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Speed of Dental Caries in Different Age Groups of Children and Formation of Regional Prevention Programs

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Abstract Caries disease is now common among children. Experts say that a number of studies show that children who have caries on the tooth have a large amount of caryesogenic microorganisms in the oral cavity. In this regard, it is established that local antimicrobial therapy is important in the selection of therapeutic agents that can affect the etiological factor of the disease and in the treatment and Prevention of dental caries in children.

Keywords Caries disease, Cariesogenic microorganisms, Methods of dental examination

1. Introduction

In many countries, the prevalence of dental caries among children and adolescents has decreased significantly over the past two decades. The reasons for this are diverse, the most important of which are: a decrease in sugar consumption, improved dental and oral hygiene, the use of fluoride toothpaste, improved organization of dental services, and the introduction of school prevention programs. At the same time, there is a positive trend in children's awareness of the problems associated with their dental health and their attitude towards this problem.

In the treatment and prevention of these diseases, without disturbing the physiological balance of the flora of the oral cavity, it is necessary to have a selective effect on the pathogenic microorganisms of the dental caries, to increase the resistance of the hard tissues of the teeth by restoring the defect of the crystal mesh, to increase the stability of the enamel to the effects of acids, and to eliminate the inflammatory conditions in the periodontal tissues [1,3,5,7,9,11,13,15,17].

Medicinal products with a synthetic source used have several significant disadvantages, such as allergenic, irritating and toxic effects, and high cost.

Thus, a complex and urgent problem in modern dentistry is to improve methods of treatment and prevention of dental caries.

A thorough study of the chemical composition, pharmacological properties of plants, as well as clinical studies allow us to introduce new highly effective medicinal products from plants into practice every year. Based on the above, we set ourselves the goal of developing new methods for the prevention and treatment of dental caries and catarrhal gingivitis using the device (Author's work dated 05.11.2019, certificate No. ES-01-002545 "Aerodent - ways to prevent caries in children using a tooth cleaning device"). (Table 1)

Table 1. Separate extract for the treatment of tooth decay (ml)

Isotonic k solution	700	Sodium bicarbonate 0.4%	30
Aloe extract	60	menthol	2
Natri y m onofluorophosphate i	10	Red clover	5 0

The widespread use of licorice root in modern pharmacology and traditional medicine is due to the high content of glycyrrhizin and 27 different flavonoids in the plant. Licorice root, licorice root, smooth licorice, in Latin, Glycyrrhiza glabra, in English: Licorice is a perennial plant with a spicy-sweet taste. In folk medicine, it is valued as an expectorant, anti-inflammatory, antiseptic, antispasmodic, antacid.

Licorice has antiviral activity and helps strengthen the immune system. Also, flavanoid compounds strengthen blood vessels, regulate their permeability, reduce swelling and infiltration of lung tissue.

2. Results

Red clover is recognized by official medicine, and today many different drugs with different spectrum of action have been created on its basis. Red clover substances have various biologically active substances, and their anti-inflammatory properties are similar to cortisone. The beneficial properties of red clover have been known since ancient times. Galen, Dioscorides, and Hippocrates mentioned it in their works. The use of red clover is described in the manuscripts left by

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Eastern healers with recipes. The plant also remains popular in the East. It has anti-inflammatory properties, stimulates the adrenal cortex and has a corticosteroid-like effect. Supports the normal functional state of the mucous membrane of the oral cavity and bronchi, increases the production of protective mucus. The popularity of the root in the collection of medicinal products is proven by the high effectiveness of treatment in centuries-old practice.

Advantages of the capsule: Medicinal extract instead of water when brushing the teeth in the capsule is used. The capsule is multi-chamber, it consists of 30 channels and covers the entire surface of the tooth. Using a dental cup is easy and is a one-time process. Children can use this capsule as a toothbrush, in which food acids are neutralized and the bioenvironment of the oral cavity is supported. The prevalence of dental caries in children compared to adults, as well as the tendency to dental diseases, requires the creation of a stable preventive program among them.

The main process that we need to study is the creation of a sustainable program for the prevention of caries in children, which we expect to solve this urgent problem with the high probability that it will be possible to achieve. Unlike adults, the neutral environment of the oral cavity in young people changes quickly and unstable. It neutralizes food acids that remain in the oral cavity of children, which has a positive effect on tooth enamel. In this regard, we have developed the Aerodent capsule for cleaning teeth. Some of the structures in the capsule can cover all teeth. Aerodent is a modern technological device used for the prevention of dental caries. The features of Aerodent are as follows:

- **a.** In the cleansing capsule, a healing extract is used instead of water.
- **b.** The model offered by us has different features, it has 30 tubes that help to clean all surfaces of teeth and between teeth.
- **c.** Our model is based on rapid and high-quality prevention of caries and gingivitis and treatment.
- **d.** The use of the cleaning capsule is simple and even children can use it.
- **e.** It can be used as a toothbrush to eliminate the acids of the oral cavity and maintain a normal bioenvironment.

