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M.A. Loschenko, R.V. Uchakina, V.K. Kozlov

The structure of the somatic pathology adolescents with chronic kidney disease

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Summary

The urgency of the problem dictated by the necessity of early diagnosis and correction of deviations in concomitant somatic pathology in order to improve performance overall health of adolescents. A total of 222 adolescents (12-17 years) with chronic kidney disease who are on the steady-state treatment in the clinic, Institute of Maternal and Child Health. Adolescents were divided into 4 groups: the first - second chronic pyelonephritis - tubulointerstitial nephritis, and the third - chronic pyelonephritis in the background of the malformation of urinary system, and the fourth - congenital malformation of the development urine system. The most common somatic disorders in teenagers were diseases of the nervous system (72%), endocrine (27.1%), gastrointestinal tract (53.15%), undifferentiated connective tissue dysplasia (37.38%).

Key words: somatic pathology, adolescents, chronic renal disease.

Among the diseases that tend to be chronic in children, the most common disease of the nervous system, respiratory system, gastrointestinal tract, urinary tract, blood, and metabolism. Marked increase in urinary tract disease in children, as evidenced by its increase over the last ten years is 2-2.5 times the number of hospitalized with kidney disease. Today, an increasing number of children with congenital and hereditary kidney diseases [3]. Systemic diseases can have devastating effects on reproductive function [2]. The highest incidence in females observed in puberty [4]. However, not studied the effect of chronic somatic disease in adolescents in the formation of the reproductive system, and their reproductive behavior, gynecological disease [1]. The presence of somatic diseases and endocrine disorders increases the risk of adolescent reproductive health.

Materials and methods

Examine the 222 adolescents (12-17 years) with chronic kidney disease who are hospitalized in Clinic Research Institute of Maternity and Childhood. Adolescents are divided into 4 groups: the first - chronic pyelonephritis (CP, n = 73), the second - tubulointerstitial nephritis (TIN, n = 62), the third - on the background of chronic pyelonephritis malformation of urinary system (CP + MUS, n

= 49), the fourth - malformations of the urinary system (MUS, n = 38). Boys accounted for 33, 8% (n = 75), girls 66, 2% (n = 147).

The complex included an in-depth survey of the collection and analysis of complaints, medical history into account, the results of a standard 12-lead electrocardiography in, Doppler echocardiography, if necessary - the 24-hour Holter ECG monitoring. Children, depending on the complaints and evidence held: ultrasonography of the liver, gall bladder, thyroid, CIG, EFGDS, neurophysiology (EEG, REG, M-echo), examination by specialists (endocrinologist, neurologist). The degree of connective tissue dysplasia was evaluated according to criteria Milkovsky T., Dimitrova, A. Karkasho Islands in the modification of RR Shilyaeva, SN Shalnova [7].

Sexual development of adolescents was assessed by the appearance of secondary sexual characteristics by the method of J. Tanner (1986) and standards of sexual development, MV Maksimova (1984, 1998), followed by the total scoring stage of sexual development and compliance with its chronological age [6]. Statistical processing was performed using the software package Statistica (version 6).

Results and Discussion

Most greeted somatic disorders in teenagers were nervous system disorders (72%), gastrointestinal tract (53.15%, GIT), undifferentiated connective tissue dysplasia (37.38% UCTD), endocrine system (27.1%).

Diseases of the nervous system included are suprasegmental autonomic nervous system dysfunction (39.19% SANSD) and residual encephalopathy (37.38%, REP). SANSD met in adolescents with CP to 43.83% Tin - 43.54%, CP + MUS - 28.57%, MUS - 36.84%. Most changes were mixed, and vagotonic type, to a lesser extent sympathetic (Fig. 1). In the first group of SANSD vagotonic type encountered less frequently ($p < 0.05$) in comparison with other groups.

The presence of secondary cardiomyopathy, a form of sinus arrhythmia in the background SANSD, according to the recorded CIG in 27.02% of adolescents. Cardiomyopathy was accompanied by pain over the area of the heart. Cephalic syndrome detected in 54% of adolescents with SANSD, manifested mainly in the form of headache, at least - dizziness.

REP include different syndromes in all groups: cerebroasthenic (10.36%, CAS), hypertension-hydrocephalic (10.81%, HHS), neuromuscular dystonia (1.35% NMS), asthenovegetative (9%, AVC), vertebral - basilar insufficiency (5.85% VBI), neurotic states (6.75%, NS) in different degrees of severity.

In adolescents, the second and the third group REP is represented by all the studied

syndromes (Table). In the first and fourth groups did not reveal any patient with neuro-muscular dystonia. Neurosis states in the majority of the surveyed teens accompanied by neurogenic bladder dysfunction in hypotonic type (33.3%).

Diseases of the endocrine system of the surveyed adolescents were identified as: thyroid disease (20.27%), constitutional somatogenically-tall (1.35%) or short stature (1.35%), exogenous-constitutional obesity (4.05%). Thyroid glands were in the form of diffuse nontoxic goiter (DNG), autoimmune thyroiditis (AIT), cysts of the thyroid gland (Fig. 2).

The most common thyroid disease occurred in groups of adolescents with CP and CP + MUS, mainly in the form of DNG 1 and 2 degree, and a smaller percentage of AIT. The second group is represented by only one degree of DNG entire thyroid gland. In the fourth group did not reveal any teenager with cysts of the thyroid gland. In all cases, DNG was under euthyroidism, without marked changes in thyroid status. AIT has examined adolescents diagnosed for the first time in the hospital after the ultrasound and the detection of antibodies to thyroid peroxidase.

The pathology of the gastrointestinal tract in adolescents is presented: gastroesophageal reflux disease (11.27%, GERD), gastritis and duodenitis chronic course (47.74%, CGD), dysfunction of the biliary tract (15.32% DBT). Identified disease accompanied by typical complaints and syndromes. GERD most commonly encountered in the first (19.17%, $p_{1-2,4} < 0.05$) and third (12.24%) groups, in the second and fourth with a lower frequency (4.83% and 5.26% resp.). CGD patients had a high rate of 39.47% (fourth group) to 59.67% (second group). DBT rarely observed in children of the first (12.32%) and third-it (12.24%) groups, most often - in the fourth group (21.05%).

UCTD have examined adolescents represented the minimum and average degree of severity in all groups, except the fourth. In the first group, the minimum degree of UCTD was at 30.13% ($p_{1-3} < 0.05$), with the average 4.10%, while the second - 38.70% and 8.06% respectively. In the third the percentage of occurrence of this pathology was observed less often - 22.44% of the minimum degree and 2.04% of average. In the fourth group UCTD found only in the form of a minimal manifestations (36.84%).

Disturbances of the reproductive system in a large percentage of both boys (54%) and girls (94.2%). Most greeted somatic pathology in this group of teenagers was nervous disorders (83%) and the endocrine system so (22.7%), GIT - 45.4%, UCTD - 42.4%.

The boys of the reproductive system disorders manifested as varicocele (9.38%), edema of the left testis (1.56%), cyst epididymis (10.94%), spermatocele (1.56%), reducing the total volume

of the scrotum (1,56%) [5]. When varicoceles often concomitant somatic pathology was chronic superficial gastritis (83.3%), UCTD minimal - 50%, pathology of the nervous system - 83.3% (REB - 50%, SANSD - 33.3%), diffuse nontoxic goitre - 16.7% of adolescents. In the presence of epididymal cysts, most teenagers have had chronic superficial gastritis flow - 71.4%, the minimum severity of UCTD - 42.8%. A disturbance in the neurological status was observed in 76.1% of adolescents are in the form of a mixture of SANSD - 42.8%.

Girl's violations included in the main [5] kistoznoprilevativnymi changes of the gonads (KPIG, 23%) and a violation of the menstrual cycle (NMC, 43%). Less frequently encountered: aplasia of the uterus (1.4%), endometrial polyp (1.4%), gidrosalpingit left (1.4%), hypoplasia of the uterus (4.2%), two-horned uterus (1.4%), aplasia of the ovary (1.4%). Against the background of KPIG half of adolescents revealed UCTD minimal, gastritis elicited-Hsia in every fourth girl, IRR - 37.5% REP - 25% of cases. At NMC deviations in the nervous system - 88.4%, gastrointestinal tract - 44.2%, UCTD - 32.3%, DNG under euthyroidism - 20.6%. All girls with hypoplasia of the uterus observed UCTD minimal and DNG 1 degree under euthyroidism. The deviation in the neurological status was found in all adolescents, chronic superficial gastritis - 33.3%, with marked characteristic syndromes.

Thus, adolescents with chronic kidney disorder should be early diagnosis and correction of abnormalities associated systemic diseases in order to improve the performance of general health and prophylaxis of congenital abnormalities in subsequent generations.

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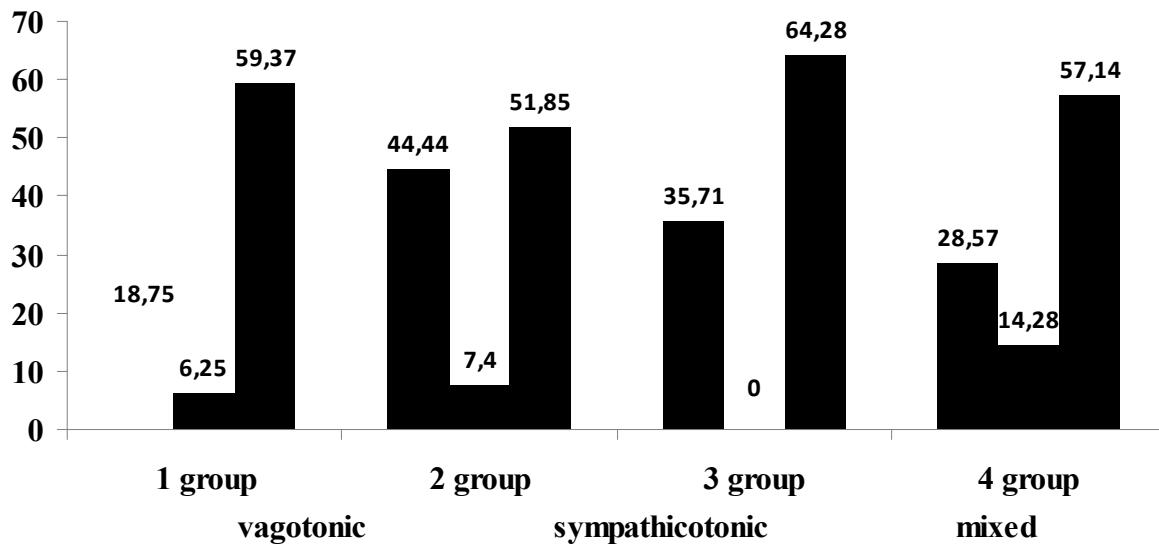
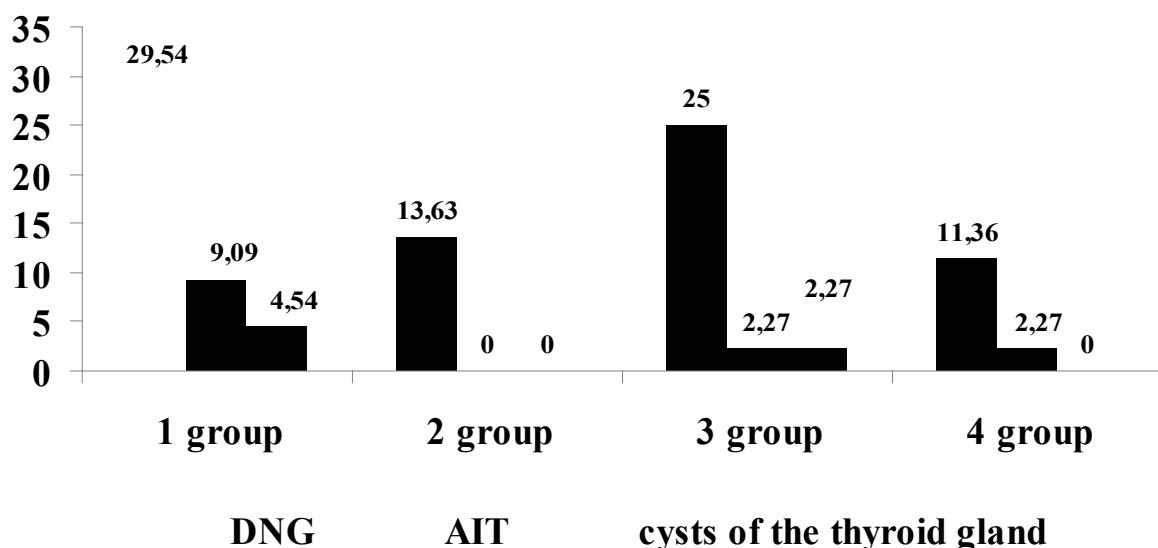


Fig. 1. Distribution of changes SANSD by type (%)

Table

The structure of the REP syndrome in groups of adolescents with chronic renal pathology (%)

syndrome \ group	CAS	HHS	AVC	NMS	VBI	NS
1	30,43	20,83	25	0	21,48	33,3
2	21,73	29,17	30	66,6	35,71	26,66
3	26,11	29,17	15	33,4	28,57	26,66
4	21,73	20,83	30	0	14,28	13,33



Note: DNG $p_{1-2,4} < 0,05$; AIT $p_{1-2} < 0,05$.

Fig. 2. Structure of thyroid diseases in adolescents with chronic kidney diseases (%)

GASTROENTERIC DISEASES OF CHILDREN REPUBLICS SAKHAS (YAKUTIA).**Ivanova O. N., Berezkina O. N., Melchanova G.M.****Medical institute SVFU, PC RB№1 NSM.**

Introduction: the Urgency of a problem of a pathology of a gastroenteric path at children is defined by variety of circumstances. In structure of the general disease at children one of the first places belongs to a pathology of a gastroenteric path [1]. Infringements of a gastroenteric path also are connected with change of an actual food of children. Qualitative change of a food allowance with prevalence of the refined fats, simple sugars. [1, 2, 3, 4].

The sharp and chronic pancreatitis in structure of diseases of bodies of digestion at children makes, according to various scientists, from 5 % to 25 % from number of patients with gastroenterologic diseases and 0,1-0,5 % from total of children arriving in children's surgical branches [1, 2, 3, 4, 5].

A variety and features of clinical displays of diseases of a pancreas at children during the various age periods give an occasion to numerous diagnostic and tactical errors. At the same time illnesses of a pancreas at children are a heavy pathology and difficultly give in to treatment. Children of early age rather have developmental anomalies of a pancreas, at more senior - the sharp and chronic pancreatitis caused by the various reasons (Tsuman V. G with al, 2001 is more often; Manes G. et al., 1995).

The data resulted in the literature on frequency of a sharp and chronic pancreatitis at children in structure of diseases of bodies of digestion extremely different also make from 5 % to 25 % from number of patients with gastroenterology diseases. First of all it speaks absence of the unified classification and uniform methodical approaches to revealing of a pathology of a pancreas. Much in pancreatitis development remains not clear. Till now there is no uniform concept патогенеза this disease at children and to the given section of gastroenterology is not given due attention.

