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STUDY OF CHILDREN'S HEALTH OF PRESCHOOL AGE

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A strategically important and priority task of the state in the field of health care is to preserve the life and health of children.

The aim is to analyze the state of health of preschool children during 2014–2018 to determine the main diseases and influencing factors.

Materials and methods. The analysis of medical records of children aged 2–6 years was carried out in a preschool educational institution (PEI) in the city of Kharkiv (Shevchenkivskiy district) for the period 2014–2018. The analysis was carried out in accordance with the current legislation of Ukraine.

Results. The maximum percentage of children with chronic pathology was recorded in 2014. During the next 4 years, a decrease in the percentage of children with pathologies was observed, but this indicator remained at a high level. Among the pathologies, speech defects, whose frequency were recorded, which were evenly distributed among children aged 3–6 years. On the part of the organs of vision, isolated cases of strabismus, astigmatism and hypermetropia were recorded. Pathological conditions of the respiratory system - adenoid vegetations were registered in children aged 4–6 years. The maximum percentage among pathologies was anemia, which was noted more often in children aged 4-5 years. Pathologies of the digestive system – gastritis, hernia, and liver diseases were registered to the maximum in 2014, and then a decrease in their number was observed. Obesity, as a pathology associated with endocrine dysfunction, tended to increase but did not depend on the age of children. During preventive medical examinations, posture disorders and flat feet were more often registered among diseases of the musculoskeletal system. From the genitourinary system, pyelonephritis was registered.

Conclusion. A comparison of the morbidity of preschool children revealed an increase in the number of pathologies from the endocrine (obesity), nervous, genitourinary (pyelonephritis) and circulatory systems (anaemia)

Keywords: health status, children, preschool age, medical cards, morbidity, organ systems

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1. Introduction

Among the "2030 Global Sustainable Development Goals" set by the United Nations, good health and well-being are among the main ones. A strategically important and priority task of the state in the field of health care is to preserve the life and health of children, which requires a corresponding change in the attitude of society and the authorities towards childhood medicine and medical personnel who serve children. The main criteria for achieving this are the preservation of reproductive health, the health of newborns, a sufficient level of immunization, the prevention of maternal and infant mortality, and the improvement of the health of the country's child population as one of the most important medical and social indicators of the country's development [1]. Analysis of demographic indicators and the health status of children of different age groups of the child population is an important stage in the development of medical and social programs [2].

The deterioration of the health indicators of the children's population in recent years determines the need to find the components of health formation [3].

A million children die each year before reaching their fifth birthday, and tens of millions more remain physically or mentally retarded, unable to grow up, live and develop as a result of poverty, ignorance, discrimination and violence. Most of the fatal consequences could have been prevented [4].

Chronic diseases that occur at the age of 3 to 6 years develop against the background of repeated acute pathology and determine the child's health during school years and later in life, affect his physical development, the progression of existing congenital or genetically determined pathology, contribute to the growth of general and infectious diseases. Most often, the debut of chronic pathology occurs at the age of 5–6 years. By the age of 7, more than 50 % of children, according to dispensary examinations, have certain health abnormalities [5].

Today, there is no doubt that the majority of adult diseases have their roots in childhood, which determines the quality and length of life [6]. The lost quality of a child's health and life certainly affects the duration and fullness of his further life, intelligence, creativity, physical development and working capacity, which in aggregate is of great importance for the harmonious development of the entire society in particular, the defence capability of the country, which is extremely important in current conditions of the armed conflict. This has resulted in many families have lost their sources of income and access to social assistance and health care, and the cost of living has skyrocketed [7].

The direction of Ukrainian medicine corresponds to the global strategy of children's health care in Europe, developed by the WHO, which is aimed at a systematic struggle to reduce infant mortality, socially significant diseases, infectious diseases, environmental pathology in children, etc. and emphasizes the need for advocacy by children's and family doctors of a healthy lifestyle, widespread use of immunoprophylaxis and rational nutrition.

The aim of the study was to analyze the state of health of preschool children during 2014–2018 to determine the main diseases and influencing factors.

2. Materials and methods

The analysis of indicators of medical records of children aged 2–6 years was carried out in a preschool

educational institution (PEC) in the city of Kharkiv (Shevchenkivskyi district). The research period was 2014–2018.

