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ДИНАМИКА СТОМАТОЛОГИЧЕСКОЙ ЗАБОЛЕВАЕМОСТИ ДЕТСКОГО НАСЕЛЕНИЯ ГОРОДА ЕКАТЕРИНБУРГА

Насретинова Н. Ю.[1], Ворожцова Л. И.[2], Мандра Ю. В.[1], Сорокоумова Д.В.[1], Жегалина Н.М.[1], Епишова А.А.[1]

1 *ФГБОУ ВО «Уральский государственный медицинский университет», г. Екатеринбург, Россия*
2 *Филиал № 4 АНО «Объединение «Стоматология», г. Екатеринбург, Россия*

Аннотация

Предмет. Эпидемиологические обследования важны для оценки соответствия стоматологических программ потребностям различных групп населения в лечении.

Цель — сравнить динамику показателей эпидемиологических обследований стоматологических заболеваний в г. Екатеринбурге за последние 15 лет.

Методология. На основании проведенного анализа литературных данных, отчетов, публикаций по методологии ВОЗ были отмечены высокая распространенность и интенсивность кариеса и признаков поражения пародонта, выявлено ухудшение стоматологических показателей с возрастом. Наметившееся в 2008 г. снижение уровня стоматологической заболеваемости не сохранилось в 2015 г. Изменение социально-демографической структуры детского населения г. Екатеринбурга сопровождается приростом показателей заболеваемости. Доля лиц с признаками поражения пародонта у детей 12 и 15 лет по сравнению с результатами ранее проведенного национального эпидемиологического исследования в 2008 г. не снизилась. Оценка нуждаемости в неотложной стоматологической помощи у детей г. Екатеринбурга 6, 12 и 15 лет по критериям ВОЗ показала высокий уровень потребности в «профилактическом или обычном лечении» во всех группах обследованных детей.

Выводы. Высокая распространенность стоматологических заболеваний в г. Екатеринбурге свидетельствует о необходимости поиска профилактических мероприятий. Рост интенсивности кариеса особо активен у детей школьного возраста, что требует внедрения комплексной программы школьной профилактики. Отсутствие снижения уровня распространенности признаков поражения пародонта у подростков во всех трех национальных обследованиях говорит о необходимости поиска новых подходов к профилактике, в том числе и с применением смарт-технологий.

Ключевые слова: *эпидемиологическое обследование, национальные обследования, стоматологическое здоровье, распространенность и интенсивность кариеса, индекс КПУ, заболевания пародонта, детская стоматология*

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Адрес для переписки:

Наталья Юрьевна НАСРЕТДИНОВА
620028, г. Екатеринбург, ул. Татищева, д. 100, кв. 166
Тел.: 8-9028749784
nataweb@mail.ru

Correspondence address:

Natalia Y. NASRETDINOVA
620028, Russia, Ekaterinburg, Tatischev str., 100-166
Fhone: 8-9028749784
nataweb@mail.ru

Образец цитирования:

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THE DYNAMICS OF THE DENTAL INCIDENCE OF THE CHILD POPULATION OF EKATERINBURG

Nasretdinova N.Y.[1], Voroghtsova L.I.[2], Mandra J.V.[1], Sorokoumova D.V.[1], Jegalina N.M.[1], Yepishova A.A.[1]

1 *Ural state medical university, Ekaterinburg, Russia*
2 *Medical officer of filial № 4 ANO «United «Dentistry», Ekaterinburg, Russia*

Annotation

Subject. Epidemiological surveys are important for assessing the compliance of dental programs with the treatment needs of various population groups.

Objectives — we set a goal to compare the dynamics of indicators of epidemiological surveys of dental diseases in the city of Ekaterinburg over the past 15 years.

Methods. After analyzing reports and publications on the WHO methodology, a high prevalence and intensity of caries and signs of periodontal damage was noted, they deteriorate with age. The reduction in the incidence of dental diseases that began in 2008 did not persist in 2015. The change in the social and demographic structure of the children`s population of Ekaterinburg is accompanied by an increase in rates of dental diseases. Estimating the proportion of people with signs of periodontal diseases in children 12 and 15 years compared with the results of a previously conducted national epidemiological study in 2008, we do not see a decrease in the prevalence rate of periodontal diseases. An assessment of the need for emergency dental care in children of Ekaterinburg of 6, 12 and 15 years according to the WHO criteria showed a high level of need for «preventive or conventional treatment» in all groups of children examined.

