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MEDICAL CARE FOR CHILDREN WITH CANCER IN THE FAR EASTERN FEDERAL DISTRICT

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ABSTRACT

Background. The analysis of the quality of medical care for children with cancer is based on statistical data. Evaluation of the results is also the basis of the strategy for the development of medical care for this category of patients.

Aim. Analysis of the main indicators characterizing medical care for children with cancer in the Far Eastern Federal District.

Methods. The operative reports for 2017 of the executive authorities in the sphere of health protection of 7/9 (77,8%) subjects of the Russian Federation that are part of the Far Eastern federal districts have been analyzed (The Ministry of Health of the Republic of Sakha (Yakutia) and the Khabarovsk Territory did not provide the data).

Results. The number of children was 790855 (0-17 years), the number of children's oncological beds was 60 (0.7 for 10 thousand 0-17 years), the average number of days of berth employment in the year was 283.7 days. In 4 (57.1%) subjects of the department of pediatric oncology are absent, in 2 (28,6%) - there are no children's oncological beds. The number of doctors providing medical care to children with cancer is 13, of them 7 (0.8%, 0.08 for 10 thousand 0 - 17 years) have a certificate of a doctor-pediatric oncologist. In 5 (71.4%) subjects there are no doctors-children oncologists. The incidence of malignant tumors was 15 (per 100,000 0-17 years), the prevalence was 90.1 (per 100,000 0-17 years), the mortality rate was 2.9 (per 100,000 0-17 years), the one-year mortality rate - 7.6%. 5% of patients were actively detected. 52 (43.7%) of primary patients were sent to medical organizations of federal subordination, 8 (6.7%) of primary patients left the territory of the Russian Federation.

Conclusion. Low morbidity and mortality are attributable to defects in the account and the lack of reliable follow-up data. It is advisable to introduce electronic accounting systems. For reliable estimation of the level of provision of the population with children's cancer beds and the percentage of patients sent for treatment in medical organizations of federal subordination, audit of patients' illnesses is necessary. Deficiency of children's oncologists and a low percentage of patients identified should be eliminated by reforming the training of medical personnel.

Keywords: pediatric oncology, malignant tumors, morbidity, mortality, one-year mortality.

Introduction. The analysis of the quality of medical care for children with cancer is based on statistical data. Evaluation of the results is the basis for the development strategy of medical care for this category of patients. It is also important to coordinate the activities of regional and federal authorities aimed at increasing continuity in the provision of various stages of medical care, since pediatric oncology is a centralized area, but at the same time, the routing of patients must be dispersed throughout the country, that is, high-tech stages of treatment are conducted in medical organizations of the third B level, routine - under the conditions of the second - the third A levels [4]. For this reason, a particularly important assessment of the level of medical care in the subjects and federal districts of the Russian Federation.

The purpose of the study - an analysis of the main indicators characterizing medical care for children with cancer in the Far East Federal District.

Materials and methods. From 01.01.2017 to 31.12.2017, an environmental study was conducted in which the units of analysis were aggregated data, rather than individual individuals [5].

The operative reports of executive authorities in the sphere of health protection of 7 constituent entities of the Russian Federation that are part of the Far Eastern Federal District are analyzed: the Kamchatka and Primorsky Territories, the Amur, Magadan and Sakhalin Regions, the Jewish Autonomous Region, the Chukotka Autonomous Okrug (Ministry of Health of the Republic of Sakha (Yakutia)) and the Khabarovsk Territory did not provide reports). The reports contained the following information: the size of the child population (0 - 17 years); number of primary patients; morbidity (by 100 thousand 0 - 17 years); the total number of children with oncological diseases on the register; the number of patients identified actively; number of deceased patients, of them among those identified in 2017; one-year mortality (%); mortality (per 100 thousand 0 - 17 years); presence in the subject of the Department of Pediatric Oncology; number of children's oncological beds; number of days of berth employment per year; number of doctors providing medical care to children with cancer, including the number of doctors who have certificates of pediatric oncologists; the number of patients referred for treatment in medical organizations of federal subordination; the number of patients who left for treatment outside the territory of the Russian Federation. Based on the obtained data, the author calculated the prevalence of malignant neoplasms (by 100 thousand 0 - 17 years), the number of children's oncological beds and doctors-children's oncologists by 10 thousand 0 - 17 years, the percentage of patients hospitalized in children's oncology departments and aimed at treatment in federal medical organizations. The morbidity, mortality, and one-year mortality rates were also calculated by the author to monitor the reliability of the information contained in the reports. As the object of the study, aggregated data served: morbidity; mortality; one-year mortality; active detectability; number of doctors of children's oncologists and children's oncological beds; average number of days of berth employment per year; the percentage of patients sent for treatment in medical organizations of federal subordination and left for treatment outside the territory of the Russian Federation.