Studying of structure and risk factors of formation, diagnostics and tactics of treatment of diseases of a pancreas at children in the conditions of the Far North is represented actual owing to high prevalence of the given group of diseases, and also features of a food of children in the conditions of the Far North.

The work purpose: Studying of prevalence of diseases of a gastroenteric path and a pancreas

at children in the conditions of the Far North for improvement of results of treatment and working out of regional preventive programs.

Material and research methods: For the purpose of studying of a condition of this question in republic Sakha (Yakutia) has been carried out the analysis of statistical data according to the statistical reporting on the basis of classification of illnesses, traumas and the reasons of the tenth revision, confirmed on 25 World assembly of public health services in 1997 and accepted in Russia in 1998. Indicators of reports of Ministry of Health RS (Yakutia) have been used and the Yakut republican it is information-anialitichesky the centre during 1996-2006 By us is spent inspection and the analysis of 600 children living in regions (Zhigansky, Oleneksky, Abyjsky, Allaihovsky) Republics Sakhas (Yakutia) on the basis of an advisory polyclinic of the pediatric centre of the national centre of medicine. All patients have been examined by the pediatrician and narrow experts: the cardiologist, the surgeon, the orthopedist, the allergist-immunologist. By all patient are spent researches (the general analysis of blood and urine), Biochemical research of blood (hepatic tests, etc.), functional methods of research pathologies.

Results of research: By results of the analysis for last 5 years growth of pathology of gastroenterology is marked. Gastroenterology diseases ЖКТ take the second place in structure of a children's pathology.

At children of school age growth of indicators of illnesses of a pancreas, illnesses of a biliary bubble, functional diarrheas, gastritis and гастродуоденитов (table 1) is marked. High level of prevalence of diseases of a gastroenteric path at children Republics Sakhas (Yakutia) is revealed. In disease structure sharp and chronic gastritis.

Pancreas diseases (sharp and chronic pancreatitis) make no more than 18 % in the general structure of diseases ЖКТ at children. Disease of a pathology of a gastroenteric path is high: a dyskinesia hepatic ways (54 %), chronic gastritis and gastroduodenitis (62 %). In investigated group children from Northern and Viljujsky group улусов prevail. At children with a chronic pancreatitis of 36 % of children from Northern улусов. In age structure children at the age from 0 till 5 years prevail.

At children with a chronic pancreatitis pains in a stomach, vomiting, from сочетанной pathologies an encephalopathy and a tonsillitis are more often marked.

According to ultrasonic at children with a chronic pancreatitis pancreas changes (89 %), deformations of a bilious bubble (45 %) are marked.

All children received enzymes, spasmolitik, choleretik and in the presence of Hp-association eradication therapy. From enzymes the most effective is Kreon.

Conclusions: Thus, high disease ЖКТ at children of the Far North is connected with residing at extreme klimato-geographical conditions, change of character of a food and decrease in a social and economic standard of living of the population that demands introduction of programs of preventive maintenance of disease and improvement of the children's population Northern улусов. Studying of risk factors of formation, therapeutic tactics and methods of diagnostics at children with a pancreatitis in the conditions of the Far North is essentially new and actual problem.

HELICOBACTER PYLORI INFECTION IN EVENKIA CHILDREN

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Abstract: Article shows the results of cross-sectional study for Helicobacter pylori infection prevalence and its associations with gastroduodenal diseases in children of Evenkia ethnic populations in ages from 7 to 17 years: 1) native inhabitants, namely the Evenks (299 children); 2) alien inhabitants, namely the Europoids (1 204 children). In both populations, especially among the Evenks there had been marked high prevalence of Helicobacter pylori early contamination in the majority of children. At the same time erosive ulcer lesions in gastroduodenal mucosa in native children had been diagnosed significantly less frequently. Besides, the signs of Helicobacter pylori infection in the Evenks are characterized by lesser dissemination of mucosa and more narrow association of dissemination stage with gastritis activity, as compared to the Europoids.

Keywords: children, ethnics, pathology, stomach, Helicobacter pylori infection

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Discovery of Helicobacter pylori (H. pylori) micro organism had introduced considerable changes into the views on etiology and pathogenesis of the diseases of stomach and duodenum. It was proved that it directly participates in the development of chronic gastritis, ulcer disease, stomach cancer [6, 13].

Half of the Earth population is living with H. pylori. In the developed countries the infection prevalence is considerably lower [10]. In the developing countries the contamination in population reaches 80-90%. Evenkia belongs to the territories with high level of H. pylori contamination. It is approaching 100.0% [4].

There are specific features of the prevalence of the infection, in the population of different regions, and also of different ethnic populations, inhabiting the same area [9]. Researchers explain this fact by the peculiarities in social economic living standards of the examined subjects and also by the combinatory influence of genetic, immune and other factors [7, 11]. In Russia there is enormously few population research for studying H. pylori contamination in children. Infancy is inherent in high risk of infection diseases. The results of scientific research prove that the main contamination happens in pre-school ages [8, 12]. The frequency of bacteria prevalence is growing in accordance with the age achieving the same level as in adults in the ages between 12 and 14 [1].

For our country, which is multi-national and geographically vast, the influence of geographic and ethnic factors upon the prevalence of H. pylori - associated gastroduodenal diseases of no doubt is timely. The results of the research will allow to structure approaches to working out the preventive measures against these diseases taking into account regional and ethnic peculiarities of the course of infection process in children.

Aim: To study H. pylori infection prevalence and its association with gastroduodenal diseases in children ethnic populations of Evenkia.

Materials and Methods: We have carried out single-stage cross sectional clinical examination for 1 503 schoolchildren (1 204 Europids (alien population) and 299 Mongoloids-Evenks (native population)) in the villages of Baykit and Tura (Evenkia Autonomous District, northern area of Siberia), in the ages from 7 to 17 years. Coverage ratio for schoolchildren in villages was no less than 79.0%. Gender/ age representation of children in the groups was uniform. Clinical examination of the children was supplemented by standard questionnaire. Its main questions were aimed at revealing the diseases of digestive apparatus, including Dyspepsia Syndrome (**DS**), which is the main clinical symptom complex of gastroduodenal pathology. In accordance with Rome criteria II (2001), DS was marked in the cases when children had such complaints as regular pain and discomfort in epigastral area mostly in the middle line [5].

We have formed by random in different populations the representation groups of schoolchildren with gastroenterology complaints. We carried out endoscopy for upper sector of gastrointestinal tract with biopsy sampling of gastric antral and gastric corpus mucosa (in 80 native and 83 alien children). We were using Sydney approach to gastritis endoscopic diagnosis (1990).

Morphological research for biopsies included light microscopy after [hematoxylin and eosin stain](#) [11]. Gastritis activity stage was evaluated by the intensity of neutrophilic infiltration of epithelium and/ or proper mucous plate in accordance with Sydney classification [8]. The data on the infection association with antral gastritis activity had been specified taking into account the predominance of bacteria colonization.

H. pylori was studied in biopsies of gastric mucosa antral after Gimza stain by light microscopy [2]. *H. pylori* presence in preparations was estimated by quantity: up to 20 bacterial cells in the field of view ($\times 630$) – weak dissemination stage, up to 50 – middle and over 50 – high. Besides, in every population we formed representation groups of children, for whom IgG was determined to *H. pylori* by immune enzyme analysis (IEA) by «Vector-Best» (Novosibirsk) test system.

Due to the Article 24 of RF Constitution and Helsinki Declaration (Y1964) all the examined children and their parents had been familiarized with the aims, methods and eventual complications of the tests and signed informed consent to participation in the research.

Analysis of statistical significance for the difference between qualitative signs was carried out with χ^2 criterion and Yates correction for groups of less than 10 subjects with the sign present and two-sided exact Fisher's test for groups of less than 5 subjects with the sign present. Statistical significance of differences between the signs was estimated under $p<0.05$ [13].

Results of the Research and Discussions: *H. pylori* contamination after IEA in Evenkia schoolchildren amounted to 68.1%, the indices didn't show significant differences between children of ethnic populations (in 69.8% of the Evenks and 66.2% of the Europoids; $p>0.05$).

Morphological study for gastric antral mucosa, which is the separate location of *H. pylori* colonization had shown the same level (high) of contamination in Evenkia children (81.0%) and the same peculiarities of *H. pylori* prevalence in ethnic populations as Immune enzyme analysis had shown (in 86.3% of the Evenks and in 75.9% of the Europoids) (Table 1). *H. pylori* contamination indices in children are comparable with contamination in adults of the region of interest. High prevalence of *H. pylori* infection among Evenkia children can be explained by intrafamilial transmission. This opinion is proved by the results obtained for *H. pylori* early contamination in the majority of schoolchildren in both populations (Table 2). Contamination in schoolchildren of first years amounted to 79.5% in Evenk population and 66.7% in alien population ($p>0.05$). With ageing both groups showed the tendency to the increase of *H. pylori* contamination (in ages from 12 to 17 in the Evenks it amounted to 92.7% and in children of alien parents 84.1%; $p>0.05$), but we didn't

reveal statistically significant differences between contamination indices of junior and senior groups.

Under minor tendency in native children to *H. pylori* contamination growth, they showed lesser bacterial dissemination stage in mucosa. Cases of the 2 - 3 stages of mucosa dissemination of *H. pylori* were determined in 49.1% of the Europoids and 22.5% of the Evenks ($p<0.05$). Ethnic peculiarities of *H. pylori* dissemination stage of gastric mucosa in the Europoids of northern territories can be associated with the lowering of immune response to the infection.

There are scientific findings in regard to the association of *H. pylori* infection with dyspepsia formation in the patients. We marked the growth of the prevalence and the stage of mucosa dissemination of *H. pylori* in DS children in both populations. The result has urgent character, because it proves the possibility of implementing test and treat approach to DS treatment in Evenkia children.

Notwithstanding the tendency to the increase in *H. pylori* contamination we had revealed erosive-ulcer changes in gastroduodenal mucosa after endoscopic test among native children less frequently, namely in 4.9% cases as compared to 13.3% among children of alien parents ($p<0.03$). All the Evenks and 93.8% of the Europoids with diagnosed erosive-ulcer diseases were infected with *H. pylori* (Table 2). We had marked only the tendency to contamination frequency increase in both populations in children with erosive-ulcer defects in gastroduodenal mucosa, which was caused, to our opinion by high level of the infection in all schoolchildren of Evenkia. At the same time in both populations the children with erosive ulcer lesions had high *H. pylori* dissemination of mucosa ($p<0.05$). The obtained data confirm pathogenic role of infection in the formation of erosive-ulcer changes in gastric and duodenum mucosa. It is known that *H. pylori* is strengthening the influence of gastric aggression factor on mucosa owing to disorders in mucosa barrier. It was also defined in the Europoids of the North that body life support is associated with higher level of functioning of physiological systems, including the level of acid production. It is evident that interaction between these two factors increases the possibility of balance disturbances between aggression and protection gastric factors and they are the risks of forming erosive ulcer changes in mucosa. The presence of association between *H. pylori* dissemination stage and severity of gastroduodenal lesions is one more argument in favor of implementing test and treat approach to DS treatment in Evenkia children.

H. pylori infection is also regarded as prime etiological factor in gastritis formation. In native children we marked more evident association of *H. pylori* infection with presence/ absence of antral gastritis ($p<0.05$) (Table 3). So, in the absence of bacteria the cases of mucosa without

gastritis morphological signs were determined in the Evenks more often than in the Europoids. Taking into account that gastritis is multifactorial disease, this can be explained by more negative influence of extreme environmental factors of the North on the health of alien population, which increases the number of antral gastritis cases in *H. pylori* absence as well. This also explains the increase of gastritis activity in *H. pylori* contamination in alien children as compared to native children. While studying *H. pylori* – associated gastritis as local immune response to microorganism, we can very well assume the presence of ethnic distinctions in immune response to infection.

Conclusion: So, disregard to ethnic belonging, *H. pylori* is widely prevalent among Evenkia schoolchildren and there exists its association with the presence of dyspepsia syndrome in children. Under some tendency to prevalence increase and early *H. pylori* contamination, native children are less disposed to erosive ulcer lesions of gastroduodenal mucosa. In alien schoolchildren of Evenkia *H. pylori* contamination is associated with the increase of gastritis prevalence and activity as compared to native children. Besides, in Europoid children *H. pylori* associated gastritis is characterized by higher dissemination stage of gastric antral mucosa in comparison to the Evenks.

Table 1.

H. pylori contamination and dissemination stage in gastric mucosa
in schoolchildren of different populations.

Groups	Children	n	1 stage of H. pylori dissemination		2 -3 stage of H. pylori dissemination		Total	
			Abs.	%	Abs.	%	Abs.	%
The Evenks	1. with DS	54	36	66.7	16	29.6	52	96.3
	2. without DS	26	15	53.8	2	11.5	17	65.4
	3. Totally	80	51	63.8	18	22.5	69	86.3
The Europoids of Evenkia	4. with DS	53	18	34.0	26	49.1	44	83.0
	5. without DS	30	10	33.3	9	30.0	19	63.3
	6. Totally	83	28	33.7	35	42.2	63	75.9
p 1-2			>0.05		<0.03		<0.003	
p 4-5			>0.05		>0.05		<0.05	
p 1-4			>0.05		<0.04		<0.03	
p 3-6			<0.001		<0.01		>0.05	

Table 2.

Contamination in children with erosive ulcer lesions of gastroduodenum tract.

Children	Groups of children	n	Helicobacter pylori +		Dissemination of 1 stage		Dissemination of 2 -3 stage	
			Abs.	%	Abs.	%	Abs.	%
The Evenks	1. With erosive ulcer defects	5	5	100.0	-	-	5	100.0
	2. Without erosive ulcer defects	75	64	85.3	51	68.0	13	17.3
	3. Totally	80	69	86.3	51	63.8	18	22.5
The Europoids of Evenkia	4. With erosive ulcer defects	16	15	93.8	4	25.0	11	68.8
	5. Without erosive ulcer defects	67	48	71.6	24	35.8	24	35.8
	6. Totally	83	63	75,9	28	33.7	35	42.2
p1-2			>0.05		<0.005		<0.001	
p4-5			>0.05		>0.05		<0.02	

Table 3.

Indices of gastritis activity in ethnic populations of Evenkia schoolchildren having Helicobacter pylori infection.

Groups	Gastritis Activity	n	No changes		1 stage		2 - 3 stage	
			Abs.	%	Abs.	%	Abs.	%
The Evenks	1. Helicobacter pylori +	69	9	13.0	48	69.6	12	17.4
	2. Helicobacter pylori -	11	4	36.4	4	36.4	3	27.2
	3. Totally	80	13	16.3	52	65.0	15	18.7
The Europoids of Evenkia	4. Helicobacter pylori +	63	4	6.3	35	55.6	24	38.1
	5. Helicobacter pylori -	20	2	10.0	14	70.0	4	20.0
	6. Totally	83	6	7.3	49	59.0	28	33.7
p1-2			>0.05		<0.05		>0.05	
P4-5			>0.05		>0.05		>0.05	
p 2-5			>0.05		>0.05		<0.03	
p1-4			>0.05		>0.05		<0.01	
p3-6			>0.05		>0.05		<0.03	

PROTECTIVE ROLE OF CCR5delta32 MUTATIONS IN SYSTEMIC JUVENILE IDIOPATHIC ARTHRITIS.