Conclusions. The high prevalence of dental diseases in the city of Ekaterinburg indicates the need to find preventive measures. The increase in the intensity of caries is especially active in children of school age, which requires development of a comprehensive program of school prevention. The absence of a reduction in the prevalence rate of periodontal lesions in adolescents in all 3 national surveys suggests the need to find new approaches in prevention, including use of Smart Technologies.

Keywords: *epidemiological study, national survey, dental health, prevalence and intensity of caries, DMF index, periodontal disease, pediatric dentistry*

Introduction

Children`s health depends on parents` genetic, social factors, environment, and education in the family and at school.

Health care system, regular medical checkups and epidemiological surveys are significant for developing a prevention system [21].

Epidemiological surveys are important for assessing the compliance of dental programs with the needs of various population groups for treatment, as well as assessing the need for community-based prevention programs [22, 24]. National surveys include wide variation of analyzed criteria, unified WHO standards are good for comparison among regions [6, 16, 20]. In Russia National WHO Epidemiological surveys were held in a year 1998, 2008, results of the third national survey are analyzed now.

According to the Russia Dental Association, Ekaterinburg is noted among the Russian cities in which there was a decrease in the level of dental morbidity. However, Preventive program of dental diseases in the city of Ekaterinburg has completed its work and requires further continuation.

Funding for preventive measures for the primary prevention of dental diseases in the governmental health care system is significantly limited.

The change in the social and demographic structure of the children`s population of Ekaterinburg is accompanied by an increase in incidence rates of dental diseases.

The purpose of the study — to compare the dynamics of dental health in 3 epidemiological surveys in the city of Ekaterinburg in children aged 6, 12, 15 years.

Data and Methods

Literature data analysis, reports, publications on the WHO methodology.

The survey was carried out in pre-school and secondary schools of 3 districts of Ekaterinburg by staff members of USMU, who were trained in the methodology of the survey.

All parents signed informed consent to participate in the study. The stomatological status of the subjects was recorded in standard WHO forms (2013), 233 people took part in the survey.

The data on the state of periodontal disease, caries, fluorosis, erosions, tooth injuries, and diseases of the gum were taken into account.

The «Dental Status Assessment Card for Children» was completed in accordance with the WHO criteria (2013):

Survey identification information;
General information;
Condition of the teeth;
Periodontal condition;
Enamel fluorosis;
Tooth erosion;
Tooth trauma;

Lesions of the oral mucosa;

The need for emergency care.

The assessment of the incidence of caries was performed by calculating the prevalence and intensity, for children with mixed dentition — separately for permanent and temporary teeth. Periodontal health was assessed by registering signs of damage using the «Communal Periodontal Index» (CPI) and calculating the proportion of individuals with gum diseases [14, 15, 26].

Statistical processing of the data obtained was carried out using the statistical program SPSS (Statistical Package for the Social Sciences) standard parametric methods.

Results and discussion

The reduction in the incidence of dental diseases that began in 2008 did not persist in 2015.

The prevalence of caries among children is high. In comparison with the data of 2008 there is an increase in prevalence: in the group of 12-year — from 58 to 67.55 % and in the group of 15-year — from 81 to 87.3 %. The prevalence of caries decreased only in the group of 6-year children by 6.5 %, but in this group the prevalence is extremely high in terms of deciduous teeth 75.2 % [10].

For comparison, the prevalence of caries in the Russian Federation: 12-years — 47.0, 15-years — 48.8 %, in the USA: 6-years — 21.4, 12-years — 50.5, at 15-years — 53.8 % [9, 12, 18].

When comparing age indicators from 12 to 15 years, the intensity of caries increased almost 2 times and amounted to 1.93 ± 0.3 in children 12 years, 3.6 ± 0.4 — in children 15 years (table 1, fig. 1, 2).

