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Improving Methods of Exogenous Prophylaxis of Permanent Teeth in Children of Specialized Special Schools

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Abstract: Objective: to improve methods of early diagnosis, treatment and prevention of caries of permanent teeth in mentally retarded children attending special schools.

Methods: During the study, general clinical, laboratory, biochemical, functional, instrumental and statistical methods were used. The object of the study was 220 pupils attending special boarding schools No. 62 and 63 of Samarkand city and Akdarya district, respectively, from 2018 to 2021.

Results: The prevalence of dental caries in mentally retarded children studying in specialized schools depends on their level of socialization, nutrition and the presence of Down syndrome. The risk group includes socialized children without Down syndrome: the caries intensity index was 3.8 4.9; 5.8, and the prevalence is 42.0, 76.0 and 85.0% in children 8, 10 and 12 years old, respectively. The prevalence of caries in children with Down syndrome was lower - 33.0, 64.0 and 72.0% in children 8, 10 and 12 years old, respectively.

Conclusions: According to the results of applying a special preventive algorithm, the number of cariogenic microorganisms on the teeth slightly decreased from the initial values. Thus, the most optimal treatment regimen with a high therapeutic effect in mentally retarded patients has been identified, which makes it possible to increase the effectiveness of treatment and reduce its time.

Keywords: Dental caries, periodontal disease, epidemiological study, caries intensity, mental retardation.

Introduction: Currently, caries is the most common dental pathology in the world, which is explained by its medical and social significance and an increase in the incidence rate among the population from year to year. According to the World Health Organization (WHO), "... the prevalence of caries among dental diseases is 63.3-88.7%, in particular in healthy 12-year—olds - 37.8-50%, and in 15—year-olds - from 57.7% to 84.7%, that is, these indicators increase with age [1,4,6]. When studying the average prevalence of caries in children with mental retardation, their high level was revealed, while it was found that in children with mild mental retardation at the age of 13-18, this pathology occurs in up to 100% of cases and is associated with the severity of the underlying disease. Currently, the early diagnosis of caries in children with mental retardation, the appointment of measures to prevent complications of this pathology, taking into account the pathogenetic properties and reducing the number of relapses of the disease are among the problems that require a solution in medicine [2,5,9].

A number of scientific studies are being conducted worldwide aimed at providing dental care to children with mental retardation, prescribing treatment based on the underlying disease (mental retardation) and further improving these methods [6,7,10,12]. In this regard, it is especially important to conduct scientific research aimed at improving the range of measures for the individual selection of therapies, assessing the quality of life of patients, as well as introducing effective treatment into practice, taking into account the use of general anesthesia in children with mental

retardation, taking a number of medications for the underlying neurological disease, in particular antipsychotics, antidepressants, tranquilizers, nootropics that cause hyper- or hyposalivation, decreased pain sensitivity, which in turn contribute to the transition of the acute form of the disease into a chronic one [3, 11, 12].

Dental care for mentally retarded children is fraught with a number of difficulties due to their lack of contact due to an underlying disease (mental disorders and behavioral disorders, diseases of the nervous system) and requires treatment of this group of children under general anesthesia, which is not always possible due to their concomitant severe somatic pathology. In addition, not all institutions of this type have dental offices. All this dictates the need to find new forms of dental care for mentally retarded children, one of the important components of which should be prevention [1,2,5]. We implemented a program for the prevention of dental diseases in children with disabilities, but most of them were aimed at children with mild to moderate mental retardation, which took into account not only the degree of mental retardation, but also the learning of oral care skills, the degree of socialization and the child's diet.

The purpose of the study: To improve the methods of prevention of caries of permanent teeth in children with intellectual disabilities based on ozone therapy in sealing the fissures of teeth.

METHODS

220 patients with intellectual disabilities from specialized boarding schools No. 62 in Samarkand and No. 63 in Akdarin district were examined, including between 6, 9 and 12-year-old boarding school students (Fig. 1). Depending on age, gender, diet, type of major neurological diseases, presence of Down syndrome and degree of During the socialization of children, the hygienic condition of the oral cavity was studied with the use for a certain period of time of a special program aimed at preventing caries of permanent teeth, the level of their effectiveness is determined. General clinical, instrumental, functional and statistical methods were used to solve the tasks. The following indicators were evaluated: -the prevalence of caries; the intensity of caries of permanent teeth according to the CPI index; the clinical condition of periodontal tissues was assessed according to the PMA index in the Parma modification.

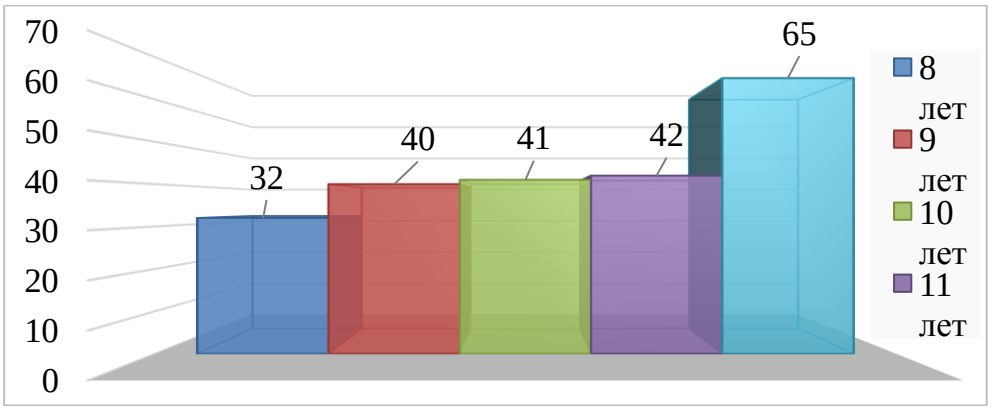

Figure 1. Distribution of patients by age.