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Abstract. It is suspected that the prevalence in different ethnic groups of HLA-genotype and of mutation CCR5delta32 – factors which alter adhesion of protein CCR5 – are the causes of different prevalence of juvenile idiopathic arthritis in different ethnic populations. Our results, based on the analysis of 234 DNA-samples (QIAamp Mini Kit) drawn from patients with soJIA didn't reveal any differences in prevalence of mutation in patients with soJIA, in patients with soJIA + MAS and in total population. Our results do not support the idea of protective role of the mutation CCR5delta32 against soJIA, which conclusion can be explained also by probable association of soJIA with HLA-genotype or other factors of ethnicity. At the same time it can be considered as an additional evidence of expediency of soJIA being an original disease different from the rest of JIA group of diseases.

Key words: system onset juvenile idiopathic arthritis, mutation, CCR5delta32, ethnicity.

Introduction. Juvenile idiopathic arthritis is not a single disease, but a term that encompasses all forms of arthritis that begin before the age of 16 years, persist for more than 6 weeks, and are of unknown cause [10].

Different classification criteria have been used to identify discrete clinical subsets.

There are 3 international classifications: the American College of Rheumatology (ACR) that use the term of Juvenile Rheumatoid Arthritis (JRA); European League Against Rheumatism (EULAR), that preferred the term Juvenile Chronic Arthritis (JCA) for such arthritides and an international committee under the auspices of the World Health Organization and the International League of Associations for Rheumatology (ILAR) proposed the term Juvenile Idiopathic Arthritis (JIA) (the table №1).

Juvenile idiopathic arthritis is the most common chronic rheumatic disease in children and an important cause of disability. The morbidity rate of JIA is 2-16 cases per 100,000 children under

16 years old. The mortality is 0.5-1% [15]. The prevalence of JIA differs in different countries (table №2).

Systemic arthritis is quite distinct from other subtypes and it's occurred in 10-20% of all JIA. It is characterized by prominent systemic features, such as fever, rash, and serositis, hepatosplenomegaly, generalized lymphadenopathy. The morbidity of soJIA is 2/3 of all cases [11].

About 5–8% of children with systemic juvenile idiopathic arthritis develop a life-threatening complication known as macrophage activation syndrome. The syndrome is characterized by the sudden onset of sustained fever, pancytopenia, hepatosplenomegaly, liver insufficiency, coagulopathy with hemorrhagic manifestations, and neurological symptoms [12].

The cause and pathogenesis of juvenile idiopathic arthritis are still poorly understood but seem to include both genetic and environmental components. Moreover, the heterogeneity of this disease implies that different factors probably contribute to the pathogenesis and cause. Many associations between subsets of juvenile idiopathic arthritis and HLA or non-HLA molecules have been described and some have been confirmed in several studies.

T cells play a role in the pathogenesis of juvenile rheumatoid arthritis. Synovitis in JRA is characterized by infiltration of T cells, plasma cells, macrophages and cell proliferation in the synovial tissue. The migration of inflammatory cells in the synovial membrane results from the chemokines that selectively attract Th1-cells. These T cells are characterized by the production of IL-2, IFN- γ , TNF- β [1]. Chemokines regulate the movement of lymphocytes, due to cell motility and adhesion molecules [7].

CCR5 (CC chemokine receptor 5, CC chemokine receptor type 5) - human protein encoded by the gene CCR5. CCR5 receptor is a member of a subclass of beta-chemokines, a class of integral membrane proteins. CCR5 gene is located on the short arm of the third chromosome. CCR5- Δ 32 is a deletion of 32 base pairs, leading to a violation of the adhesive properties of the protein encoded by it CCR5 T-cells [2].

In 1997, researchers found that homozygous deletion of 32 bp (bp - base pair) in the gene for the chemokine receptor CCR5 had a protective effect of HIV. Deletion of the CCR5 gene leads to the impossibility of joining the HIV virus to T cells. In the heterozygous state this mutation greatly reduces the chance of infection of cells with HIV, in the homozygous leads to a complete inability of HIV infection.

CCR5 is a protein receptor and paired with the G protein. CCR5 protein expressed primarily by T cells, macrophages, dendritic cells and microglia cells [6]. Its function is the accumulation of T-helper 1 in synovia, where they accumulate and produce proinflammatory cytokines such as IL-2

and IFN- γ , which leads to the development of synovitis and joint destruction. CCR5 adds various proinflammatory chemokines, including CC chemokines, such as SSL5 (macrophage inflammatory protein 1a), CCL4 (macrophage inflammatory protein b), CCL5 (regulator of growth, activation, secretion of T-cells). These chemokines have been found in high concentrations in synovial fluid of patients with rheumatoid arthritis, which made the assumption that, the selective accumulation of CCR5 + T-cells in the synovial fluid in response to the presence of these chemokines [8].

It was noted that the number of CCR5 on the cell surface determines the intensity of T cell migration to synovial cells and stimulation of CCL5. The level of CCR5 expression can influence on the inflammatory effect of T cells in the synovial fluid, facilitating the accumulation and increase their response to chemokines. Perhaps, the number of CCR5 on the cell surface may be a predictor of disease activity [2].

In 1998 the CCR5delta32 variant was suggested to act as a protective factor against the development of rheumatoid arthritis (RA). Hinks et al. affirm that the CCR5delta32 gene variant is associated with protection from developing JIA [9].

The CCR5 receptor takes part in T1-response in different autoimmune diseases.

The distribution of CCR5 mutations in population has ethnic and racial character [5]. This gene occurs in 20% of the white race. In African-Americans population there are up to 6%, in Hispanic group up to 7%, in Asians less than 1%. There is no heterozygous deletion of CCR5 mutation among Africans, Thais, Japanese and Koreans. CCR5D32 not found in the central and western Africa, in North Africa the percentage is 2 [14]. CCR5- Δ 32 mutation in the heterozygous state occurs in Europe, with a frequency of 5-14% [11]. In Northern Europe it is more common. In the central and western Europe the average rate is 10% and less than in the south, such as Portugal and Greece - 4-6%. The highest rate in the world of CCR5- Δ 32 variant was observed in coast-dwellers (33%, of which 3% - in the homozygous state). In Russian and Ukrainians the frequency of this mutation on average is 21% [14]. The uneven distribution of CCR5D32 in Europe associated with climatic and geographical factors.

Early studies of Stephens et al. reduced to the assumption that this mutation arose either because of genetic drift and appeared suddenly. Until now, many authors discuss the question of what the Black Plague of 1348 is the cause of this mutation [1]. The predominance of CCR5-positive synovial mononuclear cells in patients with various types of arthritis suggests the idea that CCR5 plays an important role in synovial inflammation. In children with juvenile rheumatoid arthritis synovial T cells express higher levels of CCR5. Deletion of the 32 position of the open reading frame (exon 3) of the gene encoding CCR5 (CCR5- Δ 32) was investigated for association

with rheumatoid arthritis in adults with conflicting results. Homozygous for CCR5-Δ32 leads to a lack of expression of CCR5 on the cell surface. This allele is associated with protection against rheumatoid arthritis in adults. Prahalad S. with co-authors (2006) tested the hypothesis that genetic variations in CCR5 are associated with susceptibility to JRA. The results showed that two variants (CCR5-1835T and CCR5-Δ32) of the gene encoding CCR5 are associated with juvenile rheumatoid arthritis, especially in children with disease onset before the age of 6 years. They have a protective effect against the disease. CCR5-Delta32 was significantly lower in probands with early-onset juvenile rheumatoid arthritis [9].

The aim of the Lindner E. (2007) study was to establish whether the polymorphism of CCR5Delta32 is associated with rheumatoid arthritis and juvenile idiopathic arthritis in the Norwegian population. 853 patients with rheumatoid arthritis, 524 patients with juvenile idiopathic arthritis and 658 controls were typed on the CCR5Delta32 polymorphism. The frequency of CCR5Delta32 allele was 11.5% in controls, 10.4% in patients with rheumatoid arthritis and 9.7% in patients with juvenile idiopathic arthritis. These results did not confirm the relationship between CCR5Delta32 variant and rheumatoid arthritis, juvenile idiopathic arthritis in the Norwegian population [4].

Scheibel I. (2008) studied the association between CCR5Delta32 polymorphism and juvenile idiopathic arthritis, rheumatoid arthritis patients in Brazil patients. In this study were involved 203 patients with rheumatoid arthritis, 101 patients with juvenile idiopathic arthritis and 104 healthy controls. Delta32 allele frequency was higher in patients with juvenile idiopathic arthritis (9.4%) as compared with controls (3.8%) and patients with rheumatoid arthritis (3.2%). In the group of juvenile idiopathic arthritis CCR5Delta32 allele was observed in 4.1% of oligoarthritis in 11.2% with polyarthritis (9.5% were RF-negative and 33.3%- RF-positive) and 25% with systemic juvenile idiopathic arthritis. The results of this study suggest that in juvenile idiopathic arthritis, in contrast with rheumatoid arthritis, CCR5Delta32 does not have a protective effect, but may be a factor that associated with more severe disease [13].

Given the conflicting results of CCR5Δ32 relation with juvenile idiopathic arthritis (one study reports the protective CCR5Δ32 connection with juvenile idiopathic arthritis [9], the other does not reveal the relation [4], and the third finds that CCR5Δ32 is associated with susceptibility to juvenile rheumatoid arthritis [13]) Hinks A. (2010) studied the relationship between the CCR5Δ32 mutation and juvenile idiopathic arthritis in a British population. CCR5Δ32 was typed in 1054 patients with juvenile idiopathic arthritis and 3129 healthy controls. CCR5Δ32 was significantly associated with protection against the development of juvenile idiopathic arthritis in the UK

population. Interestingly, the most pronounced protective effect was observed in the group of RF-positive polyarthritis group, although no significant difference was observed among all subtypes. Meta-analysis of previously published studies had confirmed the protective CCR5 Δ 32 connection with JIA. CCR5 Δ 32 determines the number of receptors on the surface of T cells, and it is assumed that the level of CCR5 expression can influence on the migration of inflammatory cells to the synovial membrane, and thus can impact on the susceptibility to juvenile idiopathic arthritis [3].

The aim of our study was an attempt to evaluate the protective role of CCR5- Δ 32 mutation in children of different ethnic origin suffering from systemic juvenile rheumatoid arthritis (sJRA).

Materials and methods. We analyzed 234 DNA samples of patients with systemic forms of JIA. 210 samples were provided by Department of Rheumatology, Children's Hospital of Cincinnati (Ohio, USA) in the isolated DNA forms. They were represented by: 175 - North Americans, 20 - Hispanic or Latino, 12 - African Americans, 1 - American Indian, 1 - Asian, and 1 - Multi-racial. 24 samples received from clinic of pediatrics № 3 of the St. Petersburg Pediatric Medical Academy in the form of blood dried on filter paper. DNA was isolated using a QIAamp Mini Kit (QIAGEN) in accordance with the attached protocol. The diagnosis was established according to the ILAR criteria; all patients were informed and consented to participate in the study. In 25 patients during of JIA was complicated by macrophage activation syndrome.

To identify the CCR5 delta32 deletion was used polymerase chain reaction (PCR) with primers: CCR5-D32-F: 5' 'CTTCATTACACCTGCAGTC3', CCR5-D32-R: 5' 'TGAAGATAAGCCTCACAGCC3' under the following conditions: 95 °-5'x1; 95 ° -15 "→ 55 ° -15" → 72 ° -60 "x40; 72 ° -10 'x1 → 4 ° -∞; products of the reaction were separated in 2% agarose gel within 1.5 hours; gel documentation was performed using a Gel Doc XR Plus (Bio-Rad, USA) (see Photo 1).

To evaluate the obtained data were used method of statistical description, as well as method of verification of statistical hypotheses. The results are presented in Table 3.

According to the results of the study the prevalence of heterozygous forms of CCR5 delta32 in patients with systemic forms of rheumatoid arthritis is 16%. At the same time, the mutation CCR5 delta32 was not found among Hispanics, African Americans, which may be due to the small number of patients (20 and 12, respectively) and a low prevalence of this mutation in these ethnic groups. Among North Americans, natives of Europe, the prevalence of heterozygotes for the CCR5 Δ32 is 16% in patients from Russia this value is 21%. The prevalence of heterozygotes CCR5d32 among patients with MAS was 17%. Among the examined patients with JIA homozygous deletions of chemokine receptor CCR5 gene not were revealed (CCR5del32/CCR5del32).

Conclusions. It is assumed that the varying prevalence of HLA-genotype and mutations of CCR5- Δ 32 in different ethnic groups, leading to disruption of the adhesive properties of the protein encoded by CCR5 - is one of the causes of unequal incidence of juvenile rheumatoid arthritis in different populations. The prerequisites to the fact that the mutation CCR5del32 may be important in determining susceptibility to the disease were the observations, which showed that CCR5 deletion polymorphism besides reveals ethnic specificity, well as a population and geographical diversity. But the messages about the role of deletions of chemokine receptor CCR5 gene in susceptibility to JIA are quite contradictory.

Results of the study showed no differences between the prevalence of mutations in patients with systemic form of JIA, in patients with MAS and in the general population.

Our results are not suggesting proven protective role of CCR5- Δ 32 mutation relative to sJRA, which may be due to a possible relationship with HLA-genotype or with other factors associated with ethnicity. However, it can be interpreted as additional evidence for appropriate to selection of systemic JRA as an autonomous disease (Ramanan A.V., Grom A.A., 2005). This specific problem requires further study.