Methods of statistical data analysis. The sample size, which was not calculated in advance, according to the submitted reports, is as complete as possible. However, it is impossible to establish this fact precisely, since the study included all children with morphologically confirmed malignancies and reported in statistical reports. Considering the low incidence in the analyzed subjects, it is reasonable to assume that some patients were not included in the reports. This fact, as well as the absence of patients' catamnesis, do not allow to guarantee the reliability

The main indicators characterizing medical care for children with cancer in the Far East Federal District in 2017

Subjects of the Russian Federation	Indicator									
	Child population	Incidence * / prevalence*	The number of primary patients / total number of registered children	Number of patients referred for treatment to federal medical organizations (%) / who left for treatment outside the territory of the Russian Federation (%)	Number of dead patients / out of those identified in 2017	One-year mortality.%	Mortality*	The number of patients identified actively (%)	Number of pediatric oncology departments / number of children's oncological beds (**) / number of days of bed occupancy per year	Number of doctors providing medical care for children with cancer / of them have a certificate of pediatric oncologist /% (**)
The Republic of Sakha (Yakutia)	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d
Kamchatka region	65432	12.3/90.8	8/59	4 (50)/1 (12.5)	2/2	25	3	2 (25)	0/5 (0.8)/285	1/n/d
Primorsky region	363902	12.9/89.3	47/324	17 (36.2)/3 (6.4)	12/2	4.3	3.3	0	1/25 (0.7)/20	6/5/83.3 (0.1)
Khabarovsk region	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d
Amur region	178297	15.2/82.6	27/147	11 (40.7)/1 (3.7)	5/2	7.4	2.8	0	0/12 (0.7)/389.8	4/2/50 (0.1)
Magadan region	30132	3.3/50	1/15	1 (100)/0	n/d	n/d	n/d	n/d	0/0	0/0
Sakhalin region	102250	22.5/120.6	23/123	23 (100)/3 (13)	3/2	8.7	2.9	1 (4.3)	0/8 (0.8)/440	1/0
Jewish Autonomous Region	37597	16.2/89.2	6/33	0/0	1/1	16.7	2.7	0	0/0	0/0
Chukotka Autonomous District	13245	53.8/84.6	7/11	6 (85.7)/0	0	0	0	4 (57.1)	0/10 (7.6)/ n/d	1/0
Total	790855	15/90.1	119/712	52 (43.7)/8 (6.7)	23/9	7.6	2.9	6 (5)	1/60 (0.7)/283.7	13/7/60.8 (0.08)

Note: * - per 100 thousand children population aged 0–17 years. ** - per 10 thousand children population aged 0–17 years. n/d - no data

of data on morbidity, mortality and one-year mortality.

The statistical processing of the material was carried out on a personal computer using the program STATISTICA v. 7.0 (StatSoft Inc., USA). For the value of statistical significance, the value p <0.05 was assumed. An estimate of the reliability of the relative frequency difference was carried out by the Student's test.

Results. The main indicators characterizing medical care for children with cancer in the subjects that make up the Far Eastern Federal District are presented in Table.

The number of children's population was 790855 people (0 - 17 years). The maximum number of children was recorded in the Primorsky Territory (363902 people), the minimum in the Chukotka Autonomous Okrug (13245 people).

There was 1 children's oncology department (Primorsky Krai). In 4 (57.1%) subjects of the department of pediatric oncology are absent: medical care for children with cancer falls on beds allocated in other departments of multidisciplinary children's clinical hospitals.

The number of children's oncological beds was 60 (0.7 per 10 thousand 0 - 17 years). In 2 (28.6%) subjects (Magadan Oblast and the Jewish Autonomous Region) there are no children's oncological beds. The smallest number of beds was noted in Primorsky Krai and the Amur Region (0.7 per 10,000 0-17 years), the largest in the Chukotka Autonomous District (7.6 per 10,000 0-17 years).

The average number of days of berth employment in the year was 283.7 bed days. The largest number of days of berth employment in the year was noted in the Amur Region (389.8), the smallest - in the Primorsky Territory (20).

