Table 3

Indicators of immune status in children of Sakha (Yakutia) with acute pneumonia

Indicators	Standards indicators for children(n = 100), M ± m	Children with acute pneumonia((n = 106), M ± m
CD3+	52,6 ± 1,7	20,1 ± 1,02*
CD4+	26,3 ± 0,7	11,2 ± 0,7*
CD8+	22,5 ± 0,23	16,2 ± 1,0
CD16+	23,2 ± 0,54	4,6 ± 1,1*
ИРИ	1,18 ± 0,64	0,7 ± 0,02
IgA	2,34 ± 0,69	1,3 ± 0,3*
IgG	13,3 ± 0,16	9,2 ± 0,7
IgM	1,6 ± 0,03	0,9 ± 0,09
CD22+	19,8 ± 0,16	9,9 ± 1,9
C3	0,67 ± 0,12	0,20 ± 0,02*
C4	0,34 ± 0,05	0,11 ± 0,02*
ЦИК	96,8 ± 0,132	194,2 ± 1,5*

*p < 0,05 между нормативами и полученными показателями в каждой группе.

and decrease in the B-cell link of CD22 + was revealed.

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ANALYSIS OF THE RESULTS OF NEONATAL SCREENING FOR CONGENITAL HYPOTHYROIDISM IN THE REPUBLIC SAKHA (YAKUTIA)

ABSTRACT

Congenital hypothyroidism (CH) is a disease characterized by insufficiency of thyroid hormones produced by the thyroid gland. CH leads to delay of development of all organs and systems, primarily from a lack of thyroid hormones Central nervous system suffers. Neonatal screening for congenital hypothyroidism is an effective method of early diagnosis and treatment of disease to prevent the development of disabling complications. With timely treatment of CH rate of physical and mental development of the child conforms to the norm. Currently, the optimal age of initiation of therapy drugs levothyroxineis considered the first 2 weeks of life.

The article analyzes the data of neonatal screening for congenital hypothyroidism in the Republic Sakha (Yakutia) from 1996 to 2016. The study revealed that prevalence of congenital hypothyroidism in the Republic Sakha (Yakutia) for reported twenty years was lower than in other regions of the Russian Federation. Congenital hypothyroidism is three times more prevalent in girls, than in boys and is more often observed in children from countryside. Organization of neonatal screening for congenital hypothyroidism in the Republic Sakha (Yakutia) allowed achieving a high percentage of newborn screening, reducing observation time and early initiation of replacement therapy and prevention of disability of patients.

In the period before the implementation of the PNP, there were revealed two children with mental retardation, after the introduction - one. According to the data of neonatal screening peak enhancement detection of CH as in 2006, out of 6954 newborn past research on CH, the diagnosis was confirmed in 4 of the studied (1:1739). In 2010-2011, the detection rate was lowest and amounted to 1 person per year with a frequency of 1:15877. Organization of neonatal screening on congenital hypothyroidism in the Republic of Sakha (Yakutia) allowed achieving a high percentage of newborn screening, reducing time of inspection and early replacement therapy, prevention of disability of patients.

Keywords: children, congenital hypothyroidism, neonatal screening.

INTRODUCTION

Congenital hypothyroidism (CH) is a disease characterized by insufficiency of thyroid hormones produced by the thyroid gland. CH leads to delay of development of all organs and systems, primarily from a lack of thyroid hormones suffering Central nervous system [2]. Congenital hypothyroidism occurs with a frequency of 1 in 4000-5000 newborns. In girls, the disease is detected in 2-2,5 times more often than in boys [3]. Prior to the introduction into practice of health care programmes neonatal screening of CH was one of the most frequent causes of early mental retardation. Neonatal screening for congenital hypothyroidism is an effective method for early diagnosis and timely treatment of the disease to prevent the development of disabling complications. In Russia, neonatal screening for CH is from 1993 in the Republic of Sakha (Yakutia) – till 1996; in the early years in neonatal screening

in the RS (Y) were involved only 15 out of the 36 districts (Uluses). Currently are involved all the municipalities of the Republic. Within this time, the coverage rate of neonatal screening increased from 42% to 99.6% [4]. The main purpose of screening for CH – early identification of all babies with elevated thyroid stimulating hormone (TSH) in the blood. All newborns with abnormally high TSH levels require urgent in-depth examination for final diagnosis and immediate commencement of substitution therapy [4].