Table 1.**Classification of juvenile idiopathic arthritis**

ACR (American College of Rheumatology)	EULAR (European League Against Rheumatism)	ILAR (International League Against Rheumatism)
Juvenile rheumatoid arthritis (JRA)	Juvenile chronic arthritis (JCA)	Juvenile idiopathic arthritis (JIA)
Systemic JRA	Systemic JCA	Systemic JIA
Polyarticular JRA	Polyarticular JCA, RF-negative	Polyarticular JIA, RF-positive
Pauciarticular JRA	Juvenile rheumatoid arthritis, RF-positive Pauciarticular JCA Juvenile psoriatic arthritis Juvenile ankylosing spondylitis	Polyarticular JIA, RF-negative Oligoarticular JIA <ul style="list-style-type: none"> • Persistent • Extended Psoriatic arthritis Enthesis-related arthritis Other arthritis

Table 2.**Prevalence and annual increase of rheumatoid arthritis in a population of different countries
(Alamanos Y. et al., 2005)**

Population	Prevalence (%)	The annual increase (%)
<i>U.S. in general</i>	0.9 – 1.1	0.02 – 0.07
<i>U.S. native</i>	5.3 – 6.0	0.09 – 0.89
United Kingdom	0.8 – 1.10	0.02 – 0.04
Finland	0.8	0.03 – 0.04
Sweden	0.5 – 0.9	
Norway	0.4 – 0.5	0.02 – 0.03
Netherlands	0.9	0.05
Denmark	0.9	
Ireland	0.5	
Spain	0.5	
Франция	0.6	0.01
Italy	0.3	
Greece	0.3 – 0.7	0.02
Bulgaria	0.9	

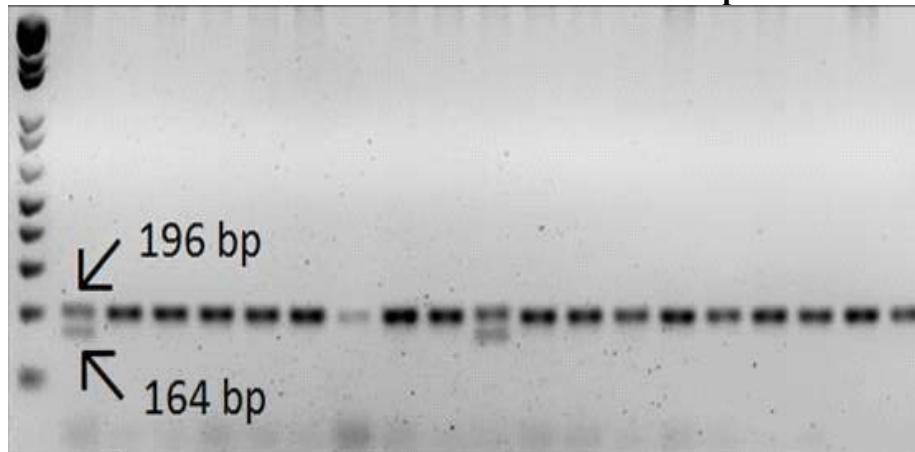
Photo 1.**Gel documentation of the results of PCR with primers.**

Table 3.
Results of own researches

	Total of patients	CCR5/ CCR5	CCR5/ CCR5Δ32	CCR5Δ32/ CCR5Δ32
North Americans	175	147	28	0
Russian	24	19	5	0
Hispanic or Latino	20	20	0	0
African Americans	12	12	0	0
American Indian	1	1	0	0
Asian	1	1	0	0
Multi-racial	1	1	0	0

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COMPARISON OF VITAL STATISTICS AND CROW'S INDEX IN YAKUTS BY AGE GROUP

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Based on 239 questionnaires collected in 11 regions of the Republic of Sakha Yakutia, the analysis of vital statistics and Crow's index in women c complete reproductive period. Shows temporal changes of vital parameters and components of differential mortality and differential fertility.

Keywords: vital statistics, Crow's index, natural selection.

Introduction. The study of vital statistics is not only part of the genetic and demographic studies, but also a necessary measure for health-genetic analysis of the target population. Vital statistics characterize the features of reproductive behavior of the study population and on the basis of data they can judge how widespread was the practice in the population of family planning and birth control. Crow's index and its components indicate the intensity of natural selection in a population and its adaptation to living conditions.

There is a hypothesis that temporal changes in reproductive parameters were more pronounced than spatial [7]. The aim of this work was the study of vital signs and intensity of natural selection in women Yakut nationality in three age groups.

Materials and Methods. Materials for the study were collected during the field works carried out in 2000-2011 rr in 11 regions of the republic of Sakha (Yakutia) (Churapchinsky, Ust-Aldansky, Vilyuisky, Verkhnevilyuisky, Suntarsky, Olekminsky, Lensky, Abysky, Momsky and Zhigansky).

Demographic data were collected from 239 women completed the yakuts nationality with the reproductive period. They were divided into three groups according to age: the first (I) group - women aged 50 years (N = 50), second (II) - between the ages of 50 to 59 years (N = 133) and third (III) - 60 and older (N = 56). To assess the vital statistics of the materials used are obtained by completing specially designed questionnaire, which recorded the following information: surname, first name, age, place of birth and nationality of the respondents, their spouses and parents, for women - the age at menarche and menopause, age at marriage , number of pregnancies and their

outcomes (birth, medical and spontaneous abortion, ectopic pregnancy, stillbirth), age of birth of the first and last child, deaths of children aged doreproduktiv by age of death.

To quantify the magnitude of the intensity of selection and its constituent components have been used formula proposed by Crow [12]. When comparing mean values using Student's t test with Bonferroni correction [4]. All calculations were performed using standard statistical packages of applied programs for IBM- compatible computer.

Results and discussion. The table below shows the basic vital rates in women in the surveyed age groups. Physiological border early reproductive period shows age at menarche [9]. In II and III of the age groups is observed later age of sexual maturity (14,07 and 14,64 years respectively), as in I age group the figure was 13.61 years (no statistically significant differences were found). These figures are comparable with similar data for previously studied forms of Yakut populations and other ethnic groups [2, 3, 8]. The average age of onset of menopause in I and II age groups were similar (42 years). In the III age group indicated a later age at menopause (46,32 years) (difference statistically significant, we, using Student's t-test was administered Bonferroni correction), respectively in this group, the longest duration of fertile period (the difference between the age of entry marriage and the onset of menopause) (23 years). One of the indicators that determine the real beginning of the reproductive period is the age at marriage. Thus, the earliest age of marriage is registered in the I age group (21,48 years), whichever is later - in the age group III (23,66 years) (statistically significant differences when comparing the above-mentioned age groups, respectively), that is observed temporal dynamics of early reproductive period. It should be noted that if the difference between age at marriage and age at first birth in the I and II age groups is three years, in group III for one year. Perhaps this is due to the fact that in I and II age groups has been common practice for family planning and birth control (Table).

Among the age groups surveyed, the minimum duration of the physiological reproductive period (PDRP), the difference between age at menarche and menopause, and the minimum actual reproductive period (RRAP) (the difference between the age of birth of the first and last child) was registered in women age group II. The maximum duration of these periods was noted in age group III. For women, the age group III, characterized by a maximum of RRAP, show higher average estimates of the number of pregnancies (6,63 pregnancies per woman), and accordingly, in this age group was also the largest number of births (5,32 one woman). And I and II age groups, similar data are similar: the average number of pregnancies was more than 4, and delivery of more than 3 (the differences were statistically significant when comparing the above age groups, respectively, using Student's t-test was administered Bonferroni correction). The high estimates of the number of

pregnancies have been shown for the older age group for udmurtok, Shor [5, 7].

In the present study indicated the practice of birth control in all age groups. On average, a woman in I and II age groups during the reproductive period, a time interrupt the pregnancy artificially, and in group III - 0,8. At the same time in all three age groups, more than half of women do not have any medical abortion, and their share increased from age group I (50%) to III age group (62%).

In the surveyed age groups shows the temporal dynamics of the reduction of child mortality before the age of reproductive age group from III to I. Thus, in the age group III died 2,35% of total live births, on average, per woman was 0,43. As I age group, the average number of children who die before reproduction averaged 0,18. Such temporal dynamics can be associated with the development of medicine and improve the social conditions that led to the reduction of child mortality.

There is also the temporal dynamics of abnormal pregnancy outcome, Stein, which decreased from III to I age group age group. On average, one woman has miscarriage in I age group, 0,28 in the II - 0,36 and 0,48 in age group III. Ectopic pregnancy in the I age group is not registered, and in II and III age groups obtained similar data (0,02) (no statistically significant differences were found). Stillbirths are also found in all the surveyed age group, but the largest number recorded in the III group (on the average, women account for 0,13) in I and II age groups, these figures are the same.

The prevalence of abnormal outcomes of pregnancy in the surveyed age group indicates the action of natural selection. Natural selection as a factor in population dynamics plays a significant role in the genetic diversity of manifold, is eliminated through selection because that part of the genetic diversity that goes beyond the norm and at the same time it creates a new adaptive combinations of genes and increases their frequency, thus contributing to the change in the genetic structure of the population [6]. To estimate the intensity of selection in human populations can use Crow's index. This figure is based on data from vital statistics is counting the maximum possible effect of natural selection (I_{tot}) and its components: differential fertility and differential mortality.

Observed temporal changes of differential mortality index (I_m), differential fertility (I_f). The index of differential mortality (I_m) decreased from the third age group (0,089) to the first (0,054). The index of differential mortality in different human populations ranges 0,01-1,78 [1]. The resulting estimates of the index of differential mortality rates are low, but when compared with other Yakut populations are similar. The index of differential fertility increased from the third age group (0,215) to the first (0,408), which is also fairly low, if the rate varies in human populations

(0,15-1,34) [1]. The temporal dynamics of these two components of selection may be associated with the development of medicine, by which the infant mortality rate has decreased, resulting in reduction of the differential rate of mortality and to increase fertility.

For all age groups in the total amount of selection (I_{tot}) makes the largest contribution to the component associated with differential fertility, which increases with decreasing age women. The contribution of differential mortality in the total magnitude of selection is reduced in the I group (11,16%) compared to III (27,55%). The prevalence in the structure of the total value of the selection of components, compared with the component associated with differential mortality, previously shown for other ethnic groups [1, 5, 11], which may reflect the general situation for modern Siberian populations.

Thus, this study characterized especially vital signs in women Yakut nationality in three age groups. Shows temporal changes of vital parameters and components of differential mortality and fertility. Such temporary changes have been shown for Shor, udmurtok [5, 7]. For the present study investigated age groups in the total amount of selection makes the greatest contribution to the component associated with differential fertility. Reduce the proportion of differential mortality in the action of natural selection, along with the development of medicine may lead to the accumulation and retention in a population of negative genes, that is, to increase the genetic load.

Table

Vital statistics ($x \pm se$) in three age groups

Parameter		I AGE N=50	II AGE N=133	III AGE N=56
A G E	menarche, years	13,92±0,21	14,07±0,14	14,64±0,29
	t_d	no statistical differences		
	climax, years	42,74±0,67	41,61±1,33	46,32±1,01
	t_d	II-III: 2,418*		
	of marriage, years	21,48±1,12	22,49±0,73	23,66±0,69
	t_d	I-II: 6,075*, I-III: 2,943*		
	at first birth, years	24,70±0,82	25,59±0,48	24,63±0,53
	t_d	no statistical differences		
	of the birth of last children, years	31,76±1,22	30,27±0,93	36,07±0,77
	t_d	II-III: 3,892*		
PDRP		28,82	27,54	31,68
RRAP		7,06	4,68	11,44
A V E R A G E N U M B E R O F	pregnancies	4,66±0,41	4,82±0,24	6,63±0,43
	t_d	I-III: 3,485*, II-III: 3,910*		
	Births	3,50±0,30	3,40±0,15	5,32±0,33
	t_d	I-III: 5,876*, I-III: 4,561*		
	medical abortions	0,94±0,12	1,02±0,14	0,80±0,22
	t_d	no statistical differences		
	abortions	0,28±0,09	0,36±0,07	0,48±0,08
	t_d	No statistical differences		
	ectopic pregnancies	0,00±0,00	0,02±0,01	0,02±0,06
	t_d	no statistical differences		
	live births	3,48±0,30	3,39±0,15	5,19±0,32
	t_d	I-III: 4,425*, II-III: 5,689*		
	stillbirths	0,04±0,03	0,04±0,02	0,13±0,15
	t_d	no statistical differences		
	children deaths before reproduction	0,18±0,06	0,26±0,05	0,43±0,09
	t_d	no statistical differences		
	children surviving to reproduction	3,32±0,30	3,13±0,15	4,77±0,32
	t_d	I-III: 3,752*, II-III: 5,184*		
The proportion of women to continue the pregnancy, %		50,00	54,14	62,50

Note. N - number of women surveyed, using Student's t-test was administered Bonferroni correction, * - $p < 0,05$. $x \pm s.e.$ - average value of indicators and its error. PDRP - physiological duration of reproductive period (the difference between age at menarche and menopause), RRAP - real reproductively-active period (the difference between the age of birth of the first and last child).

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ELASTIC ARTERIAL RESISTENCE AT THE YOUNG PATIENTS WITH NON DIFFERENTIATED CONNECTIVE TISSUE DYSPLASIA

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Introduction

The development of the majority of heart and vascular diseases are accompanied by morphological and functional arterial vessels changes and aorta too. This process connected not only with structural changes of the blood vessel, but with changed of their elastic properties [7]. The changes of elastic properties is more important for aorta properties. The increase of big vessels rigid have a negative influence on hemodynamic and increase the risk of negative events at patients with heart and vascular diseases [2]. The results of postmortem aorta examination [5], and estimation of pulse wave [8] at patients with connective tissue dysplasia have shown the increase blood rigid at this category of patients. At the same time estimation of aorta at the young teenagers with mitral valve prolaps have shown the increase of aorta elasticity [1]. That is why the estimation of aorta elasticity at the young patients with non differentiated connective tissue dysplasia in very actual.

The aim of this study was to evaluate elastic resistance of arterial system at the the young patients with non differentiated connective tissue dysplasia.

Methods

The study involved 60 patients with non differentiated connective tissue dysplasia (group 1). Patient age ranged between 18 and 44 years (mean age $25,9 \pm 6,8$ years) ($M \pm \sigma$). The comparative group (group 2) involved 27 young people without connective tissue dysplasia and their age was the same.

The signs of dysplasia at young patients based on special criteria [6]. The echocardiography was made on the expert class scanner with color Doppler - VIVID-3 General Electric (USA). The echocardiography was made in accordance with recommendation of the European and American echocardiography associations (2006). The location held in parasternal position between the III-IV ribs on the left part of sternum on horizontal patients position. The sizes of ascendend aorta measured in B-regimen from parasternal position to the long heart axis and the sizes of arch of

aorta are measured from suprasternal position. Also we measure the thickness of aorta wall, the amplitude of aortal valve opening, the thickness of aorta wall on the Valsalva sinuses level and ascendent aorta level and in addition we calculated the mass of the aortal wall. The thickness of aorta wall measured in M-regimen The investigation of aortal impedance, elastic and peripheral resistances were made in accordance with method proposed by Karpman V.L. and Orel V.P. [4].

Statistical analysis was performed by using Statistica 6.0 by StatSoft and MIX for Windows. Descriptive data were reported using parameters such as frequency, mean, mode and SD. Kolmogorov-Smirnov test was performed to evaluate normal distribution of the quantitative variables. To test the differences between non-parametric variable means in the two study groups Mann-Whitney *U*-test used. A P value cut-off was selected to be <0.05 to get stronger evidence against null hypothesis.

Results and Discussion

The aorta diameter on the base, arch and descendent part levels at patients with non differentiated connective tissue dysplasia was significantly decreased (table 1) compared with comparative group 2 - young people without connective tissue dysplasia ($p<0,05$). Accordingly the area of the cross-section of aorta was decreased too at the patients with non differentiated connective tissue dysplasia ($p=0,0001$). On the ascendent aorta level the diameter of aorta was not significantly different compared with group 2 ($p=0,08$). The aorta diameter on the Valsalva sinuses level also was not significantly different compared with group 2 ($p=0,97$). The opening of the aortal valve folds had not significantly different between two groups of patients ($p=0,26$). Z-criteria that indicate correlation the aorta diameter on the Valsalva sinuses level in centimeters to human body square in meters² was significantly increased at patients with non differentiated connective tissue dysplasia compared with comparative group 2 ($p=0,003$).