This useful model can be used in dentistry and otolaryngology for rinsing teeth and oral cavity. The cleaning capsule can be used for the treatment and prevention of oral stomatitis, trophic ulcers, damage to the mucous membrane, dental caries and organic changes in the hard tissues of the teeth.

The main purpose of using cleaning capsules:

- **a.** Cleaning and elimination of acids on teeth surfaces after meals.
- **b.** Oral cavity *ph* normalization of the environment.
- **c.** Restoration of oral eubiosis and reduction of pathogenic microorganisms.
- **d.** Maintaining the organotrophy of teeth and gums.

The Aerodent dental capsule consists of two parts: a “groove for the tooth row” and an ampoule for extract. These parts of the cleaning capsule are interconnected and are used to clean the contact surfaces of the teeth (facies superficies), maintain *the pH* of the internal environment, and regulate the eubiotic balance of the oral cavity.

An ampoule for extract is a special hermetic container, through the tube of which the extract is injected into the veins of the gums under high pressure. The ampoule is made of silicone. The volume of the ampoule contains 800 ml of liquid. 10 ml of liquid is consumed at a time, which means that it can be used 80 times. The liquid comes out of the ampoule in the form of an aerosol. It is used by children after meals to maintain the integrity of the dentition and reduce food debris and pathogenic microorganisms in the oral cavity. The child puts on the mouthpiece using " **Aerodent** " and presses the aerosol button, the extract, which comes out under high pressure, cleans the upper jaw from top to bottom and the lower jaw from bottom to top.

The dental capsule can be used by children from the age of 4. After meals, they wear the cap and press the aerosol button. The aerosol released spreads from the tooth surfaces throughout the oral cavity.

Indications for the use of dental capsules: used for oral cavity, stomatitis, gingivitis, periodontal disease, inflammation of the oral mucosa, pre- and post-caries prevention, cleaning and prevention of yellow spots on the crown of the tooth, protection of the oral cavity from pathogenic microorganisms.

In the new economic conditions that have emerged, there is a need for methods to develop modern, effective, and accessible preventive programs at the municipal level. It is also necessary to prioritize financing of primary prevention of dental diseases and redirect the entire system of dental care to the population towards prevention.

The analysis of the situation revealed the following etiological factors of caries: fluoride deficiency, microbial caries, and frequent consumption of carbohydrates. The etiological factor of periodontal diseases is microbial caries. Based on the data obtained, a program of primary prevention of dental diseases was developed, which is based on the *combined* use of the following three methods: 1) oral hygiene, 2) fluorides in toothpastes, 3) rational nutrition.

In this case, depending on specific conditions, other methods may be used in preventive programs if they complement the indicated methods.

Oral Hygiene. The main goal of oral hygiene in the Prevention of Dental Caries and Periodontal Diseases Program is to minimize the amount of soft microbial plaque and tartar. This is achieved through regular brushing of teeth, rinsing the mouth after meals, and removing plaque from the teeth in adolescents and adults.

Oral care begins at birth and continues throughout a child's life. Newborns' mouths are cleaned of food debris, and the first teeth that have erupted are cleaned once a day with a napkin. As the teeth erupt, parents carry out oral hygiene with a toothbrush and toothpaste. From the age of 5-6, a child can brush his teeth under the supervision of his parents. Brushing teeth is of preventive importance in reducing the incidence of caries only in combination with fluoride and a balanced diet [2,4,6,8,10,12,16].

Application of fluorides: the reduction of dental caries is effective in a combination of systemic (at low concentrations of fluoride in drinking water) and local application of fluorides.

Of the many local methods of fluoride prophylaxis, fluoridation of teeth with fluoride-containing toothpastes is the most convenient in the conditions of the Bukhara region. This method is also based on the fact that in this Program, tooth brushing is considered the main method of preventing periodontal diseases. Fluoride toothpastes must have a quality certificate indicating the presence of active fluoride and be hygienically registered in the Republic of Uzbekistan. For school-age children, toothpastes with a concentration of active fluoride of 500 ppm (0.05%) are recommended. Pastes with a F ion content of less than 500 ppm do not have an anti-caries effect.

Rational nutrition. In nutrition, three interrelated factors are important for the prevention of periodontal disease and periodontal disease: a complete set of foods, a moderate range of carbohydrate intake, and increased self-cleaning of the mouth. In the 3-4 meal system, the diet should include four main food groups 3-4 times a day:

1. Bread; 2. Dairy products; 3. Meat products; 4. Fruits and vegetables.

3. Conclusions

Consuming carbohydrates five to six times a day is a risk factor for caries. Therefore, the organization of children's nutrition and advice for adults should include rinsing the mouth after meals and limiting the intake of carbohydrate foods to no more than 5-6 times, taking into account snacks, because carbohydrate foods create conditions for the development of caries in the mouth.

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