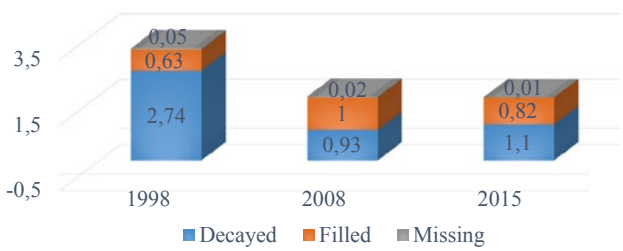

Fig. 1. DMF index in children 12-years

Рис. 1. Индекс КПУ 12-летних детей

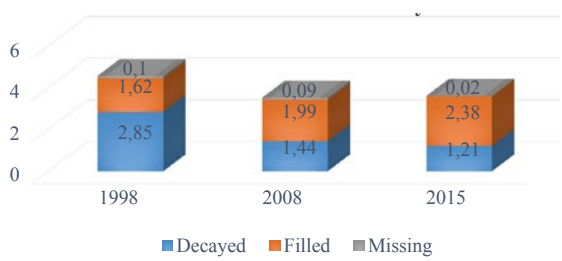

Fig. 2. DMF index in children 15- years

Рис. 2. Индекс КПУ 15-летних детей

Table 1

The prevalence and intensity of dental caries in children 2015–2016

Таблица 1

Распространенность и интенсивность кариеса у детей 2015–2016

Age	*Prevalence, %*	*Decayed (D) (M ± m)*	*Filled (F) (M ± m)*	*Missing (M) (M ± m)*	*DMF index (M ± m)*
6 years — deciduous teeth	75.2	1.88 ± 0.2	1.81 ± 0.2	0.41 ± 0.2	4.1 ± 0.2
6 years — permanent teeth	8	0.13 ± 0.04	0.02 ± 0.0	0.0 ± 0.0	0.15 ± 0.2
12 years	67.5	1.1 ± 0.15	0.82 ± 0.1	0.01 ± 0.0	1.93 ± 0.3
15 years	87.3	1.21 ± 0.2	2.38 ± 0.3	0.02 ± 0.0	3.6 ± 0.4

In the Sverdlovsk region, DMF index of 12-years is 2.4; in the Russian Federation, there is also a high level of caries intensity on average, DMF = 3.3, without a downward trend. In Kazakhstan 3.3, in Belarus, the intensity of caries decreased to 2.4 [1, 3, 4, 9, 11]. In a number of European countries, thanks to the preventive programs, it was possible to achieve a pronounced decrease in DMF of 12-year children: DMF in Sweden — 0.9 (component Missing (M) = 0), in Germany and DMF — 0.7 (component Missing (M) = 0) [13, 17].

In the city of Ekaterinburg, an increase in the number of children due to migration is noted. The number of children, registered in governmental clinic № 11 working for Verh-Isetsky district of Ekaterinburg is 8.6 % higher than the statistics on official population of children. In the Leninsky district, the number of registered children is 6.3 % higher than statistical data.

In 2018, the increase in the child population compared to 2017 was 3.7 % in the Verkh-Isetsky district and 2.6 % in the Leninsky district. Mainly due to the organized child population. Over the year, the number of organized preschool children has increased in two districts in total by 16.6 %, schoolchildren by 7.3 %.

Often, children from socially disadvantaged families come from regions with a low fluoride content in drinking water. The intensity of caries in this group of children is significantly higher than the average [2, 8].

The prevalence of periodontal diseases among adolescents in Ekaterinburg was 54 % — 12 years, 64 % — 15. There was a negative age dynamics. Estimating the proportion of people with signs of periodontal diseases in children 12 and 15 years compared with the results of a previously conducted national epidemiological study in 2008, we do not see a decrease in the prevalence rate of periodontal diseases (fig. 3). In the cities of Russia, the prevalence rate of periodontal diseases is also high: Tobolsk: 12 years — 15.6, 15 years — 44.6 %, Volgograd: 12 years — 63.1, 15 years — 79.5 %, Penza: 12 years — 76, 15 years — 86 %. For comparison, in the

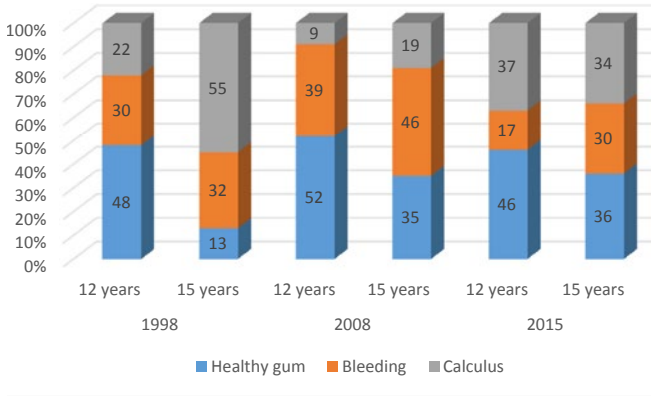

Fig. 3. Periodontal diseases in children 12, 15 years (Ekaterinburg)
Рис. 3. Заболевания пародонта у детей 12, 15 лет (Екатеринбург)

UK prevalence rate of periodontal diseases in adolescents 15 years — 17 % [5, 23, 25].