The thickness of aorta wall was not significantly different compared with group 2 ($p=0,17$). The relative thickness of aorta wall on the base level and ascendent aorta level were significantly increased in first group of patients compared with group 2 ($p<0,05$) and on the Valsalva sinuses level the relative thickness of aorta wall was not significantly different compared with group 2 ($p=0,08$).

For estimation the systemic aorta properties we were investigated the aortal impedance, elastic and peripheral resistances.

The aortal impedance, (Z_c) is a resistance of arterial system to the blood wave flow was significantly increased in first group of patients compared with group 2 ($p=0,009$) (Table 2). In a

rest condition the main left ventricle efforts in the blood ejection are spends on overwhelming the rigid resistance of the aortal compression camera and for the add of kinetic energy to the ejective blood volume. During systolic aorta enlargement in aorta accumulates 40-50% of the ejective blood volume and about 10% of the heart ejection energy. Consequently the elastic resistance (Ea) is the main factor of heart ejection energy on enlargement of aortal compression camera walls during blood ejection. The elastic resistance (Ea) parameter was increased in first group of patients, however it was not significantly different compared with group 2 ($p=0,068$). As for peripheral resistance parameter (R) it was significantly increased at patients with non differentiated connective tissue dysplasia compared with comparative group 2 ($p=0,01$). Thus, we can consider than at patients with non differentiated connective tissue dysplasia the left ventricle acts in condition of the post tension which depend from increase the vessel peripheral resistance and from elastic resistance too. The correlation between Ea/R was not significantly different compared with group 2 ($p=0,76$). Thus, according to various estimates [4] we can confirm that in a rest condition the elastic resistance and the vessel peripheral resistance are not depend from each other and consequently the increase of the post tension on the left ventricle depend from a various physiology mechanisms [4].

The correlation analysis have shown that increase of the elastic resistance of arterial system at patients with non differentiated connective tissue dysplasia have a negative correlations with decrease of body weight (table 3) ($r=-0,39$, $p=0,003$), with decrease of body mass index ($r=-0,46$, $p=0,004$), with waist circumference ($r=-0,36$, $p=0,01$) and positive correlation with increase of Pinea index ($r=0,34$, $p=0,01$). Thus, we can consider than at patients with non differentiated connective tissue dysplasia the increase of elastic resistance of arterial system at patients with body mass deficiently possibly can depend from the less diameter of their arterial vessels. This hypothesis confirm with results of correlation analysis which have shown the negative correlations between the elastic resistance of arterial system parameters and aorta diameter on the arch level ($r=-0,37$, $p=0,008$), base level ($r=-0,41$, $p=0,002$), Valsalva sinuses level ($r=-0,45$, $p=0,0006$), ascendend aorta level ($r=-0,42$, $p=0,004$). When the aorta makes a bend on the arch level its diameter have no influence on elastic resistance for the blood flow ($p>0,05$). As it was shown before patients with connective tissue dysplasia had significantly less aorta diameters on all aorta levels (Table 1), except Valsalva sinuses level and ascendend aorta level compared with group 2. According to various estimates [3], the prevalence of increase of elastic resistance of arterial system in old age connected not only with biomechanical changes of blood vessel wall, but also with decrease of arterial internal space [3]. According to our research patients with non differentiated connective

tissue dysplasia had less aorta diameters on all aorta levels, except Valsalva sinuses level compared with group without connective tissue dysplasia, but the aorta wall thickness had not significantly difference compared with group 2. Consequently, the aorta and arterial internal space at patients with connective tissue dysplasia were less than in group 2. Thus, we can consider that decrease of internal space of aorta can be one of the reason of increase of elastic resistance of arterial system at patients with non differentiated connective tissue dysplasia, compared with group 2. The other reason can be the changes of biomechanical properties of aorta wall, according to several researchers [5] during autopsy at cadavers with connective tissue dysplasia have seen the damages in fibrous structure of the aorta wall like disorientated collagen and elastic fibers with incomplete bunches and with thin of the internal elastic membrane of the aorta with substitution of muscle fibers on collagen fibers [5]. According to several researchers at histology investigation of the aorta at people of the old age have seen the fragmentation and thin of the internal elastic membrane of the aorta [3], and destruction of the elastic fibers was associated with increase of mechanic tension on collagen fibers that was lead to increase of the rigid of the blood vessel wall. Possibly, that increase of the rigid of aorta at patients with connective tissue dysplasia have the same mechanism.

Conclusion

The non differentiated connective tissue dysplasia associate with increase of elastic and peripheral vessel resistance. The increase of elastic and peripheral vessel resistance associate with decrease of the vessel diameter and internal space at patients with small body mass and with changes of biomechanical properties of aorta wall.

Table 1

The structural aorta parameters at the patients with and without non differentiated connective tissue dysplasia, Me (P25-P75)

Parameter	Group 1 with dysplasia (n=60)	Group 2 without dysplasia (n=27)	p
Diameter of aorta base, cm	2,56 (2,32-2,85)	2,76 (2,5 -2,93)	0,03
Diameter of aorta on Valsalva sinuses level, cm	3,21 (2,91-3,34)	3,2 (2,9-3,38)	0,97
Diameter of ascendend aorta level, cm	2,84 (2,52-3,2)	3,0 (2,71-3,3)	0,08
Diameter of the arch of aorta, cm	2,09 (1,85-2,5)	2,4 (2,3-2,53)	0,002
Diameter of descendent aorta level, cm	1,6 (1,46-1,8)	1,7 (1,55-1,9)	0,045
Diameter of abdominal aorta, cm	1,43 (1,24-1,56)	1,5 (1,45-1,64)	0,03
Z-criteria, cm/m ²	1,81(1,74-1,92)	1,70(1,66-1,85)	0,003
T opening of aortal valve folds, cm	1,96(1,83-2,1)	2,0(1,8-2,2)	0,26
The thickness of aorta wall, cm	0,17 (0,17-0,20)	0,19 (0,17-0,22)	0,14
The square of the aorta cross-section in systolic, cm ²	0,79(0,64-0,99)	1,33(0,97-1,59)	0,0001
The thickness of aorta wall on the base level	0,16(0,14 -0,19)	0,14(0,13-0,17)	0,02
The thickness of aorta wall on the Valsalva sinuses level	0,13(0,11 -0,75)	0,12(0,11-0,14)	0,08
The thickness of aorta wall on the descendent aorta level	0,15(0,13 -0,99)	0,13(0,11 -0,15)	0,002

Table 2

The parameters of impedance of aorta, elastic and vessels resistance Me (P25-P75)

Parameters	Group 1 with dysplasia (n=60)	Group 2 without dysplasia (n=27)	p
Ea, dyn*cm ⁻⁵	1627,4(1227,7-1881,2)	1362,8(1186,6-1590,2)	0,068
R, dyn*c*cm ⁻⁵	1600,3(1397,6-2023,3)	1355,8(1221-1700,4)	0,01
Ea/ R	0,92(0,73-1,14)	1,01(0,78-1,1)	0,76
Zc, dyn/cm ⁻⁵	146,4(118,1-185,9)	119,6(100,1-140,5)	0,009

Table 3

The anthropometric patient parameters, Me (P25-P75)

Parameter	Group 1 with dysplasia (n=60)	Group 2 without dysplasia (n=27)	p
Height, cm	176 (170-183)	170 (161-177)	0,0001
Circumference of chest, cm	79 (73-86)	86 (80-94)	0,0005
Circumference of waist, cm	70 (67-76)	79 (75,5-88)	0,00001
Body mass, kg	60 (53-68)	66 (57-76)	0,0004
Body mass index, kg/m ²	19,3 (17,7-21,2)	22,8 (21,2-25,6)	<0,00001
The square of the whole body surface, m ²	1,76 (1,62-1,89)	1,81 (1,72-1,94)	0,02

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ELASTIC ARTERIAL RESISTENCE AT THE YOUNG PATIENTS WITH NON DIFFERENTIATED CONNECTIVE TISSUE DYSPLASIA

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Summary. The study involved 60 patients with non differentiated connective tissue dysplasia (group 1) (mean age $25,9 \pm 6,8$ years). The comparative group involved 27 young people without connective tissue dysplasia and their age was the same. On the basis of investigation it was established that at patients with non differentiated connective tissue dysplasia increase the elastic and peripheral vessel resistance. The increase of elastic vessel resistance associate with decrease of the vessel diameter and with internal vessel space decrease and with changes of biomechanical properties of aorta wall at patients with non differentiated connective tissue dysplasia .

Key words: connective tissue dysplasia, young age, aorta, rigid of vessels, elastic vessel resistance.

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System of prophylaxis of severe repercussions of eye injury in children in Krasnoyarsk region
The paper presents date about ophthalmic injury among children 1-15 years old (results of 12580 cases). The structures, nature of ophthalmic injury in different age groups were investigated. Ophthalmic injury has definite sexual dimorphism. We determined strategic and tactical approaches to the optimal system of injury prevention – administrative-legislative and system technologic. System measures include: early beginning, [continuity](#), [subsequence](#), [succession](#), [individuality](#).

Keywords: children, ophthalmic injury, prophylaxis.

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Esophagus surgery of a newborn child and infants

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Summary. The paper presents a clinical material of new-born children esophagus pathology for the past 20 years in a surgery department of the Yakutsk Pediatric Centre. Due to a pre-and-post-tactical operation change after esophagoplasty using monorowed anastomosis, long artificial ventilation of lungs, long medicine sedation in the early post-operation period new-born children survival with esophageal atresia has become better. For the first time prophylactic methods of esophagus stenosis, new safer and more effective methods were introduced. For the first time operation of child coloesophagoplasty after esophagus extirpation was used.

Keywords: esophageal atresia, esophageal anastomosis, newborn children, esophageal plasty.

INTRODUCTION

A surgical treatment of esophageal atresia has a practical significance because of frequent complications and mortality, especially among new-born children with a deficit of weight and heavy accompanying pathology [3,4,5]. Different ways of esophagus elongation, methods of delayed anastomosis to keep patient's own esophagus as much as possible are used [1, 5]. Moreover, minimal invasive methods of surgical esophageal atresia treatment- thoracoscopic method of putting anastomosis on- are used in some leading clinics [6, 11]. In spite of some successes in correction of esophageal atresia a big number of post-operation complications- 25-40% still remain [1, 4, 7,]. Most of newborn children having such complications as anastomotic leakage, stenosis, relapse of tracheoesophageal fistula, gastroesophageal reflux need repeated surgical interference. Mortality rate in this group of patients is 40-70% [4, 9,]. Complication treatment methods often lead to creation of an artificial esophagus [1, 2]. For further result perfection it is necessary to work out ways of complication correction to keep child 's own esophagus. Now the problem of a new-born child survival with esophageal atresia has been settled but there are some problems connected with a post-operation heavy complication period and perfection of a child life quality with esophagus troubles.

MATERIALS AND METHODS:

From 1992 till 2011 there have been 54 new-born children with esophageal atresia. 44% of

patients were brought from uluses (regions). In this group 58% of patients were hospitalized on the first day of birth, 87% were from Yakutsk maternity hospital. Thus, 74% of new-born patients with esophageal atresia were hospitalized on the first day of birth that indicates a high level of diagnostics and only 7% (4 patients) were hospitalized on the third day.

61% of patients have a lot of defects: anorectal atresia- 16%, inborn heart disease- 41%, urine pathology- 13%, bone anomaly- 11%, VACTERL syndrome- 2 patients, prematurely-born children- 57%, antenatal hypotrophy- 30%. According to Apgar scale i.e. 70% of children having hypoxia were born with esophageal atresia. 23% of women gave birth by a surgical way.

89% or 48 patients have got esophageal atresia of a lower tracheoesophageal fistula, 9%- of upper and lower tracheoesophageal fistula (5 patients), 2%- esophagus atresia without fistula and esophagus atresia of upper tracheoesophageal fistula only. 70% of new-born children with esophageal atresia had aspiration pneumonia. 4 patients were not operated on, gastrostomy was put on in 5 cases because of heavy state of patients. 44 patients (81%) had thoracotomy, one patient with esophageal atresia without fistula didn't have thoracotomy, gastrostomy and neck esophagostomy were put on immediately. Esophagoanastomosis was put on to 39 patients (72%). In one case where diastasis length was more than 2 sm between esophagus segments after bandaging tracheoesophageal fistula neck esophagostomy was taken out and Kader gastrostomy was put on. Two newborn children died while tracheoesophageal fistula was being singled out and bandaged.

RESULTS AND DISCUSSION:

According to Waterston classification (1962) all the patients with esophageal atresia are divided into 3 main groups taking into account their physical strength and complications that help to standardize different variants of new-born children's state.

Group A- newborn children weigh more 2500 gr., in a good state.

Group B- new-born children weigh 2000-2500 gr., in a good state and new-born children weighing over 2500 gr. have pneumonia and some defects.

Group C- new-born children of less than 2000 gr. and more than 2000 gr. but having pneumonia and inborn defects.

In our observation group A makes up 11%, group B- 56%, group C- 33%. Dividing patients into periods is given in the following table by Waterston classification.

Groups	I period	Mortality	II period	Mortality	Total	Mortality
Group A	1(3%)	-	5(19%)	1(20%)	6(11%)	1(17%)
Group B	16(57%)	15(94%)	14(54%)	1(7%)	30(56%)	16(53%)

Group C	11(40%)	11(100%)	7(27%)	3(43%)	18(33%)	14(78%)
All:	28	26(93%)	26	5(19%)	54	31(57%)

In the first period (1992-2001) 40% of patients of group C are prematurely born children, having heavy pneumonia and accompanying defects. In group C of the first period nobody survived, it's mortality was 93%. In the second period (2002-2011) 54% of patients having esophageal atresia make up group B and in group C-27%. In this period almost all the children of groups A and B and over half of group C (57%) survived. Mortality rate is less 5 times, from 93% to 19%.

In the first period 16 anastomoses of esophagus were put on (57%), in the second period - 23 (88%). During the last years we strictly keep to the following peculiarities of esophageal atresia treatment:

in the pre-operation preparation the right tactics is to refuse catheterizing the right subclavian vein, because in the right thoracotomy presence of haemathomy in the upper mediastinum makes up complication during revision and mobilization of the upper esophagus segment; access of back-side thoracotomy to V intercosta, extrapleural approach to esophagus; in mobilization of tracheoesophageal fistula it's necessary to cut off esophagus from trachea without preliminary suturing, then to suture trachea defect aimed at keeping the length of the lower esophagus segment;

enough mobilization of the upper segment, in pulling elongation method of the upper segment-Livaditis miotomy can be used;

esophagoanastomosis is possible in diastasis of segments, mobilization is no more than 2 cm; esophagoanastomosis is made by continuous suture in the back semicircle and in the front semicircle by a biodegrading suture PDS 5/0, anastomosis zone is covered with plasty "Surdgisel".

after operation it's quite necessary to leave wide enough drain in the back mediastinum in case of early diagnosis insolvency.