To assess the risk of dental diseases, a microbiological study of plaque was conducted, for which 26 children from subgroup 1 and 24 people from subgroup 2 were randomly selected. For microbiological examination, dental supragingival plaque was collected by scraping with a sterile excavator. The prevention program included teaching children oral hygiene and health education with the staff of the institution and the parents of some of the students who attended the boarding school (Fig. 2). Individual prevention methods were also carried out:

Professional oral hygiene;

Remineralizing therapy- applying fluoride-containing varnish to teeth;

Sealing the fissures of permanent teeth using ozone.

Figure 2. Professional oral hygiene, dental fluoridation.

Currently, it has been established that the effectiveness of sealing dental fissures depends not only on the quality of the filling material, but also on the quality of antiseptic treatment of the oral cavity. In dental practice, 0.006% solutions of chlorhexidine bigluconate, 0.02% ethacridine lactate and 5% solutions of dimexide are widely used as antiseptics. But these disinfectants have a number of disadvantages. Caries prevention was carried out using ART to ensure that the children included in the examination were not afraid of dental examination and voluntarily continued visits. The surfaces of the permanent teeth of the children who make up the main group were treated with ozone, and a modern remedy Fissurite F, specially developed for the prevention of primary caries of milk, permanent and mixed teeth, was used as a sealant (Figure 3).

Fissurite F is characterized by the presence of a 3% fluorine-preserving separation resin (matrix), a small amount of solid particles (borosilicate glass), which are highly resistant to mechanical and chemical erosion. A small amount of filler increases the ability of the drug to penetrate microcracks and deep fissures. This product has high adhesion to enamel and high strength, does not dissolve in an aqueous medium and releases 4-5 mg of fluoride for 190 days.

Recently, due to the increasing allergization of the population, decreased sensitivity to antibiotics, increased cost of medicines, and non-medicinal treatments have become increasingly popular. Among them is ozone therapy, which is deservedly becoming more widespread all over the world. This is due to the properties of ozone to influence the transport and release of oxygen into tissues, and its disinfecting effect. Ozone is used in therapy, surgery, obstetrics and gynecology, dermatology, dentistry and cosmetology.

Conclusion: the data obtained from 9 and 12-year-olds, before the program was implemented, served as internal control for groups of children who entered the prevention program at the ages of 6-8 and 9-11 years. At the same time, the group of 9-year-olds is the comparison group for the other groups of 9-year-olds and becomes the main group three years after these children reach the age of 12. For children who joined the prevention program at the age of 12, 15-year-old children previously examined served as a control group. The prevalence and intensity of dental caries in mentally retarded children depended on socialization, which determines lifestyle and diet, as well as on the presence of Down syndrome.

The incidence of dental caries in mentally retarded children living in boarding schools depends on their socialization, which determines certain lifestyle and nutrition features. The risk group consists of socialized children without Down syndrome: the prevalence of caries was 31.0, 62.0 and 83.0% with intensity 0[0;1,17], 2[0;4], 4[3;5] 6, 12, and 15-year-olds, respectively. In non–socialized children without Down syndrome, the prevalence of caries was low - 0, 18.0 and 22.5% in 6, 12 and 15-year-olds, respectively, while children with Down syndrome had no dental caries. Mild gingivitis prevailed in socialized children (55, 50, and 50% among 6, 12, and 15-year-olds, respectively), moderate gingivitis prevailed in non-socialized children (47.1 and 41.6% in 6 and 15-year-olds, respectively) and severe gingivitis (38.6% in 12-year-olds). 45[26;67,5]. The inability to take full-fledged oral care on their own makes this group of children particularly vulnerable to periodontal diseases. The prevalence of dental caries in mentally retarded children enrolled in specialized schools depends on their level of socialization, nutrition, and the presence of Down syndrome. The risk group includes socialized children without Down syndrome: the caries intensity index was 3.8- 4.9; 5.8, and the prevalence was 42.0, 76.0, and 85.0% in children aged 8, 10, and 12, respectively. The prevalence of caries in children with Down syndrome was lower - 33.0, 64.0 and 72.0% in children aged 8, 10 and 12 years, respectively. As a result of the microbiological examination of teeth, noticeable negative changes in the composition of the microflora

of the teeth of children without Down syndrome, relatively socialized mentally retarded, including an increase in species of the genus Streptococcus, considered cariogenic, indicates a high potential of the carious process.

CONCLUSIONS

1. The prevalence of dental caries in mentally retarded children enrolled in specialized schools depends on their level of socialization, nutrition, and the presence of Down syndrome. The risk group includes socialized children without Down syndrome: the caries intensity index was 3.8- 4.9; 5.8, and the prevalence was 42.0, 76.0, and 85.0% in children aged 8, 10, and 12, respectively. The prevalence of caries in children with Down syndrome was lower - 33.0, 64.0 and 72.0% in children aged 8, 10 and 12 years, respectively.

2. As a result of microbiological examination of teeth, noticeable negative changes in the composition of the dental microflora of children without Down syndrome, relatively socialized mentally retarded, including an increase in species of the genus Streptococcus, considered cariogenic, indicates a high potential of the carious process.

3. During the two years of the implementation of the preventive program, a positive increase in hygiene indicators was noted. Satisfactory hygienic condition was observed in 64.2%, good hygienic condition in 35.2%, unsatisfactory hygienic condition in 0.6% of children.

4. The use of ozone as part of the comprehensive prevention of caries in children with intellectual disabilities, taking into account their mental and physical abilities, has yielded positive results. No negative complications were observed in children during complex ozone-oxygen treatment, and the use of this method continued to be comfortable and painless for patients.

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