The analysis was carried out in accordance with the current legislation and the order of the Ministry of Health of Ukraine, the Ministry of Education and Science of Ukraine "On the improvement of medical care organizations for children in preschool educational institutions" dated August 30, 2005 No. 432/496 and the order of the Ministry of Health of Ukraine "On the improvement of ambulatory polyclinic care for children in Ukraine aged five to six years before entering general educational institutions" dated November 29, 2002 No. 434.

Statistical processing of data was carried out using the Excel software package, statistical processing of the material was carried out with the calculation of the arithmetic mean value and its statistical error, and the level of significance was taken at $P \leq 0,05$.

3. Research results

The conducted analysis shows that in the period 2014–2018, the maximum percentage of children with chronic pathology was recorded in 2014 (Fig. 1).

During the next 4 years, a decrease in the percentage of children with pathologies was observed, but this indicator remained at a high level.

Regarding the distribution of pathological conditions by organs and systems, the trend presented in Fig. 2 was observed.

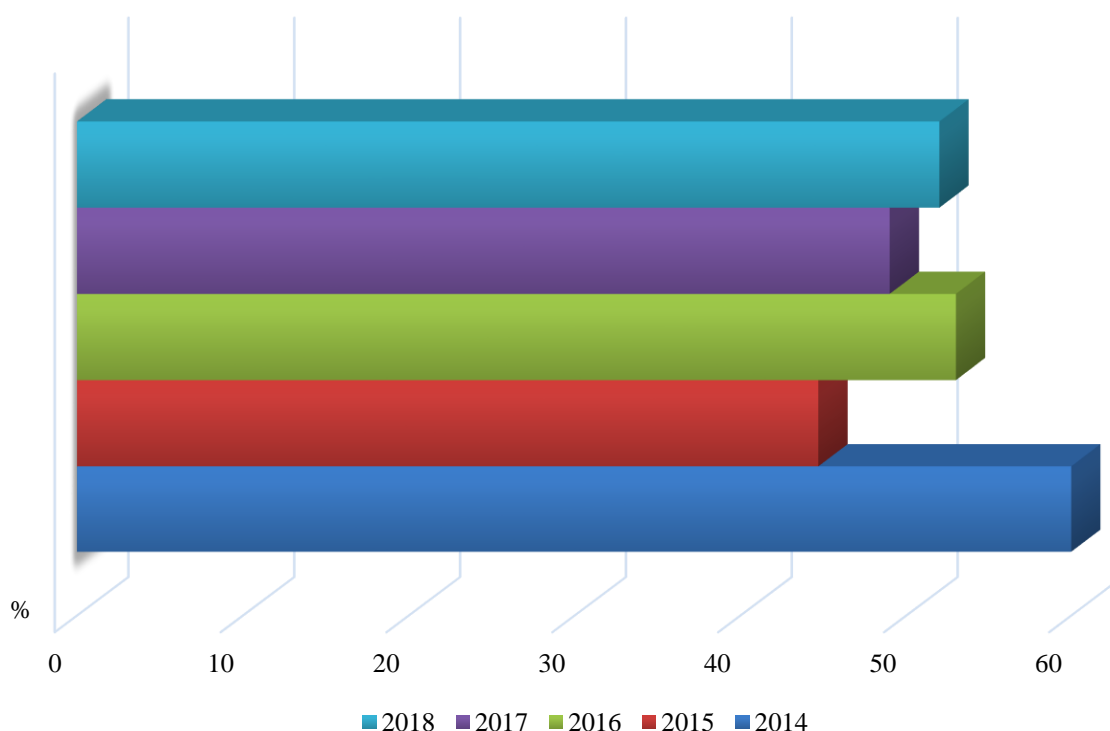


Fig. 1. Percentage of children with chronic pathology

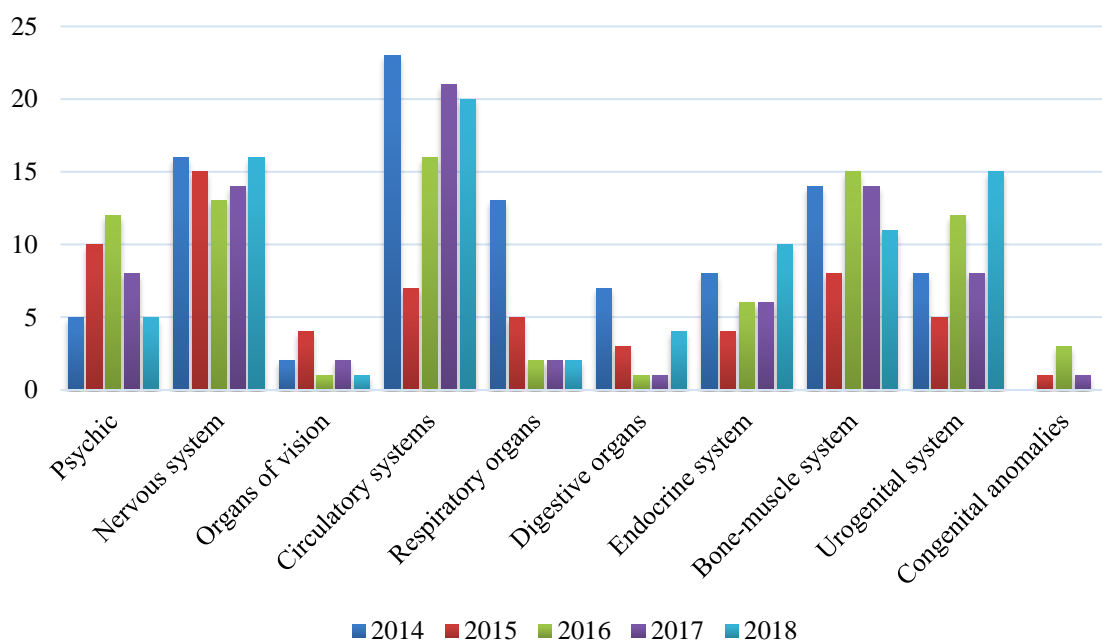


Fig. 2. Morbidity of children in the hospital in relation to organs and systems

Among psychic diseases, speech defects were registered, and the maximum number was observed in 2016, evenly distributed among children aged 3-6 years. As for diseases of the nervous system, their number remained at a constant level in terms of the number of recorded cases.

Among diseases of the organs of vision, isolated cases of strabismus, astigmatism and hypermetropia were recorded.

The maximum number of pathologies of the respiratory system during the analyzed period was observed in 2014, with a gradual decrease. The pathological conditions that were diagnosed are adenoid vegetations in children aged 4-6 years and isolated cases of chronic tonsillitis.