After suturing esophagoanastomosis prolonged ventilation of lungs together with sedative medicines is continued during a "risky" period (7-8 days), a drain in the back mediastinum is kept for 7-9 days after the operation. Emergence of saliva in the drain was a sign of pneumomediastinum before development of rontgenoscopy to diagnose early esophagoanastomosis. Now a diagnosis is confirmed by contrast medium. Anastomotic leakage was observed in 7 newborn children (30%) in the group of 23 survived patients, it was diagnosed on 6-7th day after the operation. In 6 cases of anastomosis leakage rethoractomio was made. Stretched defects in the field of anastomosis were found out in 5 cases that's why anastomoses were separated from neck esophagus with the help of

extirpating distal esophagus part and putting gastrostomy on, the result of saturating was positive. Conservative tactics with an additional drain in the back mediastinum to insert antibiotic and to put on gastrostomy with a feeding probe in small intestine was continued in one case of anastomotic leakage having not intensive pneumothorax and a small amount of saliva. Healing was without stenosis.

For prophylaxis of stenosis in the field of anastomosis since 2007 we have been using a caliber bougienage after esophagoanastomosis on the 21-24th day under anesthesia before inserting a bougie of an age diameter. Stenosis in the field of esophagoanastomosis with dysphagia was observed in 3 cases of a post-operation period (13%). Endoscopy diameter of esophagus was 2-3 millimeters. In two cases gastrotomy was put on and bougienage by thread was carried out, the result was good. In one case several balloon dilatations of esophagoanastomosis were made. In the first procedure the child's esophagus was wounded, rethoractomia and defect suture were made. Later this patient had gastroesophageal reflux with erosive-catarrhal changes in the distal sector of esophagus. Conservative therapy didn't help and we had to have antireflux operation. Since 2010 bougienage of esophagus has been carried out with the help of endoscope string, soft esophagus bougies are much safer. All the patients coped with esophagus stenoses successfully by a conservative method.

Relapse of tracheoesophageal fistula was observed in one case after anastomosis disconnection because of its insolvency and suture of the lower esophagus segment. The boy was operated on for the second time- extirpation of the lower segment was made, later an artificial esophagus was carried out.

Thus, 18 patients have a good clinical result after esophageal anastomosis (78%). Most of the patients with a good result have complained of dysphagia during 6-12 months after the operation. Anastomosis contraction was not observed by rontgenoscopy. These symptoms are connected with breaking esophagus functions and post-operation accompanying functional state, mobilizing esophagus segments (Krasovskaya T.V., Golodenko N.V., Mokrushina O.G., 2003). In the background of the conservative method they can be fully closed. In future physical development of children operated on esophageal atresia doesn't differ from children of the same age.

Out of 5 patients after esophagus extirpation as a result of anastomotic leakage, 3 of them had coloesophagoplasty: 2- in RPCH, Moscow, 1- in Yakutsk; 2 patients are not operated on yet. In our clinic the first coloesophagoplasty was made in November, 2010. The child was a year after disconnection of esophagoanastomosis because of insolvency. A large intestine transplant on a feeding vascular a colica sinistra was placed behind a breast, neck esophagocoloanastomosis was put on and cologastroanastomosis with antireflux Stepanov-Razumovskey protect, coloanastomosis.

There were no complications after the operation, the child was let out on the 21st day, ate rubbed food through a mouth. Control a year later: physically he left behind, his weight is 13kgm. He eats everything through the mouth, chewing thoroughly. While eating he drinks water often, sometimes his mother helps him to push some pieces stopped in the transplant situated in the neck segment under the skin. Gastroanastomosis tube was taken away, there are no fistulas, stenoses in the field of neck anastomosis, reflux in the transplant was not found out. The result of the operation is considered to be favourable.

Besides, inborn esophagus stenosis of the part distal was observed in two children: 1 and 1,5 month old. They were operated on after putting gastrostomy on, esophagus plasty in s. During a post-operation period bougienage was made with a good clinic result.

CONCLUSIONS:

1. During a researching period of esophageal atresia survival went up from 7% to 81%. Changing in surgical tactics raised survival to 88% during the last 8 years. Data of esophagus atresia survival of the leading clinics are 70-90%.
2. Anastomotic leakage in the post-operation period was observed in 30%. All the patients in this group have survived. A good result can be achieved without a repeated operation when an anastomosis defect is small. In this case the main positive moment is keeping a child's own organ.
3. For prophylaxis aim of stenosis in the field of anastomosis calibrating bougienage is justified on the 21-24th day using a safer method of string bougienage.
4. Inserted behind a breast coloesophagoplasty as a transplant and antireflux means in the field of colo-gastroanastomosy are methods in the case of disconnected esophagus anastomosis.

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GASTROESOPHAGEAL REFLUX AND DYSPEPSIA IN NATIVE RURAL POPULATION OF YAKUTIA

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In order to study the prevalence of gastroesophageal reflux (GER), dyspepsia symptoms in the indigenous rural population of Yakutia and identify risk factors for their development residents of the two rural villages, located about 200 km from Yakutsk at the age of 45-70 years were examined. Gastroenterological questionnaire was filled with subsequent isolation of dyspepsia and GER syndromes. Symptoms of gastroesophageal reflux and dyspepsia were revealed. In this case, the risk factors for GER differ significantly from those of the syndrome of dyspepsia. Some of these factors are modifiable, which allows planning for their preventive measures.

Keywords: gastroesophageal reflux, dyspepsia, population, prevalence, risk factors.

Today, in accordance with the conciliative meetings recommendations of the International working group on improving the digestive tract functional illnesses diagnostic criteria (Roman criteria I, 1991; II 1999; III 2006), the dyspepsia syndrome can be defined as, “a feeling of pain and discomfort (heaviness, congestion, early satiation, etc.), localized in the antecardium closer to the median line”. The participants of the latest conciliative meeting gave a specific definition to every symptom of this syndrome. It is recommended to divide dyspepsia into two groups: the epigastric pain syndrome and the postprandial dyspepsia syndrome (occurs after eating) [1]. The epidemiological research worldwide showed that the definition of dyspepsia being “pain in the top part of the stomach” is used only in 7% of the cases in Singapore and in 34% of cases in New Zealand. Spain (41%), Great Britain (41%), and Nigeria (45%) use a broader definition: “gastrointestinal symptoms in the top part of the stomach” and this allowed identifying these symptoms among a greater number of people. The dyspepsia prevalence rate ranged from 8% in Singapore to 38% in Australia, when the Roman criteria I (1990) were used. Finally, the dyspepsia prevalence rate research showed the same results in two countries based on the Roman criteria II (1999): China and Australia – 24% [2]. The reflux-like variant of dyspepsia existing earlier is now regarded as a separate illness – gastroesophageal reflux [3, 4]. The term gastroesophageal reflux illness (GERI) stands for a recurrent disease, which occurs, when there is the stomach’s contents pathological backflow (reflux) into the oesophagus. This defect is included into a group of illnesses

(along with the esophagism, functional dyspepsia, diskinesia of the dodecadactylon, bile passages, and irritable bowel syndrome (IBS)), the main development mechanism of which is the gastroenterological tract dysmotility. There are significant differences in the gastroenterological reflux systems among different populations with a different social and economic level, ethnic groups, the gastronomic peculiarities, etc. The epidemiologic research showed that there are typical GER symptoms (epigastric burning and/or acid belching) at least once a week among the West grown-up population (10-20%) and less frequent in the Asian countries (about 5%). In Western Europe, there is an increase in the GER symptoms prevalence from the South (Italy) to the North (Great Britain, Sweden) [5].

The aim of this research was to study the GER and dyspepsia prevalence and their combinations among the village population of Yakutia at the age of 45-69, as well as singling out the factors associated with these illnesses.

Materials and methods

We invited people, from two villages, 200 km away from Yakutsk. Their age varies from 45 to 70 years. Fifty percent of the village population agreed to participate in the experiment. 107 participants filled out a gastroenterological survey, and 40 randomly chosen people had an endoscopic examination. Over the past year, there were over 6 cases of dyspepsia that the patients explained as pain or discomfort in the top part of the stomach, GER was considered in cases, where epigastric burning and/or acid belching occurred at least once a month. We studied the social, demographic, and anthropometric data, as well as smoking, alcohol drinking, and non-steroid anti-inflammatory drugs (NSAID) in order to single out the risk factors.

Results and discussion

In our research, 33 out 107 people that filled out the entire survey (30.8%) have the dyspepsia symptoms. Men and women have an equal amount of cases of dyspepsia (28.8% and 33.3% correspondingly, $p = 0.62$). GER epigastric burning and/or acid belching occurred at least once a month in 0.8% of cases (27.1% - men and 35.4% - women, $p = 0.36$). Thus, gastroenterological syndromes prevalence is almost equal among both, men and women. However, there are more people with GER dyspepsia, than with no dyspepsia (54.5% and 20.3% correspondingly, $p < 0.001$). In Western Europe, the epigastric burning prevalence level was unstable, from 9.8% in Spain and up to 18% in Great Britain. In China and Hong Kong, 2.5-4.8% of the patients had GER symptoms. Therefore, despite the social, economic, cultural and other peculiarities, GER prevalence, epigastric burning, in particular, there is no difference between the prevalence level in Russia, USA and West European countries.

Table 1 shows the frequency level of GER symptoms in our research. On the whole, over the past year, 50.5% of the patients (46.3% - men and 53.7% - women, $p = 0.06$) had epigastric burning. Meanwhile, 9.3% of the patients (5.1% - men and 14.6% - women, $p = 0.09$) had a weekly epigastric burning. 36.4% of the patients (35.6% - men and 37.5% - women, $p = 0.83$) complained about having acid belching. Over the past year, 10.3% of the patients had acid belching; it occurred more often among women (18.8%), than among men (3.4%, $p = 0.01$).

Table 1
The GER Symptoms Occurrence Frequency

Symptoms	Less, than once per month	Once per month	Once per week	Few times per week
Epigastric burning	27%	14%	4%	5%
Acid belching	10%	16%	4%	5%

When we compared the age groups (45-60), it appeared that the GER level of occurrence frequency was the same. In addition, there was no age difference in the frequency of separate symptoms (epigastric burning, acid belching, air or food belching, dysphagia). The GER prevalence level in the studied population holds the middle position between the Mongoloid population of South-East Asia and the European population of Europe and North America; and it is lower, than the level of the Novosibirsk city population. Thus, a lower level of GER symptoms prevalence among the village population of Yakutia, partly signify that there is a significant gastratrophobia prevalence in the stomach, which is considered to be the precancer state, moreover, there is a large number of people with the helicobacterial infection in Yakutia [7]. During the research, we found that 9 out of 40 people (22.5%) have an endoesophagitis (6 cases) or erosive esophagitis (3 cases) in their intestine. A 68-year-old man has a large tumor in the esophagus, taking up 2/3 of the esophagus space. Nine people have an incompetence of cardia, always in a combination with erosive-inflammatory changes of the mucus membrane. The stomach examination did not show any cases of normal mucus. The majority of the examined have catarrhal changes of a different level; 27% of the people have an ulcer and/or erosion. The majority of the patients had endogastritis and it was mostly antral gastritis. Eleven people (27.5%) had the symptoms of mucus atrophy, mainly in the antral part. Four people have ulcers

with a different stage of cicatrization; seven people have erosion, mostly in the antral part. There is a normal dodecadactylon mucus membrane only in 10% of the cases. One person had an ulcer, and four people had erosion, the rest of the people have chronic duodenitis. Two out of four cases of erosion were combined with stomach erosions.

There are significant differences in GER symptoms prevalence in different populations with different social and economic level, ethnic group, the gastronomic peculiarities, etc. During the past years, the South-Eastern countries saw an increase in GERI illness (e.g., a esophagitis double increase level in Singapore (1992-2001)), which is explained by the life style Westernization, including the shift to a West-type of eating, which consists of the fast food products [6]. There are various types of factors connected with the gastroenterological symptoms: age and gender, behavioral, somatic, infectious, etc. The most important of them are genetic disposition, smoking, alcohol abuse, NSAID use, overweight, improper feeding, contamination *H. pylori*, etc. In this research, alcohol abuse was not the cause of dyspepsia, GER; possibly, due to the small number of people that often drink alcohol (7% of men and 1% of women drink alcohol at least once a month). In the mean time, smoking did not affect the frequency of appearing symptoms; however, smoking is associated with GER symptoms among men. Both men and women with GER frequently struggle from overweight. Obesity is a well-known GER occurrence risk factor, and the meta-analysis proved that. It included 20 USA researches, with total amount of 18 thousand participants [8].

Conclusion

30.8% of the adult population has the dyspepsia symptoms and they are often the reason for visiting a doctor, for temporary inability to work and for doing an endoscopic examination. These symptoms traditionally joined into separate syndromes (or disorders); nevertheless often come in combined forms. GER development risk factors are significantly different from those of dyspepsia syndrome, and the association of GER with smoking and obesity proves it. Thus, Ger symptoms mainly reflect the organic (non-functional) pathology cause. Some of these factors are modified and this allows planning them in terms of the prevention measures.

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DYSLIPIDEMIAS IN MEN DEPENDING ON THE ETHNICITY

Z. N. Krivoshapkina, G. E. Mironova

We examined 440 men, 205 of them indigenous people, and 235 arrivals. The Studies in Yakutia identified shifts in lipid metabolism that are not dependent of ethnicity affiliation: have the indigenous inhabitants dyslipidemia are mainly caused hypercholesterolemia, of new arrivals residents, it is caused by hypertriglyceridemia.

Key words: lipid metabolism, lipid profile, indigenous peoples and new arrivals in Yakutia. The priorities of modern medicine are prevention and early detection of diseases prepathological changes during long-term adaptation. I.B. Ushakov, A. G. Sorokin, (2004) suggest that adaptive levels indirectly reflect the energy potentials, invested in the mobilization of reserves under the influence of unfavorable factors [10].

Climatic conditions in Yakutia not are favorable for human habitation and require the formation of a functioning level of the major systems of the body to maintain homeostasis. In the course of adaptation of indigenous inhabitants of the North formed the so-called "polar metabolic type" based, which is increased lipid metabolism [5, 7]. At the same time disadaptation changes that affect lipid metabolism, observed in representatives of the adapted (indigenous) and unadapted (newly arrived) dwellers, which is evidence of depletion of the reserve capacity of the organism. The increase in morbidity and increase mortality among the population of Yakutia, especially from coronary heart disease and stroke, with a tendency to rejuvenate [1, 4] indicates that at the inhabitants of Yakutia there are of showing signs of exhaustion of functional reserves. Given the role of lipid metabolism in the adaption to changing environmental conditions study the mechanisms of adaptation remains urgent.

The purpose of this study was to identify the characteristics of lipid metabolism in residents of Yakutia, depending on ethnicity.