The number of doctors providing medical care to children with cancer was 13, of which 70 (60.8%, 0.08 for 10 thousand 0 - 17 years) are certified as a pediatric oncologist. In 4 (57.1%) subjects (Magadan and Sakhalin regions, the Jewish Autonomous Region, the Chukotka Autonomous Okrug) there are no doctors-children oncologists and children's oncological beds. The number of doctors-children's oncologists is the same - 0.1 per 10 thousand children's population 0-17 years.

The number of primary patients with malignant tumors was 119, on dispensary registration (who had reached remission and continuing treatment) - 712. Thus, the incidence rate in the Far Eastern Federal District in 2017 was 15, the prevalence was 90.1 100 thousand children (0 - 17 years).

The highest incidence was registered in the Chukotka Autonomous District (53.8 per 100,000 0-17 years), the lowest in the Magadan Region (3.3 per 100,000 0-17 years), the highest prevalence in the Sakhalin Oblast (120.6 for 100 thousand 0 - 17 years) the lowest - in the Amur region (82.6 per 100 thousand 0 - 17 years) (Fig. 22, 23). The number of deceased patients in the FEFD was 23, of them among the identified in 2017 - 9. Thus, the death rate was 2.9 per 100 thousand 0 - 17 years, a one-year mortality rate of 7.6%. The highest mortality was registered in the Primorsky Territory (3.3 per 100,000 0-17 years), the lowest in the Jewish Autonomous Region (2.7 per 100,000 0-17 years) (Figure 22). The largest one-year mortality was recorded in the Kamchatka Territory (25%), in the Chukotka Autonomous District it was 0%.

The number of patients detected actively was 6 (5%). In a number of subjects (Primorsky Krai, Amur Oblast, Jewish Autonomous Region), during planned preventive examinations of the child population of malignant neoplasms, there was no evidence. The maximum percentage of patients identified actively was registered in the Chukotka Autonomous District (57.1%).

52 (43.7%) patients were sent to medical organizations for federal subordination. The highest index was registered in the Magadan and Sakhalin regions (100%), the lowest in the Primorsky Territory (36.2%).

For treatment outside the territory of the Russian Federation, 8 (6.7%) of primary patients left.

Discussion. Operative reports 5 (71.4%) of the subjects contained 6 errors in the calculation of some indicators.

In the reports of the Kamchatka and Primorsky Krais, the Amur Region and the Jewish Autonomous Region, the figures for a one-year mortality are not true: 9.1%, 1.86%, 3.17%, 100% with true values of 25%, 4.3%, 7, 4%, 16.7%, respectively. Also in the reports of the Jewish Autonomous Region and the Chukotka Autonomous Okrug, incidence rates were erroneously calculated: 15.9 and 52.9, with true values of 16.2 and 53.8 per 100,000 population 0-17 years, respectively.

Some reports do not contain information in full: The Kamchatka Krai did not provide data on the number of doctors who have a certificate of a pediatric oncologist, Magadan Oblast did not provide data on the number of deaths, one-year mortality, mortality and active detectability, the Chukotka Autonomous District did not provide data on average number of days of employment of a berth in a year.

The time characteristics in the reports (the average time taken to establish the diagnosis, the average time elapsed from the moment of verification of the diagnosis to the start of treatment, and the average time spent on diagnosing patients who died of malignant neoplasms of patients) are untrue, since it is highly doubtful that the average The quantities calculated, as is known, by adding the numbers and dividing the obtained number by the number of terms, can be integers, whereas in most of the reports comrade values are 7, 1 and 7, respectively. It is obvious that in some cases the morphological verification of the diagnosis takes up to 14 days. In the Far East Federal District, the "leader" in terms of the incidence rate in 2013 - the Sakhalin region - has maintained a high incidence rate (18.5 and 22.5 per 100,000 0-17 years, respectively), but is in second place behind Chukotka Autonomous District (53.8 per 100 thousand 0 - 17 years), the incidence of which is the highest among all subjects of the Russian Federation. At the same time, the largest number of children's oncological beds in the Chukotka Autonomous Okrug is 7.6 per 10,000 0-17 years, but not a single pediatric oncologist.

Morbidity in the Jewish Autonomous Region, which in 2013 was minimal in the Far East Federal District, increased significantly (2013 - 8.1, 2017 - 16.2). In 2017, the lowest incidence in the federal district was registered in the Magadan Region - 3.3 per 100 thousand 0 - 17 years [2]. This indicates that the detectability and accounting for the past 5 years in some entities have increased. Although the incidence in the analyzed federal district is significantly lower than in the US and Europe, but higher than in countries with low reliability of statistical data, for example, in the Central Asian Republics (Kyrgyzstan, Uzbekistan, Tajikistan) [1, 7].