The maximum percentage among pathological conditions in children was anemia, as a pathology of the blood circulation system, which was noted more often in children aged 4-5 years. The symptoms of this disease were paleness of the skin, cold and dry skin, and children complained of rapid fatigue. Against this background, the doctor assumed anaemia.

Pathologies of the digestive system – gastritis, hernia, and liver diseases were registered to the maximum in 2014, and then a decrease in their number was observed. A gastroenterologist found children with complaints of abdominal pain, diarrhea, bad breath, and weakness. These symptoms gave rise to a preliminary diagnosis of gastritis.

According to anthropometric data, symptoms of obesity of the first degree (increase in body weight by 15-20 %) were found in children. Obesity had a tendency to increase, but dependence on the age of children was not observed.

Among diseases of the musculoskeletal system, posture disorders and flat feet were more often registered. This pathology was determined by therapists during pre-

ventive medical examinations, paying attention to complaints, external indicators, and clinical manifestations.

From the urogenital system, pyelonephritis was recorded, the frequency of which increased until the end of 2018. Children with pathologies of the genitourinary system complained of general weakness, rapid fatigue, drowsiness and psycho-emotional lability; in addition, they noted a positive Pasternatsky symptom. Based on these symptoms, the doctor made a preliminary diagnosis of pyelonephritis.

There have also been cases of congenital anomalies (heart defects).

4. Discussion

The incidence and prevalence of diseases is one of the main indicators of the health of the population, including that of children. Observations revealed a high level (45-60 %) of morbidity in preschool children during 2014-2018 years. Thus, according to literature data, most often, the debut of chronic pathology falls on the age of 5-6 years. By the age of 7, more than 50 % of children, according to dispensary examinations, have certain health abnormalities [8].