Materials and Methods. The materials for the study were drawn during a comprehensive medical and biological expeditions in the winter season. A total of 205 indigenous and 235 alien inhabitants of Yakutia, a male aged 21 to 65 years. In the group included the rural so and urban residents. Determination of serum total cholesterol high-density lipoprotein (HDL), triglycerides (TG) was carried out by an enzymatic method on the automatic biochemical analyzer «Cobas Mira Plus» company «La Roche» (Switzerland) using reagents «Biocon» (Germany). Apoproteins - apo A-I

and apo B were determined immunoturbidimetric method using reagents «La Roche».

To evaluate of hypercholesterolemia and dyslipidemia used criteria of proposed by AN Klimov and NG Nikulcheva (1999) [6].

The value total cholesterol levels above 6.45 mmol / l and of LDL cholesterol above 4.2 mmol / l was considered high , value of HDL cholesterol in the blood below 0.9 mmol / l - to low . The value total cholesterol levels above 6.45 mmol / l and of LDL cholesterol above 4.2 mmol / l was considered high , value of HDL cholesterol in the blood below 0.9 mmol / l - to low .

Statistical processing was performed using statistical software application package SPSS 11.5 for Windows 2000.

Results and discussion. Analysis of lipid metabolism in men Yakutia depending on ethnic origin revealed that the level of total cholesterol in both groups, although it did not exceed the generally accepted norms, but in the present it was within the limits considered in the present, moderately elevated [6].

Dyslipidemia arrivals, most likely caused by connection with to hypertriglyceridemia. In the blood of the alien population of Yakutia triglyceride was 1.5 times higher than that of the indigenous population and higher than normal values (Table 1). At present, hypertriglyceridemia is considered as an indicator of high risk atherogenic changes[9]. The high value of triglycerides male visitors may indicate a violation of exogenous metabolizing lipids. Assimilation of lipoprotein associated with the activity of lipoprotein lipase, which breaks down key lipids - triglycerides into fatty acids and glycerol.

Statistically significantly lower values of HDL-C compared with arrivals have been reported have the indigenous inhabitants of Yakutia. Reduced HDL cholesterol was associated with tendency to an increase in LDL cholesterol, levels, which ethnic groups were at the upper limit of normal.

Statistically significantly lower values of HDL-C compared with arrivals have been reported have the indigenous inhabitants of Yakutia. Reduced HDL cholesterol was associated with tendency to an increase in LDL cholesterol, levels, which ethnic groups were at the upper limit of normal.

The content of VLDL in the blood in the two groups was below the accepted norm, and the most pronounced decrease found in the indigenous population of Yakutia. Significantly lower levels of triglycerides and VLDL in the indigenous population than with have arrivals shows the activity of the enzyme lipoprotein lipase [3] involved in the catabolism of lipoproteins and genetically fixed in the course of adaptation to the harsh climatic conditions at high latitudes.

The reason for differences in the content of VLDL in the blood in the ethnic groups of Yakutia, is perhaps the excessive consumption of carbohydrates arrivals, which increases the concentration of

VLDL in the blood. It is known that stress increases the synthesis of lipase, which leads to an increase in free fatty acids circulating in the blood mainly in the VLDL and is a sign of their adaptation to northern conditions, increases lipid metabolism.

As a result of violations of the relations of atherogenic lipid fractions the factor of atherogenicity exceeded the permitted limit in both groups, of indigenous inhabitants of this figure of lipid metabolism exceeded in a 1.52-fold, from arrivals - is 1.4 times, which increases circulating modified LDL blood [6].

The level of apo A-I, involved in the mechanisms of action of antiatherogenic HDL cholesterol, in both ethnic groups was within normal limits. Increase in serum HDL combined with the arrivals men with a statistically significant increase have they apo A-I in comparison with natives.

The levels of apo B in men investigated did not depend on ethnicity (Table 2).

Meanwhile, the content of apo B in men surveyed depended on age, so the lowest level of the apoprotein (38 mg/dL) was observed in young people, and in individuals older than 60 years the concentration of serum apo B reached 141mg/dl.

Apo B plays a major role in the mechanisms of recognition and binding of LDL-C specific receptors of cell membranes and a tendency to decrease in the level of the apoprotein in both groups indicates a reduction in the formation and increase the time circulating in the blood of atherogenic lipoproteins.

The nature of dyslipidemia indicates that a violation of lipid metabolism in inhabitants of Yakutia has an ethnic dimension. Dyslipidemia in the indigenous population is mainly caused by hypercholesterolemia, associated with the final stages of the metabolism of apo B-containing lipoproteins, primarily - LDL [2]. The arrivals have inhabitants of it is due to hypertriglyceridemia, indicating that violation of the catabolism of VLDL and XM, and possibly related to stress, of residents in the course of adaptation to the conditions of the Far North.

Hypercholesterolemia and hypertriglyceridemia are related primarily with an increase in circulation time in blood atherogenic cholesterol fractions, which leads to a modification of lipoproteins and is a risk factor for atherosclerosis. Given the increase in blood cholesterol in VLDL arrivals versus indigenous by 1.7 times, we can conclude that arrivals have the most high risk of disease-related lipid disorders, [2, 8].

Conclusion. The results of our investigations in Yakutia, show that the have inhabitants of Yakutia are observed changes in lipid metabolism, regardless of ethnicity. Have the representatives of the alien population of dyslipidemia characterized by an increase in blood triglycerides and VLDL

(compared to indigenous), at the same while there is a compensatory increase in blood antiatherogenic lipoproteins (HDL). Among natives of Yakutia dyslipidemia associated with a reduction in antiatherogenic lipoproteins (HDL). Thus, have the alien inhabitants of Yakutia violation of lipid metabolism is associated with adaptation to northern conditions, but they have indigenous population due to decreased adaptive capacity.

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Table 1

LIPID PROFILE IN MEN YAKUTIA

Biochemical tests	Indigenous people	Come population of Yakutia
Cholesterol (mmol / l)	5,51±0,16	5,87±0,11
Triglycerides (mmol / l)	1,02±0,05	1,80±0,09* (p=0,000)
HDL cholesterol (mmol / l)	0,98±0,04* (p=0,010)	1,15±0,04
LDL cholesterol (mmol / l)	4,04±0,15	3,85±0,09
VLDL cholesterol (mmol / l)	0,48±0,03* (p=0,000)	0,83±0,04
The coefficient of atherogenicity	4,55±0,22	4,34±0,15

Note: * - the reliability of the Kolmogorov-Smirnov.

Table 2

Apoproteins levels in the blood, depending on ethnicity identity

Apoproteins	Yakuts	Russian
Apo A-I, (mg / dl)	136,32±6,11	166,06±3,66* (p=0,000)
Apo B, (mg / dl)	81,35±3,88	79,19±3,43

Note: * - the reliability of the Kolmogorov-Smirnov.

CLINICAL OBSERVATION OF THE PROGRESSIVE MULTIFOCAL LEUKOENCEPHALITIS

Popova T.E.¹, Nikolaeva T.Ya.¹, Davidova T.K.², Pshennikova G.M.¹

Rather infrequent clinical case of a progressive multifocal leukoencephalopathy with a lethal outcome at the young patient is submitted.

Key words: a progressive multifocal leukoencephalitis, MRI, RKT.

Progressive multifocal leukoencephalitis (PML) is the progressing demyelinating disease of the central nervous system caused by papovavirus JC or less often SV-40 [1, 2]. Disease is connected to a direct virus infection and arises at person with an immunodeficiency. Mechanism of pathogenesis of PML concerns to mielinoclastias, i.e. it is connected to a demyelination of the generated myelitis. Virus JC causes a demyelination of white substance of a brain (leukoencephalopathy). Inflammatory reaction and an edema are absent. Disease begins with focal frustration and within several months leads to total damage of a brain and mors. Though virus JC widely wide-spreads, and antibodies to it are found out in the majority of people, disease develops only at patients with a failure of cellular immunity. The majority of cases is revealed among patients with AIDS, however the progressing multifocal leukoencephalopathy arises also after transplantation and at patients with limfomas. on the right, the central paresis of VII and XII nerves at the left, positive pathological oral reflex, sign Marinesku-Radovichi from two sides, rising of a muscle tone on extrapyramidal type, pathological flexor signs from brushes and stops, an acheirokynes were taped. A little euphoria, depression of memory on the current events was marked at the patient. On scale MMSE - 26 points.

During stay at a hospital advance of disease was marked, a week later have increased mnestical disturbances, the meningeal symptomatology has appeared. The patient under indications the diagnostic lumbar puncture is carried out, the liquor is received opalescent, following under the increased pressure in the analysis a protein-cellular dissociation, results are submitted below.

The symptomatology has increased during 3 weeks as intensifying from a headache, a vomiting, appetite was gone, dream was broke. At survey a condition serious, sleepy, delayed, an echolalia, oligobradikinesia on a background of a low muscle tone, rasping signs of oral automatism, meningeal signs. Since October, 19 the focal symptomatology has increased, the bilateral converging strabismus, suffice reflexes from two sides, the frontal astasia - abasia, the

expressed degree of a dementia has appeared. After next 5 days the patient is sunken in a sopor, meningeal signs have increased, developed 2 epileptic attacks with consensual turn of eyes upwards, falling of a muscle tone. In the neurologic status the automated movements in the right extremities, a hypotonia, a deep left-hand hemiparesis, low deep reflexes were noted, the patient has ceased to supervise functions of pelvic organs. On an eyeground attributes of stagnation have appeared on the part of disks of optic nerves.

The patient has been transferred in reanimation department according her condition where intensive care was carried out, including a dehydration, vascular, metabolic, anticonvulsive therapy, on a background of its stabilization was outlined in a condition.

The patient is written out home in a stable condition on a break, repeated hospitalization has been recommended. The patient after 2 weeks died on a background of increase of clinic of an edema of a brain. Pathoanatomical opening was not spent.

Results of inspection.

The general analysis of a liquor from 17.09.09 - color slightly yellowish, fiber of 660 mg / S, a cytosis 23/3, at microscopical research - leucocytes 3-1-2, erythrocytes changed 4-3-4, not changed - 2-3-2, after a centrifugation color has not changed.

The analysis of a liquor from 5.10.09 - fiber of 660 mg / S, a cytosis 8/3, erythrocytes changed 8-10-11 in sight, not changed 20-32 in sight, after a centrifugation of light yellow color.

Blood and liquor on VHS, CMV, enteroviruses - negative

IFA on a toxoplasmosis - negative.

The analysis on a HIV - negative

ECG - a sinus rhythm, the cardiac contractions rate - 71 per one minutes. Axis of heart it is rejected to the left. The expressed changes of a myocardium of a forward wall. Incomplete blockade of a forward branch of the left leg of a Gises. The hypertrophy of a left ventricle is not excluded.

US of parenchymatous organs: a urolithic diathesis.

Echocardiography: some inspissation of a pericardium on a back wall of a left ventricle and a forward wall of a right ventricle. Some thickening of a myocardium of a right ventricle. The cavitary system of heart is not dilated. General functional ability of a myocardium satisfactory, diastolic - is insignificantly broken.

EEG: diffuse epileptiform changes on the left hemisphere with epileptiform focus in the right occipital, left forward - frontal area on a background of moderate disorganization of cortical potentials. The threshold of convulsive readiness is reduced.

Consultation of the psychiatrist: organic lesion of CNS with the phenomena of a

hypomnesia.

Инфекционист: a relapsing encephalomyelitis, it is possible a toxoplasma genesis. It is recommended IFA on a toxoplasmosis.

The oculist: disk of optic nerves light pink, borders precise, veins wide, arteries are narrowed a ratio 4:1, periphery without features. The conclusion: angiopathy of retinas of OU.

MRI of a brain from 08.10.09 (Fig. 3) - on a series of tomograms images supra-and subtentorial structures of a brain and cranivertebral transition are received. Median structures are not displaced. Ventricles of a brain are slightly dilated. In substance of a brain there is a set of the pathological centers, the size from 5 up to 40 mm, posed paraventricular, in structure of basal ganglia, the right leg of a brain, in cortical departments of frontal area on the right, in the field of a temporal share on the right, traced as the formations surrounded with an extensive zone of a perifocal edema, have a signal of the raised intensity in regimen T2, isointensive in regimen T1, intensively adsorb the contrast agent. The largest centers are posed in structure of a corpus callosum and a thalamus on the right with attributes of an old hemorrhage (hemosiderin). Truncus encephali structures and a pituitary body without features. The small focus is present in structure of the cerebellum, posed paraventricular at a level of the fourth ventricle.

The conclusion: a relapsing progressing hemorrhagic encephalomyelitis, an active phase. In comparison with data of MRI from 8.09.09 (*Fig. 2*) without essential changes.

RKT of a brain from 16.10.09 (Fig. 4) - In substance of a brain plural pathological formations of the raised density with 39-49 HU, with precise contours which are posed paraventricular, periventricular, in structure of subcortical nucleus, the right leg of a brain, in cortical departments of a frontal lobe on the right with an extensive zone of a perifocal edema. The formation posed in a projection of right talamus and corpus callosum deforms the third ventricle, has non-uniform structure due to a zone of the lowered density, the size 1,0*1,1 sm. Ventricles of a brain are dilated, with pathological formations. The width of convexital spaces is narrowed, convexital sulcuses of the big brain flattened. On the KT-picture a relapsing progressing encephalomyelitis, an active phase. KT attributes of an edema of a brain.

Thus, an available neurologic symptomatology, steady and fast progressive of diseases, changes on MRI of a brain and a failure testify for the benefit of PML. On the basis of the data of neurovisualisation, a trade of the patient (contact to animals), was spent inspection on neurotoxoplasmosis.

Unfortunately, effective therapy of PML is not developed. Current of disease steadily progressing. Average life expectancy are 1,5-2 years. The lethal outcome comes at the phenomena

of a cerebrate rigidity, the epileptic status, the central frustration of respiration. Spontaneous stabilization occurs seldom. The quantity of diseases in the future will be enlarged by a progressing of multifocal leukoencephalitis in connection with augmentation of number of patients with an immunodeficiency.

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The applying of biocomposite cements in combination with stentoplastics at the surgical treatment of compression fractures of vertebral body on the background of osteoporosis

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SECURITY OF THE ORGANISM OF FREESTYLE WRESTLERS OF YAKUTIA FAT-SOLUBLE VITAMINS

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SUMMARY

The inspection of athletes of School of high sports achievements of Yakutia aged 19-29 years showed a non-optimal provision with fat-soluble A and E vitamins in different seasons.

Keywords: vitamins A and E, hypovitaminosis, athletes, seasons.

Introduction. Among of inhabitants of Far North are quite widespread the conditions connected with insufficiency or deficiency of vitamins [2, 11, 13]. At inhabitants of Yakutia are noted hypovitaminosis A and, E, especially brightly being shown in winter time [7]. Emergence hypovitaminosis at the population of high widths is caused by insufficient intake of vitamins C by food, and also can be caused by the raised metabolism. In severe climatic conditions the need of an organism for vitamins increases and at intensive physical activities. Insufficient security of an organism of athletes with vitamins leads to the general decrease in working capacity, exhaustion and overtrain condition.

