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Indications for the Comprehensive Prevention and Treatment of Dental Caries in Children with Cerebral Palsy

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Key words: cerebral palsy, caries, prevention.

Relevance. Disability in childhood is one of the most pressing problems of modern medicine. Neurological diseases occupy the first place among children's disabilities. The most common neurological disease detected in young children is considered to be the disease of cerebral palsy. Over the past decade, the number of disabled children aged 2 to 14 years with diseases of the central nervous system has increased from 11974.6 to 15691.2, there is an increase in the incidence of cerebral palsy by 16 percent. In children with disabilities all over the world - dental care is provided in kindergartens and schools due to severe functional disorders. Today, the negative impact of environmental factors associated with global change ecological balance in the world, the social environment of family, failure to follow the procedure of healthy food, lack of calcium ions and fluoride in the objects of the biosphere on areas lead to the emergence and acceleration of child tooth decay. Prevention and effective treatment of dental diseases in children with cerebral palsy is one of the most urgent problems. In children with this pathology, the development of special therapeutic measures is important.Cerebral palsy is a complex disease of the nervous system that occurs in the conditions of the maturity of the cerebral apparatus, that is, the development of the fetus, childbirth and the newborn (Nikitina V. V., 1979) Cerebral palsy is characterized by damage to the musculoskeletal system, speech and mental disorders, decreased hearing and vision.The symptoms of the first Marotaba cerebral palsy were described by the English surgeon William Little in 1861; at the beginning of the 20th century, Muratova A. S. (1898); it shows the main clinical signs of cerebral palaxia. The term "cerebral palsy" was approved by a group of international scientists in Oxford in 1958.

The problem of increasing the effectiveness of determining the purpose of dental caries in children with cerebral palsy and improving treatment methods is currently considered as of great importance in maintaining the health of the younger generation, as well as in profiling diseases. Dental diseases are among the most common diseases among other diseases, and caries and its complications occupy a leading place in children with cerebral palsy. Cerebral palsy in children is detected in about 1000 people out of 3-5 babies born. According to the results of dental

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examinations, the prevalence of dental caries and its complications in children with cerebral palsy ranges from 80% to 85%.Therefore, the main attention in the world is paid to the development of new highly effective methods for the prevention of childhood caries. According to the World Health Organization (WHO), the number of severe complications caused by the disease of 3-4 teeth in three-year-olds increases on average. Severe and complex complication of caries is caused by the development of acute and chronic odontogenic inflammatory process in temporary teeth. In the world, there are many endo - and exogenous methods for the prevention of dental caries, on the basis of their application, the newly emerging carious disease was reduced to 30-40%. The organization of an effective system of caries profiling in children is one of the urgent problems facing the employees of the field.

A number of scientific studies are being conducted around the world aimed at developing a clinical framework that profiles the early diagnosis and treatment of dental caries in children. In this regard, it is necessary to formulate a comparative basis of dental diseases in children of different age groups, as well as dental caries, as well as medical and social aspects of the course, diagnosis, treatment and prevention of dental caries in schoolchildren.

Purpose of the study. It consists in improving the effectiveness of dental caries Komplex prophylaxis and treatment in children with cerebral palsy.

Objectives of the study:to study the prevalence of dental disease and dental caries in children with cerebral palsy;

determination of some biochemical parameters of oral fluid in the diagnosis, treatment and prevention of dental caries in children with cerebral palsy;

evaluation of physical and chemical parameters of oral fluid in children with cerebral palsy;

analysis and development of a profile algorithm for early diagnosis, treatment and prevention of dental caries in children with cerebral palsy;

it consists in studying the clinical effectiveness of the drugs Kalmazin and Roks in the treatment of dental diseases and dental caries in children with cerebral palsy.

Object of the study As of 2016-2019, 114 children aged 6 to 18 years enrolled in a children's boarding school with disabilities in the Bukhara region.

Subject of the study the resulting prevalence of dental caries in children with cerebral palsy, and the degree of intensity of caries, the hygienic state of the oral cavity, papillary, marginal alveolar index and index of Tartar and caries.

