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Improvement of Caries Prevention Methods for Children with Mental Retardation

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Abstract: In modern society, diseases of the oral cavity are of humanitarian, socio - economic significance. Today, tooth decay and periodontal disease remain the most common dental disease not only among adults, but also among younger populations around the world. According to recent epidemiological studies conducted on healthy children, the incidence of dental pathology is high, with the prevalence of caries among healthy age groups 12-15 years old is 63.3-83 years, 4% and 81.7-88.7%, intensity 3.02 -3.75 and 4.6-5.73, and the prevalence of periodontal tissue diseases in the group of healthy 12-year-old children ranged from 37.8% to 50%, in the 15-year-old group of children it ranged from 57.7% to 84, 7%. The prevalence of caries is also high in children with mental retardation of preschool and school age, while the intensity of caries is higher in children aged 13–18 years with mild mental retardation (MAD). These indicators increase with age and depend on the severity of the underlying disease.

We carried out a program for the prevention of dental diseases in children with disabilities, however, most of them were focused on children with mild and moderate mental retardation, where not only the degree of mental retardation was taken into account, but also teaching them oral care skills, the degree of socialization and the child's diet.

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

Introduction: The purpose of the study: To increase the effectiveness of providing therapeutic and preventive dental care to children with mental retardation based on the implementation of a program for the prevention of dental diseases, taking into account their limited capabilities in the Samarkand region.

Research objectives:

1. To study the actual state of dental care for children with intellectual disabilities living in orphanages in the Samarkand region.

2. To study the level of dental morbidity in children with mental retardation living in orphanages and to identify its dependence on some external factors (Samarkand region).

3. To conduct a microbiological examination of plaque to assess the risk of dental diseases in mentally retarded children.

4. To analyze the dynamics of caries intensity during 3 years in mentally retarded children suffering from Down syndrome

5. Develop and implement a dental disease prevention program for mentally retarded children living in a boarding school, taking into account their limited health opportunities, using a differentiated approach in teaching oral hygiene.

METHODS

This study is conducted at the specialized boarding school No. 62 for children with mental retardation located in the city of Samarkand, including between 6, 9 and 12-year-old boarding school students. Depending on the age, gender, diet, type of major neurological diseases, the presence of Down syndrome and the degree of socialization of the children accepted in the study, it is planned to study the hygienic condition of a special program used for a certain period of time aimed at the prevention of dental diseases, the level of their effectiveness is determined. In groups of 6, 12, and 15-

year–olds, the distribution was as follows: 15, 20, and 25 children aged 6, 12, and 15 were assigned to subgroup 1 (socialized children + conditionally free meals), respectively; 15, 30, and 25 children were assigned to subgroup 2 (unsocialized children + regulated meals). 6, 12, and 15 years old, respectively (Table -1).

Prevalence of dental caries in subgroups of 6, 12, and 15-year-old mentally retarded children (Table -1)

The following indicators were evaluated:

-prevalence of caries;

-the intensity of caries of permanent teeth according to the KPU index; -the clinical condition of periodontal tissues was assessed by the PMA index in the Parma modification. -hygienic condition of the mouth (using the simplified index of hygiene of the mouth according to Green – Vermillion).

Age	**Prevalence of caries (%)**			
	1п	1пД	2п	2пД
6	33,0	0,0	0,0	0
12	64,0	20,0	17,0	0
15	85,0	33,0	22,0	0
Note:* *1p- socialized children + conditionally free meals;* *2p- unsocialized children + regulated nutrition.*				

(Table -2)

Indicators of gingivitis (RMA) severity in subgroups of mentally retarded children with different socializations (Table -2)

Age	**the subgroup**	**PMA**	**p**
6	1п	5,0 [0,0;12]	0,004—
	2п	27 [4,0;33]	
12	1п	25,5 [9,0;35,8]	0,002—
	2п	48,5 [26;67,8]	
15	1п	25,0 [6,8;36,3]	0,005—
	2п	42,0 [25,8;65,3]	
Note: *1p – Socialized children + conditionally free meals;* *2p – Unsocialized children + regulated meals;* *1pD – Socialized children + conditionally free meals +with-m Down;* *2pD – Unsocialized children + regulated nutrition+with-m Down*			

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. Individual prevention methods were also carried out:

Professional oral hygiene;

Remineralizing therapy- applying fluoride-containing varnish to teeth;

Sealing the fissures of permanent teeth.

RESULTS:

It is known from the literature that children with Down syndrome are less at risk of developing dental caries, therefore, a division was carried out within subgroups with different socializations, taking into account the presence of this syndrome. Thus, within the subgroups of 6, 12, and 15-year-old socialized children, children without Down syndrome were identified — 10, 32, and 40 children, respectively, and children suffering from

this syndrome—12, 8, and 5 children, respectively. Among the 6, 12, and 15-year-old unsocialized children, subgroups of children without Down syndrome were also identified — 11, 30, and 15 children, respectively, and children with Down syndrome — 4, 6, and 13 children, respectively. The prevalence and intensity of caries were assessed in these subgroups.

To assess the risk of dental diseases, a microbiological study of plaque was conducted, for which 23 children from subgroup 1 and 21 people from subgroup 2 were randomly selected. For microbiological examination, dental supragingival plaque was collected by scraping with a sterile excavator No. 2.

The third stage of our research was the development, implementation and evaluation of the effectiveness of a dental disease prevention program adapted for mentally retarded children in the conditions of DDI.

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. Individual prevention methods were also carried out: occupational hygiene, applying fluoride-containing varnish to teeth, sealing fissures.

The effectiveness of the implemented adapted prevention program, which takes into account the medical, psychological and pedagogical characteristics of children, was assessed by the hygiene index (IGY-Y) and the condition of periodontal tissues (PMA index) initially, 1,2,3 years after the start of training.

The data obtained from 9 and 12-year-olds served as internal control for groups of children who entered the prevention program at the ages of 6-8 and 9-11 before the program was implemented. 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 entered 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 orphanages 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 unsocialized 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 unsocialized 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.

CONCLUSIONS

A differentiated approach to teaching oral hygiene based on the possibilities of developing self-service skills in mentally retarded children, taking into account their mental and physical capabilities, can significantly improve oral hygiene and the condition of periodontal tissues. The PMA index decreased from 15% [0;25.6] to 0% [0; 2.6] in group I, from 14%[0; 29] to 0%[0; 4] in group II, from 35% [15.1; 64.5] to 6% in group III.[0; 11]. The prevalence of children with healthy periodontitis increased from 19% to 56.5%.

During the three years of the prevention program, the reduction in the increase in the hygiene index amounted to 71.0% in the first group of training (independent care and control of staff), 65.7% in the second group of training (independent care and assistance of staff) and 70.0% in the third group (staff care). In 9, 12, and 15-year-old socialized children, the prevalence of caries after three years was 13.5, 43.4, and 63% with intensity 0[0;0], 0,5[0;4], 3[0;4,5], respectively, which is lower than the control group (42.9, 60 and 76% at intensity 0[0;3,25], 3[0;4,5], 4[1,5;5], respectively).

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