In the previous investigations there was a direct relationship between the age at which treatment was started, and the index of intellectual development of the child in the future. In case of timely treatment CH rate of physical and mental development of the child conform to the norm. Currently, the optimal age of initiation of therapy by preparations levotiroksineis considered the first 2 weeks of life [3]. The main clinical symptoms are non treated CH are delayed growth and mental development leads to mental retardation. In most cases (85-90%) prevails primary congenital hypothyroidism. Among the cases of primary congenital hypothyroidism about 85% are sporadic, 15% are hereditary [2].

MATERIALS AND METHODS

In the framework of the priority national project (PNP) «Health» by the Ministry of health and social development of the Russian Federation was issued a decree No. 185 of 22 March 2006 «On mass newborn screening for hereditary diseases».To organize screening, introduction of new methods, organization of diagnostic and medical care published the following normative documents: the order of the Ministry of Health of RS (I) from March 20, 2006 01-8/4-134a «On the implementation section of the national project «Health» for examination of newborn babies for hereditary diseases»; The order of the state Autonomous institution of Sakha (Yakutia) «Republican hospital №1-national center of medicine» («RHN№1-NCM») of 31 August 2006 №01-0108/91 «About rendering of medical aid to children with cystic fibrosis, adrenogenital syndrome, galactosemia, phenylketonuria and congenital hypothyroidism identified by neonatal screening» [4]. Screening for CH is based on the determination of TSH levels in whole capillary blood spot on filter paper by the method of immunofluorescence. As the upper allowable limit for infants 3-4 days of lifetaken TSH level of 20 Miu/L. In the level of TSH more than 20 Miu/l is retestedfrom the same spot of capillary blood. In case of positive result, the child is sent to an endocrinologist. At very high TSH result is reported to the pediatrician at the place of residence of the child and immediately is assigned to the substitution therapy with levothyroxine.

The data on neonatal screening for the period 1996-2016.is provided by the laboratory Medical genetic center (MHC) Perinatal center «of RBN№1-NCM». Information on patients with CH were obtained from specialists endocrinology Department of the Pediatric center, «RBN№1-NCM». A retrospective study was carried out on stationary cards of children diagnosed with congenital hypothyroidism. Information on patients is taken from the register of patients of endocrinology Department (form 001).

THE RESULTS AND DISCUSSION

In RS (Y) within 1996-2016 on screening were examined 259587 newborns on CH, 53 children were identified with CH, the coverage was 88.6%. The frequency of CH was 1:4898. Newborn screening for mass screening in the RS (YA) on CH can be divided into two periods: from 1996 to 2005 and 2006 to 2016, i.e. the periods before and after the implementation of the PNP «Health». In the period from 1996-2005 were examined 101530 newborns, among which were identified 24 children with CH, coverage of screening amounted to 73.7%. The frequency of CH during this period was 1:4230. From 2006-2016 158057 newborns were examined, among them there were identified 29 children with CH, the coverage amounted to 99%. The frequency of CH was 1:5450 (table. 1). Thus, the prevalence of CH in the Republic of Sakha (Yakutia) is lower than in the Russian Federation – 1 in 3950 and its regions: Urals FD 1:2600, Central, northwestern, Volga, southern and Siberian Federal district varies from 1:4000 up to 1:4800 [1].

According to the data of neonatal screening peak enhance of the detection of CHwas in 2006 and 2016. In 2006 6954 newborn past research on CH, the diagnosis was confirmed in 4 amounting 1:1739. In 2016, the frequency of CH was 1:3846. In 2010-2011, the detection rate was the lowest and amounted to 1 person per year with a frequency of 1:15877.

Over 20 years of neonatal screening in the Republic of Sakha (Yakutia) were identified 53 children with CH. Among children with CH: 11 boys (20,7%), 42 girls (79.3 per cent), the ratio of semi – 1:3,8, ie predominantly affected girls, which corresponds to literature data. Place of residence: urban – 24 (45,2%) rural 29 (54,8%) children. Nationality: 31 (58.4 per cent) the child of the Yakut nationality, 15 (28,3%) of Russian nationality, 7 (13,2%) children with other nationalities.

According to the ultrasound in almost all patients with CHwas revealed hypoplasia of the thyroid gland with diffuse changes. The level of TSH on neonatal screening in average amounted184,45±17,2 mkme/ml (limits of oscillation from 88.79 per to 369,16),is retest 300,5±33,2 mkme/ml (limits of oscillation from 113,94 to 654,9). TSH levels at initial hospitalization – 194,2 ± 94,2 mkme/ml (limits varying from 14.1 to 1034 mkme/ml).