Methods of the study. Clinical, clinical-functional, laboratory, instrumental,

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bacteriological and statistical methods were used in carrying out the research tasks. Given that in children with cerebral pathology, all the pathological conditions of the tooth and jaw are interrelated, it is worth studying this system in comparative terms in all its complexities. In this regard, taking into account the data of scientific studies, we studied the pathological cases of oral diseases and dental disorders in children of different age categories with a diagnosis of cerebral palsy, who were examined. As a result of poor oral hygiene in children with cerebral palsy, an environment is created for the development of various dental diseases in the oral cavity. Dental pelicle (biofilm) is a polymorphic formation. Carisogen factors can be different in intensity and nature, different in their interaction contribute to the occurrence of caries, but the leading factor is the microflora of the oral cavity. It can develop both in the oral cavity of microorganisms, in the presence of an excessive amount of carbohydrates in food, and in contact with the enamel of teeth of carbohydrates and microorganisms. The consumption of carbohydrates leads to the formation of acid. When the pH level of the liquid in the oral cavity is below 6.2, the saliva from a large amount of hydroxyapatite becomes unsaturated, so it turns from mineralized to demineralized liquid (destruction of hard dental tissue). The formation of organic acids is associated with the long-term enzymatic activity of microorganisms. Prolonged exposure to organic acids on the tissues is observed with poor oral hygiene, plaque forms on the enamel. The acidic environment under it develops as a result of the enzymatic activity of a large number of microorganisms that can well absorb carbohydrates that enter the oral cavity.Thus, the body cavity is formed under the plaque, which is acidic compared to pH 5.5, where it produces dense acid. With good rinsing of the mouth and teeth, low sugar intake, local changes in pH are quickly affected. But where access to saliva is restricted by frequent consumption of sugary foods, the process of demineralization may prevail over the process of remineralization. This means that the intake of carbohydrates can be a decisive factor in changing the PH and disrupting the mineralization processes, which leads to caries.

The direct cause of the progressive demineralization of the hard tissues of the tooth (caries) is organic acids, the formation of which is associated with the long-term enzymatic activity of microorganisms. The occurrence of caries is the final stage of the interaction of a number of carious factors.In epidemiological studies, with the development of a large number of plaques and caries in children, it was found that they are elevated, interrelated. The nature and state of the oral microflora is determined by the main properties and composition of saliva: the presence of stagnant and non-stagnant flora, viscosity, PH, ionic potential, mineral components, organic composition (amino acids, polysaccharides, vitamins, purines, pyrimidines).

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V. V. Korchagina, 1995, when studying the state of the oral cavity in children with cerebral palsy, spinal hernia and myopathy, a high prevalence of caries and its complications was revealed (92.0 ± 1.92%), systemic hypoplasia of milk and permanent teeth (44.5 ± 3). Catarrhal gingivitis (63.0 ± 3.41%), dentoalveolar abnormalities (59.0 ± 3.48%). The author stressed that children in this category are in great need of dental care. Thus, the need is 92.0 ± 1.92% in the oral cavity, in the treatment of anomalies of dental diseases- 59,0 ± 3,48%, 36,0 ± 3,4% in such cases, you need the help of a dentist. The scheme of medical examination in dentistry of children with disabilities from birth to 15 years old, proposed by V. V. Since 1995, requires the participation of many specialized medical institutions. The author recommends to conduct a survey of children, taking into account the activity of the cautious process. See the compensated course of caries in children under 4 years 2 times a year, from 4 years to 15 years-3 times a year; children under the age of 15 years from the moment of birth should be examined 4 times a year or more, as well as children with a subcompensated and decompensated course of the diagnosed process. At the same time, the author provides information about the effectiveness of the proposed scheme of clinical examination of children with CP. Thus, the problem of optimizing dental care for children suffering from cerebral palsy is one of the important tasks of pediatric dentistry.

To determine the general dental status of children with cerebral palsy

The results of studies to determine the dental status of children undergoing various age categories of examinations with cerebral palsy showed that the jaws develop correctly in 26 children (22.8%). According to age categories, this pathology was divided into the following.The total number of children diagnosed with cerebral palsy is 317, including children with dental diseases and caries-114 etdi.All our dental examinations were divided into 34 (29.8%) sick children, 59 hyperkinetic(51.7%) sick children, atonic –aesthetic 21 (18.5%) children in the hemiparesis groups, and sick children who underwent dental examinations and received treatment. As a control group, patients with oral caries aged 6-18 years were selected, 40 children who were not diagnosed with cerebral palsy took part in the study.In the remaining children, the jaws were poorly developed in the controlled children (n = 88, 77.2%), and no pathological abnormalities were observed during the examination.