The provision of the population with pediatric oncological beds has slightly increased (2013 - 0.53, 2017 - 0.7 per 10 thousand 0 - 17 years) [3].

The provision of the population by doctors-pediatric oncologists decreased from 0.11 to 0.08. It, obviously, is due to the fact that in 2017 the number of doctors with certificates of children's oncologists was indicated in the reports [2].

The percentage of patients sent for treatment in medical organizations of federal subordination decreased from 75.3 to 43.7%. It is quite difficult to assess this indicator, since pediatric oncology is a centralized field of medicine and patients should receive many stages of treatment on the basis of federal medical organizations. For this reason, the actual value seems to be quite low. Although this is only a subjective assessment and it requires an audit of patients' illness histories [2].

It is not possible to compare prevalence, mortality, one-year mortality, active detectability, the average number of days of occupancy of a child cancer cage in a year, and the percentage of patients leaving for treatment outside the Russian Federation, since in 2013 the reports did not contain this information.

The average number of days of berth employment per year is at an extremely low level-283.7 bed days, respectively.

In some subjects, this indicator is at an extremely low level. For example, in the Primorsky Territory - 20 bed days, in the Kamchatka Territory - 285 bed days. This indicates that in these subjects there is an excess of pediatric oncological beds that are not filled. In some subjects, this indicator is at an extremely high level and exceeds 365 hospital days. For example, the Amur region - 398.8 bed days, the Sakhalin region - 440 days. Obviously, in these subjects, several patients are hospitalized for children's oncological beds at the same time, which indicates the inadequacy of children's oncological beds in these subjects.

In order to eliminate the identified data defects and the reasons leading to the appearance of such data, it is necessary to expand informatization, to introduce an electronic database of children with oncological diseases, which will eliminate the "subjective" factor both in the preparation of reports and during the choice of treatment tactics and patient routing [3, 5].

Although the reports were signed by the heads (deputy heads) of the executive bodies in the sphere of health protection of the subjects of the Russian Federation, most of the data were provided by the main freelance pediatric specialists oncologists, which does not exclude the subjective factor, and as a result, mistakes in completing the questionnaires that were have been identified.

From conversations with some compilers, it was found that some of them did not know how to calculate the levels of morbidity, mortality and one-year mortality, while others cited a lack of time for the correct filling in questionnaires. Another reason for respondents was the lack of reliable statistics (the number of primary patients, the total number of children registered, etc.).

Conclusion. The incidence rates in the RF subjects of the FEFD are significantly lower than those in Europe and the United States, but higher than in countries with low statistical reliability. This indicates the remaining defects of detectability. But there is a positive trend. The mortality rate is at an acceptable level, which may be due to the lack of reliable follow-up data. The percentage of patients identified actively, it is necessary to increase, including by the wide introduction in the clinical practice of the algorithm for referring the patient to a consultation with a pediatric oncologist. For a reliable assessment of the level of provision of the population with children's cancer beds, audit of patient records is necessary.

Conflict of interest. The author of the article confirmed the absence of a conflict of interests, which must be reported.

References

1. Aksel E.M. Zlokachestvennye novoobrazovaniya u detej: statistika zabolevaemosti i smertnosti detej v Rossii i stranah byvshego SSSR v 2015 g. [Malignant tumors in children: statistics of morbidity and mortality of children in Russia and the countries of the former USSR in 2015] Evrazijskij onkologicheskij zhurnal [Eurasian journal of Oncology], 2017, V.5, No 2, p. 349 – 357.

2. Rykov M.Y., Susulyova N.A., Chumakova O.V. [et al.] Onkologicheskaya zabolevaemost' detskogo naseleniya Rossijskoj Federacii i ego obespechennost' medicinskoj pomoshch'yu (vrachami, koechnym fondom, diagnosticheskimi i lechebnymi tekhnologiyami): analiz statisticheskih dannyh za 2013 g. [Cancer incidence of child population of

the Russian Federation and its provision of medical care (doctors, bedspace, diagnostic and therapeutic technologies): analysis of statistical data for 2013] Voprosy sovremennoj pediatrii [Current pediatrics], 2015, V. 14, No 6, p. 686 – 691.

3. Rykov M.Y., Turabov I.A., Zheludkova O.G. Vnedrenie ehlektronnoj bazy dannyh detej s onkologicheskimi zabolevaniyami v pilotnyh medicinskih organizaciyah: rezul'taty prospektivnogo kogortnogo issledovaniya [Set-up of the electronic database of pediatric cancer patients in pilot medical facilities: a prospective cohort study] Onkopediatriya [Oncopediatrics], 2018, V. 5, No 1, p.5-12.