All patients with CH received replacement therapy with levothyroxine since set diagnosis in the individual dosage depending on the age (from 15 up to 150 mg per day). Delayed psychomotor development was observed in 9 (16,9%) patients, in 5 of them (9,4 %) was revaled delayed psycho-speech development. Mental retardation (mental retardation) diagnosed in two children (3.7 percent). Both were baby girls, 1992 and 1998 Children with mental retardation, children who were not included in the program of mass screening, and their treatment started after 1 year. Patients with a diagnosis of CH had the following concomitant diagnoses: residual encephalopathy (DRE) – 18 (33,9%), iron deficiency anemia – 2 (4,5%), small anomalies of the heart (patent foramen ovale) – 3 (5,6%), CHD (ASD) – 1 (1,8%), CHD (VSD) – 1 (1,8%), obese – 1 (1,8%), umbilical hernia – 1 (1,8%), hemangioma – 1 (1,8%), nevus – 1 (1,8%).

CONCLUSIONS

Organization of neonatal screening for congenital hypothyroidism in the Republic

Screening of newborns for mass screening in the RS (Y) for 1996 – 2016

Years	The number of people born in the RS (Y)	Surveyed: VG	Coverage	Revealed
1996-2005	137684	101530	73,7	24
2006	13623	6954	51	4
2007	15152	14931	98,5	3
2008	15254	11054	72,5	2
2009	15783	11196	71	3
2010	15877	15662	99	1
2011	16173	16092	99,5	1
2012	16922	16832	99,5	3
2013	16611	16546	99,6	3
2014	16964	16946	99,8	3
2015	16469	16459	99,9	2

of Sakha (Yakutia) allowed achieving a high percentage of newborn screening, reducing time of inspection and early replacement therapy, prevention of disability of patients. At the beginning of screening for CH in the Republic of Sakha (Yakutia) attended only 15 of all districts, at this time, involved all the municipalities of the Republic. Coverage of neonatal screening from 42% in the first years of its introduction has increased up to 99.6%. In the period from 1996 to 2016, the frequency of CH was 1:4898, which is comparable to the literature data.

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ACTUAL TOPIC

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POLLINOSIS IN CHILDREN OF THE SAKHA REPUBLIC (YAKUTIA)

ABSTRACT

The article is devoted to an actual problem of modern pediatrics - the incidence of pollinosis in children living in the Far North. The aim of the study was to investigate the etiological factors of hay fever in the child population of the Sakha Republic (Yakutia) according to allergen testing of school children suffering from hay fever - 100 people at the National center of Medicine, Yakutsk. Considering the obtained data on the importance of sensitization among children and adolescents of Sakha (Yakutia) Republic it is necessary to introduce the calendar dusting of plants in the work of allergists and pediatricians.

Keywords: incidence, allergen testing, allergy, immunoglobulins, immunity, sensitization, prevention.

Hay fever – a reaction of an inflammatory character from the mucous membranes or skin as a result of increased sensitivity of the child's body to the pollen. The disease has a pronounced seasonality from April to September.

Difficulties in determining the accurate number of creating geographical differences in the pollen composition, a wrong interpretation of symptoms by patients or doctor error in diagnosis [1,2,7].Hay fever is a common Allergy in children. Malta pollinosis identified U14,7% of children aged 5 to 8 years [2]. In Europe and the USA by hay fever suffers 20% of adolescents. From 1991 to 2000, the incidence of hay fever has increased more than 2 times [3]. In the Republic of Belarus, according to official statistics, allergic diseases affect 10 to 15% of the population. Annually increase the incidence of allergic rhinitis: in 2002 of 102.3 cases per 100 thousand population; in 2003 112, 1 [3, 4, 5, 6]. However, health statistics, based on the appealability to curative preventive institutions do not correspond to true values of the incidence and prevalence of pollinosis among the population.

In the Republic Sakha (Yakutia) a study of etiological factors of pollinosis among the pediatric population has not been conducted, so this study is of scientific interest [1, 2, 3, 8, 9].

The purpose of the study: to study the etiological factors of hay fever (AR) in children population of the Republic of Sakha (Yakutia).

MATERIALS AND METHODS

The authors present the analysis of allergen testing of schoolchildren, patients with pollinosis living in the North of the Republic and 100 people at the National center of medicine of Yakutsk in the age from 4 years to 18 years. Of the 100 surveyed children 50% were girls and 50% boys. 32% of the surveyed children showed atopic dermatitis. We conducted allergen testing to value all children of the studied group. Allergic examination was conducted by prick test method to