A total of 20 children (17.5%) who underwent the examination were found to have an incorrect tooth, usually it was noted in children from 6 to 10 years - in 16 cases (47%). In all other cases, their toothache was correct in 53% of cases (n=18).

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As can be seen from the results, the presence of temporary and permanent teeth in children with cerebral palsy, as well as the process of replacing permanent teeth during the examination, is associated with the number of children undergoing the examination, which belongs to different age categories. This is confirmed by the results obtained for the age groups (Table 1).

1 table

Parameters for the detection of temporary and permanent teeth by age categories in children with cerebral palsy undergoing examination

Indicators	6 years old Up to 10 years old	10 years old Up to 16 years old	16 years old Up to 18 years old
Temporary teeth	82/6,7	4/0,3	0
Permanent teeth	2/0,2	330/26,8	292/23,7
The exchange of teeth	200/16,2	190/15,4	6/0,5

Comment:absolute in the photo, relative (%) indicators in the denominator.

The Anic, which determines the presence of temporary and permanent teeth, as well as the process of tooth exchange by age group, indicates a general trend in the absence of gross deviations of these parameters in school-age children examined in this region.

When assessing the condition of the oral cavity in children with cerebral palsy,the period of teething, their development, and the change of teeth from time to time are also important. In this regard, we considered it appropriate to conduct relative, average indicators of the presence of temporary and permanent teeth, the presence of the process of tooth exchange, as well as their ratio to the age of children undergoing examination (Figure 3.1). The relative number of temporary teeth in children undergoing examination with cerebral palsy is 13.5%, and permanent teeth-50.6%, which corresponds to the number of children undergoing examination in this age category, as well as the literature data. The percentage of tooth exchange (35.9%) also does not differ from the quantitative composition of these age categories.

Thus, regardless of the age of children infected with cerebral palsy, the general condition of the exchange of teeth practically does not differ from that of children not infected with cerebral palsy.

In the future, we conducted a comparative assessment of the condition of the oral mucosa in children who were examined in all 6 age groups. The results of the

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study showed that the examination revealed various nosological units, most often located in the oral cavity. Among them, it was found that in children who underwent the examination, gingivitis was diagnosed in 61 cases - 53.5% (Figure 3.2).

In subsequent places, the number of identified nosological units was such as stomatitis (24.5%, n=28), oral candidiasis (0.6%, n=8). In addition, we combined other injuries that we encountered in exceptional cases into a separate group – "others" (0.8%, n=10). It should be noted that only in 12 children (10.5%) who underwent the examination, we found no signs of damage to the oral mucosa. When assessing the dental condition of children with cerebral palsy, which was studied, the general condition of the teeth, caries lesions of the teeth of children who were examined, and their intensity indicators were used and applied to assess.

The general condition of the children's teeth was evaluated according to the scale proposed by us:

"good condition" - in the presence of pathological changes visible during the examination of the teeth and no signs of damage, when the functions of the teeth are fully preserved;

"satisfactory condition" - cases before the appearance of visible pathology, when there are imperceptible signs of tooth damage, when the tooth function is fully preserved;

"unsatisfactory condition" - in the presence of visible pathological conditions, pronounced symptoms of tooth damage, partial preservation of tooth functions.

The results obtained from our side (Table 3.6) were also close to this status in children aged 6 to 10 years who participated in the survey-9.5% (n=117), 8.8% (n=109) and 4.7% (n=58), respectively. But, starting from the age of 10 years (age category from 10 to 16 years), "satisfactory condition" prevails 1.1 times over"good condition" of the teeth (16.5%, respectively, against n=203 17.5%, n 216). As can be seen from Table 3.6, the same trend was observed in children aged 16 to 18 years.