Among the morbidity of preschool children in the number of pathologies from the endocrine (obesity of the first degree). Obesity is a pathology associated with endocrine dysfunction. According to the International Obesity Task Force (IOTF), at least 10 % of children between the ages of 5 and 17 are overweight or obese, which is about 155 million people. About 30-45 million (2-3 %) have a physique characteristic of obesity. It has been proven that the spread of obesity among children worsens forecasts for the health and quality of life of the population [9]. Nutrition-related factors influence obesity status as well [10-13]. According to WHO experts [11], insufficient and unbalanced nutrition leads to impaired physical and mental development, such children may be

compromised for the development of somatic pathology, including diabetes, obesity, atopic dermatitis, immunological dysfunction.

Psychic and nervous diseases, which were registered in preschool children, are most likely related to intrauterine development, as well as in the first days after the birth of the baby. Experts note that stressful situations also affected the health of children and provoke problems of nervous system. There are emotional or behavioural reactions, reactive psychogenic disorders, sometimes to the degree of psychosis and signs of impaired social functioning, including speech disorders [7].

We noted a 2.0 times increase in diseases of the genitourinary system, which, according to the literature, occupy a dominant place in the structure of diseases of the urinary system in children. This group includes a number of nosological forms: acute pyelonephritis, chronic pyelonephritis, urinary tract infections, and cystitis. At an early age, girls and boys get sick with the same frequency; in the future, girls will get sick 10 times more often than boys. The prevalence among schoolchildren and pre-schoolchildren is 5 % and 1 %, respectively. The general structure of the pathology of the urinary tract is about 50 %. Pyelonephritis is mainly caused by microbes living in the intestines: *Escherichia coli*, *Staphylococcus*, *Proteus*, *Enterococcus*, *Pseudomonas aeruginosa*, *Streptococcus* [14, 15].

A significant percentage is also made up of diseases of the hematopoietic and digestive systems. The mechanism of iron absorption appears to be different in younger infants than in older ones. Therefore, diseases of the gastrointestinal tract can lead to anaemia. In a study on anaemia in preschoolers in the Brazilian Western Amazon, authors observed a prevalence of anaemia of 30.6 % [16]. Children under the age of five are among the vulnerable groups due to the increased demands for growth and development typical of this stage. Among the main consequences of iron deficiency anaemia are impaired psychomotor development and cognitive function and increased susceptibility to infections [16].

From 2019, the incidence data are subject to change due to the onset of the COVID-19 pandemic. Although this disease progressed more easily and had a better prognosis than in adults, it still led to biochemical changes in the body, changes in the hemostasis system, and oxygen dependence. The SARS-CoV-2 virus provoked the syndrome of multisystem inflammation, which is a life-threatening systemic disease in which there is persistent fever and a pronounced inflammatory process in a number of organs and systems [17].

Also, compared to other pathologies, diseases of the musculoskeletal system remained at a high level. Flat foot is a pathology that was registered, which depends on the spontaneous development of the arch of the foot.

Therefore, the primary chain of health care has a leading role in the system of implementation of measures to protect the health of children and their medical support, development and implementation of modern science-based technologies for the prevention of morbidity and disability, and the improvement of children's health. The correct organization of work to preserve the health of children and to improve the health of preschool children from risk groups contributes to the reduction of morbidity and prevention of chronic pathology and disability of the child population.

Study limitations. The limitation of the study is the study changes in clinical and laboratory indicators in children of different age groups.

The prospect of further research. Further observation of children of this age group with a larger sample size in order to improve preventive measures.

5. Conclusions

1. The presented results of the work made it possible to analyze the incidence of diseases in preschool children during 2014–2018. The percentage of children with chronic pathology was recorded in the range of 45–60 % in the city of Kharkiv (Shevchenkivskiy district).

2. The studies indicate the prevalence in preschool children pathologies of the endocrine (obesity), psychic and nervous, genitourinary (pyelonephritis) and circulatory systems (anaemia). Flat foot was registered in preschool children as well.

3. Analysis of the obtained indicators shows the need for further study of the incidence rate of preschool children in Kharkiv and the Kharkiv region in order to determine the leading pathological conditions, influencing factors, early diagnosis and timely development of methods of prevention and treatment.

Conflict of interests

The authors declare that they have no conflict of interest in relation to this research, including financial, personal, authorship or other nature, which could affect the research and its results presented in this article.

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Data availability

Data will be provided upon reasonable request.

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