Other dental diseases (tooth trauma, oral mucosa diseases), recorded according to the WHO methodology, in the groups of examined children took less than 1 %.

An assessment of the need for emergency dental care in children of Ekaterinburg of 6, 12 and 15 years according to the WHO criteria showed a high level of need for «preventive or conventional treatment» in all groups of children examined [7, 19].

Conclusions

1. The high prevalence of dental diseases in the city of Ekaterinburg indicates the need to find preventive measures.
2. The increase in the intensity of caries is especially active in children of school age, which requires the introduction of a comprehensive program of school prevention.
3. The absence of a reduction in the prevalence rate of periodontal diseases in adolescents in all 3 national surveys suggests the need to find new approaches to prevention, including the use of Smart technologies.
4. School dentistry, taking into account the age characteristics of children, requires new approaches to prevention, including the development of a new preventive program in organized children`s groups, including the introduction of digital smart technologies.

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Авторы:

Наталья Юрьевна НАСРЕТДИНОВА
диссертант кафедры терапевтической стоматологии и пропедевтики стоматологических заболеваний, Уральский государственный медицинский университет, г. Екатеринбург, Россия
nataweb@mail.ru
Людмила Ивановна ВОРОЖЦОВА
главный врач филиала № 4 «Объединение «Стоматология», г. Екатеринбург, Россия
sp4@anostomat.ru
Юлия Владимировна МАНДРА
д. м. н., профессор, Уральский государственный медицинский университет, профессор кафедры терапевтической стоматологии и пропедевтики стоматологических заболеваний, директор Института стоматологии УГМУ, г. Екатеринбург, Россия
jmandra@mail.ru
Дина Викторовна СОРОКОУМОВА
к. м. н., доцент кафедры терапевтической стоматологии и пропедевтики стоматологических заболеваний, Уральский государственный медицинский университет, г. Екатеринбург, Россия
dina9791@gmail.com
Наталья Максовна ЖЕГАЛИНА
к. м. н., доцент, Уральский государственный медицинский университет, доцент кафедры терапевтической стоматологии и пропедевтики стоматологических заболеваний, г. Екатеринбург, Россия
nzhegalina@mail.ru
Анна Андреевна ЕПИШОВА
к. м. н., доцент, Уральский государственный медицинский университет, доцент кафедры терапевтической стоматологии и пропедевтики стоматологических заболеваний, г. Екатеринбург, Россия
yepichova9@mail.ru

Authors:

Natalia Y. NASRETDINOVA
dissertator of Department of therapeutic and preclinical dentistry, Ural state medical university, Ekaterinburg, Russia
nataweb@mail.ru
Lyudmila I. VOROZHTSOVA
chief medical officer of filial № 4 ANO "United "Dentistry", Ekaterinburg, Russia
sp4@anostomat.ru
Julia V. MANDRA
Vice Rector for Scientific and Innovative Activities, MD, Professor, Head of department of Preclinical dentistry and Physiotherapy of Dental Diseases, Ural state medical university, Ekaterinburg, Russia
jmandra@mail.ru
Dina V. SOROKOUMOVA
candidate of medical sciences, employee of the USMU department of Preclinical dentistry and Physiotherapy of Dental Diseases, docent, Ekaterinburg, Russia
dina9791@gmail.com
Natalia M. JEGALINA
candidate of medical sciences, employee of the USMU department of Preclinical dentistry and Physiotherapy of Dental Diseases, docent, Ekaterinburg, Russia
nzhegalina@mail.ru
Anna A. YEPISHOVA
candidate of medical sciences, employee of the USMU department of Preclinical dentistry and Physiotherapy of Dental Diseases, docent, Ekaterinburg, Russia
yepichova9@mail.ru

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