4. Rykov M.Y., Baibarina E.N., Chumakova O.V., Polyakov V.G. Epidemiologiya zlokachestvennyh novoobrazovanij u detej v Rossijskoj Federacii: analiz osnovnyh pokazatelej i puti preodoleniya defektov statisticheskih dannyh [Cancer epidemiology in children in the Russian Federation: analysis of key indicators and ways to overcome the statistical data defects] Onkopediatriya [Oncopediatrics], 2017, V. 4, No 3, p. 159-176.

5. Rykov M.Y., Baibarina E.N., Chumakova O.V. [et al.] Sovershenstvovanie organizacionno-metodicheskih podhodov k okazaniyu medicinskoj pomoshchi detyam s onkologicheskimi zabolevaniyami [Improvement of the organizational and methodological approaches to healthcare delivery for children with cancer] Onkopediatriya [Oncopediatrics], 2017, V. 4, No 2, p. 91-104.

6. Epidemiologiya zlokachestvennyh novoobrazovanij u detej: osnovnye pokazateli v 2011 – 2016 gg [Epidemiology of malignant tumors in children: the main indicators in 2011 – 2016] Pod. red. Rykova M.Yu., Polyakova V.G. [edited by M.Y. Rykov, V.G. Polyakov]. Moscow: Izdatel'stvo Pervogo MGMU im. I.M. Sechenova [The publishing house of the First Moscow State Medical University named after I.M. Sechenov], 2017, 210 p.

7. Siegel R., Miller K., Jemal A. Cancer statistics. CA Cancer J Clin., 2016, No 1, p. 7−30.

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ACTUAL TOPIC

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THE DETECTABILITY OF HELICOBACTER PYLORI CAGA STRAIN IN ADULTS AND CHILDREN ACCORDING TO THE DATA OF RHNo1-NCM

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ABSTRACT

The Republic of Sakha (Yakutia) belongs to Arctic territories. Hard social and economic conditions cause broad development of helicobacter infection in the republic. A comparative analysis of detectability of Helicobacter pylori CagA strain among adults and children with chronic gastritis since 2012 to 2016 according to Republic hospital №1 - National center of medicine (RH №1-NCM) revealed a distinct decrease in these indexes among adults and children with chronic gastritis. Thus it demands its further identification and treatment for prevention of stomach diseases of oncological risk group. This article presents research data of detectability of Helicobacter pylori among adults and children for 6 years in RH №1-NCM clinical-immunological laboratory by method of enzyme immunoassay on antibodies to antigen Cag A Helicobacter pylori. The blood serum of patients from the National center of medicine was the material for this research.

15868 patients were examined, 6993 of them were revealed Helicobacter pylori Cag A that made 44,1%. The detectability for the research period decreased from 49,6% to 40%. 3827 adults out of 8272 patients were revealed Hp (+) Cag A that made 46,3%, and detectability decreased from 52% to 42% for this period. Among 7596 sick children a decrease in detectability of Hp (+)CagA was from 47,4% to 39,1%. Thus, a comparative analysis of detectability of Hp (+)CagA for the reporting period proved a distinct decrease in indexes among adults and children with chronic gastritis.

Serological diagnostic methods for diagnosing the pathology of the upper digestive tract are of great importance for mass medical examinations. They allow diagnosing the disease in the early (asymptomatic) stage.

There is a tendency to reduce the rates of Helicobacter pylori infection among patients with chronic gastritis, which requires further identification, treatment and prevention among the population.

Keywords: Far North, Republic of Sakha (Yakutia), Helicobacter pylori, Cag A antigen, clinical and immunological laboratory, RB N1-NCM (Yakutsk), screening, diagnosis, immunoassay, antibodies to Cag A Helicobacter pylori antigen, treatment.

Introduction. In most cases, Helicobacter pylori infection which is always associated with gastritis is the cause of atrophic gastritis. Almost 50% of the patients infected with Helicobacter pylori develop atrophic gastritis which in most cases leads to stomach carcinoma and 90% of cases is the cause of peptic ulcer [1].

According to researches, chronic gastritis among indigenous people of Yakutia is characterized by the considerable specific gravity of atrophic gastritis (38,5-57,1) with a larger frequency of atrophic antral forms of gastritis at young age.

According to researchers of the Yakut scientific center, Russian Academy of Medical Science of the Republic of Sakha (Yakutia), Helicobacter pylori infection among adult population of Yakutia was 76,1% [2]. In the common structure of the