All the results obtained by the ratio of the obtained parameters to each other in the context of age groups were as follows:

Up to 6 years old - 6,4:2,5:1,3 = 1,0:0,39:0,20;

Age from 6 to 10 years - 9,5:8,8:4,7 = 1,0:0,93:0,49;

Age from 10 to 16 years - 16,5:17,5:8,5 = 1,0:1,06:0,52;

Age from 16 to 18 years - 6,8:11,9:5,5 = 1,0:1,75:0,81.

The results show that with increasing age, the condition of the teeth of children with cerebral palsy worsens, which increases the need for their treatment. This legislation should be taken into account when financing and planning therapeutic

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and preventive measures for the prevention of dental diseases, especially dental diseases, in children of school (boarding school) age.

It should also be noted that it is not enough that the children who passed the exam are covered by the medical examination, because only 6 children who passed the exam at the age of 10 to 12 years are registered in the children's dispensary list, which is 9.5% of the number of children examined. With increasing age, the proportion of children from 10 to 16 years old covered by medical examinations, as well as the number of children registered at the dispensary, increases to 16.4% (n=86 of the number of examinations in this age group) and children from 16 to 18 years old to 72.8% (n=217).

Thus, with increasing age in children with cerebral palsy was found that temporal change of teeth to permanent occurred in full accordance with the physiology of the youngest children tested, but with the younger growth of children dental health gradually deteriorated. The increase in the "satisfactory" and "unsatisfactory" condition of the teeth was due to a decrease in the number and percentage of teeth in "good condition" in children. It is recommended to use such norms established by the legislation when planning the financing of medical and preventive measures, allocating a full-time staff of dentists to school internships, and using children from this contingent for medical examinations.

In addition, health care organizers and dental specialists should take into account that the study was conducted in an area with a low frequency of dental diseases in children with cerebral palsy.

Conclusions.

1. It was found that the influence of the somatic state is directly related to the condition of the teeth in children with cerebral palsy. In contrast to the children of the comparison group, there were complaints about the structure of the lips(64.40%) and the oral mucosa (76.27%), bleeding from the gums (40.67%), itching and burns of the gums (28.81%), ($P<0.05$). The prevalence and high intensity of caries(5.73 ± 2.45 and 84.74%) and periodontal disease (2.09 ± 0.95 and 83.05%) were noted, the prevalence and intensity of caries and periodontal disease decreased in the children of the comparison group and amounted to 4 ± 1.20 (73.33%) and 1.45 ± 0.63 (66.66%), respectively ($P <0.05$).

2.When studying the biochemical parameters of the oral fluid content in children with cerebral palsy, there is an increase in the amount of magnesium (1.33 ± 0.39 mmol/L), an increase in TBA - active products (0.42 ± 0.20 mmol/L), a decrease in the amount of magnesium(1.94±0.63 mmol/L) and protein(1.18±0.54 g/l) in contrast to 0.17 ± 0.20 mmol/L), calcium (2.23±0.41 mmol/L) and protein

(1.73±0.67 G/L). appropriate($p < 0.05$). The phosphorus values in both groups were within the standard values (5.27 ± 1.52 and 4.62 ± 1.96 mmol / L).

3. When studying the physical and chemical properties of oral fluid in children with cerebral palsy, an increase in kinematic viscosity (1.26 ± 0.49), a decrease in the cleavage of oral fluid (0.27 ± 0.05 ml/ min) and a decrease in pH of oral fluid (6.47 ± 0.38) were observed. In the comparison group, the indicators of kinematic viscosity (1.02 ± 0.10), oral fluid velocity (0.39 ± 0.06 ml/min) and pH of oral fluid (7.05 ± 0.14) ($P < 0.05$) were normalized.

4.In in children with cerebral palsy, dental parameters, biochemical and physico-chemical parameters of oral fluid were improved when using Rox and Kalmazin drugs, developed and pathogenetically based on a comprehensive profile and treatment of dental caries.

5. The clinical effectiveness of the drug Kalmazin in the treatment of dental diseases in children with cerebral palsy was determined by its advantage over other drugs used; complaints of sick children decreased, the state of the oral hygiene index improved, the prevalence of periodontal disease decreased, and there was an increase in the splitting of oral fluid-ph and oral fluid.

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