age of 16.

With the optimal fluorine content, foods containing Ca, phosphorus, copper, zinc, vitamins B 1, B 6, C and D should be included in the diet. Products should not be subjected to prolonged cooking.

In order to improve metabolic processes in bone tissue up to 3 years, vigantol is prescribed. In the case of an increased fluoride content in drinking water, calcium-containing substances, such as milk, cottage cheese, eggs, fruits, and vegetables, are added to the diet.

Carbohydrates should be introduced into the body in the form of vegetables, fruits, natural juices. The cariogenic role of carbohydrates depends on the frequency of sugar intake and the amount remaining in the oral cavity, the physical properties of sugary foods.

Protein deficiency during the period of tooth development leads to a decrease in their size and mass, a violation of the enamel structure. A special role is played by essential amino acids (arginine, lysine, alanine, etc.), the exchange of which is sharply disturbed during caries. They are found in all animal proteins, but most of them in beef, chicken meat. From plant products, the largest amount of arginine and lysine in beets.

With a balanced diet, animal proteins should make up 50-60% of the total amount of protein in the diet.

The balance of the mineral composition lies in the strict ratio of calcium, phosphorus and magnesium. The balance of calcium and phosphorus is determined by the ratio of 1:1.5-1.6, calcium and magnesium: 1:0.5. The need for calcium for children aged 1-3 years is 800 mg daily, for children aged 4-6 years - 1200 mg; phosphorus, respectively, 800 mg and 1450 mg. The absorption of calcium decreases with an excess content of phosphorus, potassium, magnesium and fat in the diet.

To normalize phosphorus-calcium metabolism, children under 3 years of age are prescribed vigantol (cholecalciferol) 1 drop 1 time per day, the course of treatment is determined by the doctor. Older children are prescribed the drug Calcium D3 Nycomed (500 mg of elemental calcium and 200 IU of vitamin D3) for children from 6 to 11 years old, 1 tablet per day for 20 days, 2 times a year; adolescents from 12 to 15 - 1-2 tablets per day, 3 times a year. Fluorine (fluoride, sodium fluoride - 1 mg 2 times a day, the course of treatment is 2-3 months); phosphorus (fitin 0.25 g 3 times a day, the course of treatment is 1-1.5 months, 2 courses of treatment are carried out per year).

Among a large number of drugs, Calci-Cal can be noted - a combined drug that regulates the exchange of calcium and phosphorus in the body. Replenishes the lack of calcium and vitamin D3 in the body, necessary for the mineralization of teeth, strength of bones and muscles. Produced in the form of a syrup.

The mineralization of the tooth tissue is also facilitated by the preparation Kaltsinova (Kalcinova), which contains calcium, phosphates, and a complex of vitamins. These drugs regulate the exchange of calcium and phosphorus in the body, inhibit the leaching of calcium from the body, compensate for the deficiency of calcium and vitamin D3, and cause the mineralization of dental tissues. Calcevit, Borocco Plus, Calcemin, Kinder-biovital gel, Kiddy-pharmaton, etc. are also used.

To compensate for the deficiency of minerals, patients are prescribed calcium preparations (gluconate, glycerophosphate, lactate and calcium pantothenate - 0.5 g 3 times a day, the course of treatment is 1-2 months, 2-3 courses are carried out annually); fluorine (fluoride, sodium fluorate - 1 mg 2 times a day, the course of treatment is 2-3 months); phosphorus (fitin 0.25 g 3 times a day, the course of treatment is 1-1.5 months, 2 courses of treatment are carried out per year).

In the treatment of caries, along with ascorbic acid (0.1-0.2 g per day) and vitamin B 6 (0.05-0.1 g per day), vitamins A and E and oil, which regulate phosphorus-calcium metabolism, deficiency which can lead to a decrease in the resistance of teeth to caries.

In order to increase the body's resistance, revit is used (children under 3-7 years old - 1-2 tablets per day, 7-15 years - 2-3 tablets per day).

With actively proceeding dental caries, it is recommended for children to prescribe sodium nucleinate: up to 1 year - 0.005-0.01 g, 2-5 years - 0.015-0.05 g, 6-14 years - 0.05-0.1 g; 3-4 times a day for 20 days. Potassium orotate 0.25 g 3 times a day for 20 days, as well as methionine: up to 1 year - 0.1 g, 2 years - 0.2 g, 3-4 years - 0.25 g, 5-6 years - 0.3 g, 7 years and older - 0.5 g. Tablets are taken 1-2 times a day (up to 1 year and up to 6 years). Tablets are taken 2-3 times a day (from 7 years and older) one hour before meals. The course of treatment is 10-30 days, 1-2 times a year. With a decompensated form of caries, he recommends vitamins B 1, C for 1 month, Vitaftor - 180 days a year and sodium nucleinate for 10 days. When prescribing these drugs, it is necessary to consult a pediatrician. Children with a decompensated form of caries should be under the supervision of a dentist and a pediatrician for complex therapy. The pediatrician prescribes measures for the rehabilitation of the underlying disease of the child. The dentist examines the child 3-4 times a year, preventive measures are taken. For to increase the resistance of hard tissues of the tooth, a 3% remodent solution, 10% calcium gluconate solution, 2% sodium fluoride solution are used.Great importance is given to hygienic education and upbringing of the child in the family, preschool institution, at school (regular brushing of teeth 2 times a day with fluoride-containing pastes, rinsing the mouth after each meal, using dental floss to remove food debris and plaque from the side surfaces of the teeth) which should become the norm in every child's life.

Thus, the treatment of dental caries in children and adolescents should be comprehensive, aimed at increasing the body's resistance and increasing the remineralization of hard tooth tissues.

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