Level of vitamins B an organism at athletes of Yakutia was defined in individual works. So, Olesova L.D. with coauthors showed that at 74% from among the surveyed young athletes – members of national teams deficiency of ascorbic acid in an organism [9] is noted. However, as shows the analysis of literary data, data on security with vitamins antioxidants A and E of an organism of the athletes training in the conditions of Yakutia actually are absent. Therefore the problem of studying of vitamin security at athletes in difficult klimato-geographical and ecological conditions, is actual and represents scientific and practical interest.

The purpose of the real research is the assessment of security of an organism of freestyle wrestlers of School of the highest sports skill of Yakutsk fat-soluble vitamins A and E during different seasons of year.

Material and research methods. 30 freestyle wrestlers of high sports qualification (the master of sports, the master of sports of the international class and the deserved masters of sports) are surveyed. All athletes were aborigines, male, at the age from 19 till 29 years.

As material for research the plasma of blood with heparin taken from an elbow vein on morning on an empty stomach in a condition of relative muscular rest served.

Definition of the content of vitamins A and E was carried out by a fluorimetric method, on the analyzer of bioliquids "Flyuorat-02-ABL" of the Lyumeks firm, adjusted for retinol on a wave of excitement of 335 nanometers and a wave of emission of 460 nanometers, and for tocopherol – at length of a wave of excitement of 292 nanometers and length of a wave of emission of 320 nanometers.

Results and discussion. It agrees to the data received by us, in summertime vitamin A level in an organism of athletes fluctuated from 5,95 mkg/dl to 58,9 mkg/dl. So, the average maintenance of retinol in plasma of blood of the athletes surveyed by us equaled $22,78 \pm 3,42$ mkg/dl that was below the standards equal of 30-80 mkg/dl [4]. In the analysis of the received results it was revealed that only at 28% of athletes Retinol level in an organism corresponded to norm. At other 72% it was ascertained hypovitaminosis (lower than 30 mkg/dl).

The assessment of security with organism vitamin A at the same athletes during the autumn period showed that level of retinol fluctuated in a range - from 4,40 mkg/dl to 54,45 mkg/dl. The average content of vitamin A thus corresponded $17,28 \pm 5,37$ to mkg/dl. The analysis of the data received by us showed that only at 25% of athletes the maintenance of Retinol in blood fluctuated within norm, and at 75% of the wrestlers surveyed by us is noted hypovitaminosis.

The content of vitamin A in plasma of blood of athletes during the winter period varied in limits from 4,30 mkg/dl to 26,15 mkg/dl. Average value made $10,02 \pm 1,65$ mkg/dl that was much lower than the standard norm. In the analysis of the received data it is revealed that the expressed deficiency of this vitamin was found in all athletes surveyed by us.

In the spring the average level of retinol in plasma of blood made $20,32 \pm 4,44$ mkg/dl and hesitated from 7,40 mkg/dl to 81,05 mkg/dl. Deficiency of vitamin A was revealed at 71% of wrestlers, adequate security was observed at 13% of athletes, and 16% of wrestlers in blood had maintenance of retinol above the standard (higher than 80 mkg/dl).

The comparative analysis showed that at the wrestlers of the top sports skills surveyed by us not optimum security with vitamin A is noted. The data obtained by us testify that more than 70% of the athletes surveyed by us have deficiency of vitamin A during summer, autumn and spring time, and in the winter hypovitaminosis A (fig. 1 and 2) is found in all athletes (100%).

Literary data show that in extreme klimato-geographical conditions of Far North (the negative mid-annual temperature, a specific photoperiodism, frequent fluctuations of a geomagnetic field) can aggravate violation of a course of the metabolic processes caused by an irrational food that results in inadequate security of a human body with vitamins A, E, C, especially during winter time. In not numerous publications there are data on all-the-year-round not optimum security for inhabitants of Yakutia vitamin A. So according to Mironova with coauthors, all-the-year-round deficiency of vitamin A is noted only at 9% from among the surveyed adult population [5, 6]. Researches of the Finnish and American scientists testify to adequate security with vitamin A of an organism of athletes. Thus, in a number of works it was noted that retinol level at athletes or didn't differ, or even was higher, than at the persons conducting an inactive way of life [15, 16, 19].

That fact that more than 70% of the athletes surveyed by us have deficiency of vitamin A during the whole year, probably, is connected with that intensive physical activities increase need of an organism of athletes for vitamin A. It is known that intensive trainings quite often lead to emergence of microtraumas, mechanical damage an endoteliya of capillaries, myocytes, etc. Exhaustion of a pool of vitamin A in an organism of athletes is connected with that, first – vitamin A is capable to stabilize membranes lysosomes and mitochondria that prevents an exit of the lysosomal enzymes damaging cellular structures, secondly – with a food factor. In individual publications it was reported about sufficient caloric content of food allowances of the Yakut athletes of the highest skill. But data on, whether contain these diets daily norm of vitamin A in these works are absent [13]. On the basis of the foregoing it is possible to assume that athletes of the highest skill training in the conditions of the North need higher daily doses of vitamin A.

Research of security of an organism of athletes by vitamin E in summertime showed that the average maintenance of level of tocopherol in plasma of blood equaled $1,19 \pm 0,58$ mg/dl that was within the standards ($0,8$ - $1,5$ mg/dl [4]). The analysis of the data received by us showed that adequate security was observed at 20% of wrestlers. Hypovitaminosis was revealed at 40% of wrestlers. Thus at 40% of athletes the content of vitamin E in plasma of blood exceeded the standard norm.

During the autumn period vitamin E level in plasma of blood of athletes varied from 0,66 to 2,12 mg/dl. The average maintenance of level of tocopherol equaled $1,37 \pm 0,31$ mg/dl. At 37% of athletes adequate security with tocopherol was observed. The prevailing majority (50%) wrestlers in blood had a tocopherol level above the top border of norm. Hypovitaminosis met only at 13% of athletes.

During the winter period the average content of vitamin E was within the standards and

corresponded $1,40 \pm 0,39$ to mg/dl. Normal values are noted at 40% of the athletes who were under our supervision. Deficiency was revealed at 20% of athletes. At 40% of wrestlers excess of the content of vitamin E in blood plasma is noted.

During the spring period level of the content of vitamin E fluctuated from 0,1 mg/dl to 2,59 mg/dl. The average content of tocopherol equaled $1,37 \pm 0,38$ mg/dl. Thus, at 48% of athletes oversaturation of an organism was noted by vitamin E. Hypovitaminosis was marked out at 35% of athletes. Adequate security was observed only at 17% of wrestlers.

The comparative analysis of the data received by us showed that more optimum security with vitamin E of an organism of athletes is observed in autumn and winter seasons of year (fig. 3).

Fig. 4 shows a quantitative ratio (in %) athletes with not optimum security of an organism of freestyle wrestlers with tocopherol depending on a season of year.

It should be noted that at a part of the athletes surveyed by us level of vitamin E exceeds the standards during the whole year. We connected this fact with that athletes regularly accepted "Vitamin E" on 1 tablet 2 times a day.

In article quoted above, among the aborigines of Yakutia who are not going in for sports hypovitaminosis E it is revealed at 18% surveyed [5, 6], and at the athletes surveyed by us – to 40%, i.e. more than in 2 times above. At the same time, results of our researches don't contradict literary data. So, vitamin E level in serum of blood was lowered at girls engaged in sprint and revealed among young basketball players of both sexes [8, 11, 18].

Decrease in level of vitamin E in blood can be a consequence of genetic defect of biosynthesis special vitamin - E-transporting a protein. But this defect meets quite seldom. Inadequate security of an organism of a part of athletes with tocopherol is possibly connected with their antioxidant properties. It is shown that at athletes of Yakutia activation of processes of peroxide oxidation of lipids at all stages of a training cycle which is caused by decrease in the maintenance of low-molecular antioxidants (NMAO) in membranes of erythrocytes is noted. Deficiency of vitamin E can be caused also by deficiency of vitamin C since they act by a synergism principle: ascorbic acid is capable to restore vitamin E on an internal surface of cellular membranes and thus to increase its antioxidant activity. Sacrificial action of vitamin E can be realized at the expense of stabilization of lysosomal membranes and braking of synthesis of prostaglandins. High concentration tocopherols during the autumn-winter period are possibly connected with oxidizing updating vitamin - E-connecting sites on a surface of endothelial cages and membranes of erythrocytes [1, 10, 17].

Deficiency of vitamin A and E can be reduced to zero post- training recovery, as they have antioxidant properties. In addition, these vitamins contribute to the development of muscle and

normalize muscle activity, preventing the development of muscle weakness and fatigue.

Conclusion. Thus, the data obtained by us showed that security of freestyle wrestlers of high sports qualification with vitamins A and E depends on a season of year. However, in spite of the fact that being among the athletes surveyed by us accept a complex of vitamins, among them hypovitaminosis conditions are noted. Hypovitaminosis vitamin A athletes test the deepest during winter time (100%) whereas deficiency of vitamin E is tested at this time only by 20% of wrestlers. The most adequate security with vitamin A of an organism of wrestlers is noted during the summer period, and vitamin E - in winter (40%). During other seasons the number of athletes with an organism deficiency vitamins A and E decreased: to 13% in the autumn and to 35% in the spring. The reason of not optimum security of an organism of athletes vitamins can be: first – insufficient receipt them with food, secondly – the increased speed of utilization at intensive physical activities in the conditions of the North and psychoemotional loadings during the precompetitive and competitive periods, thirdly - insufficient pharmacological correction of hypovitaminosis.

The obtained data testify to need of more profound studying of the reasons hypovitaminosis and enrichments by vitamins of a diet of athletes - freestyle wrestlers of Yakutia for correction of their vitamin status.

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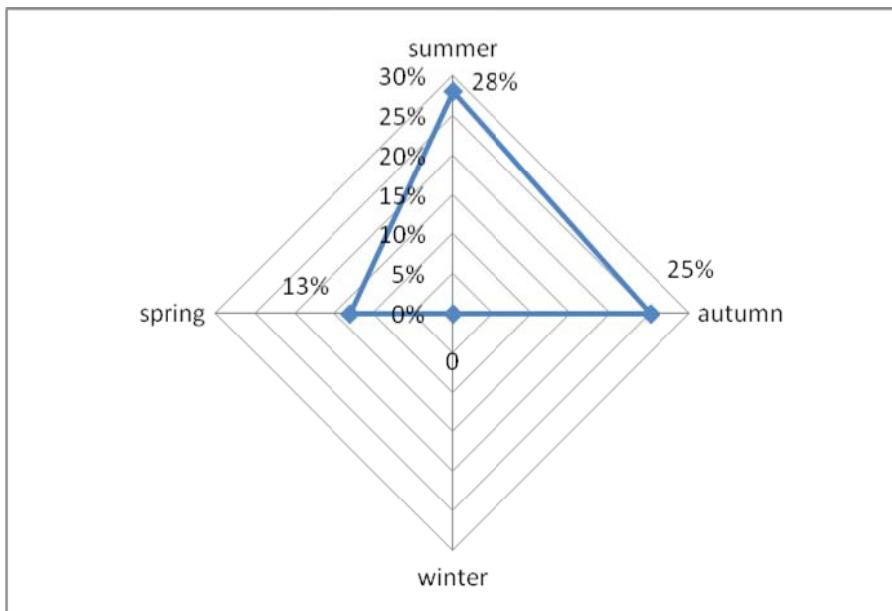


Fig. 1. Frequency of occurrence adequate security with vitamin A among highly skilled athletes
Yakutia during different seasons of year (in %)

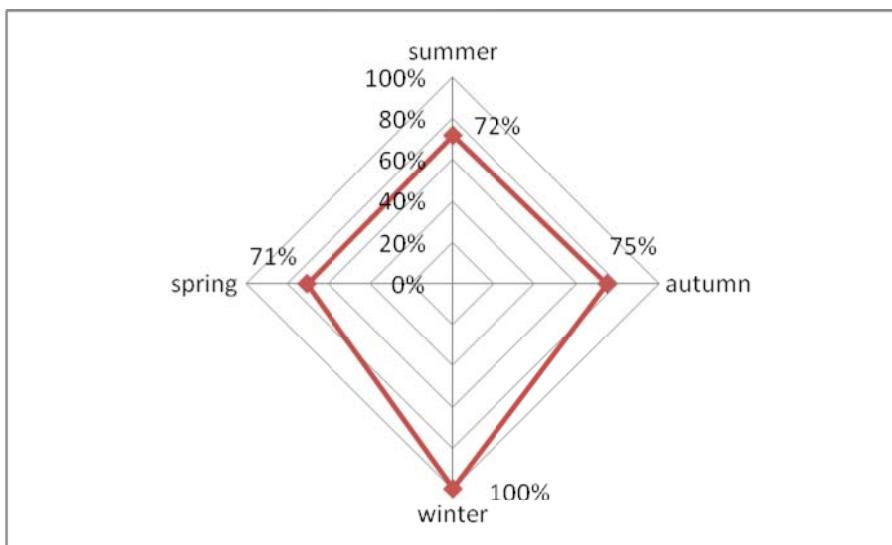


Fig. 2. Frequency of occurrence hypovitaminosis A

among highly skilled athletes

Yakutia during different seasons of year (in %)

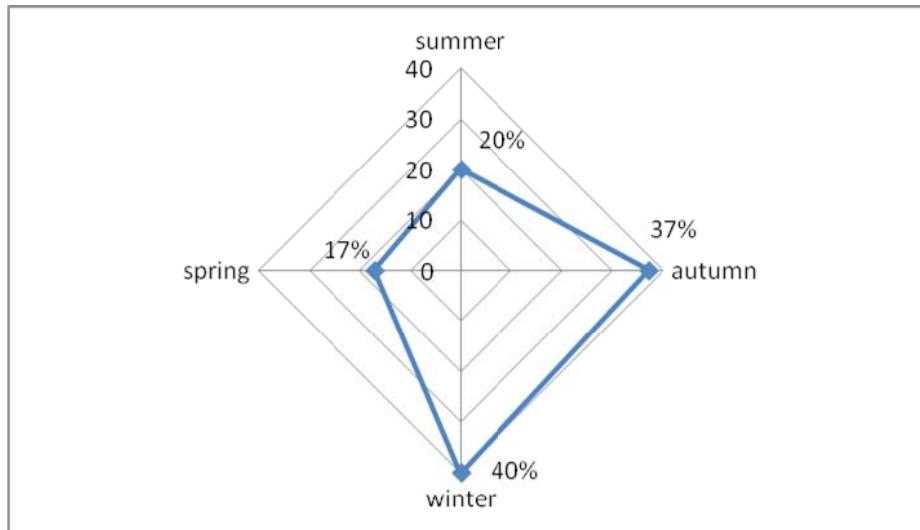


Fig. 3. Frequency of occurrence of adequate security with vitamin E among highly skilled athletes of Yakutia during different seasons of year (in %)

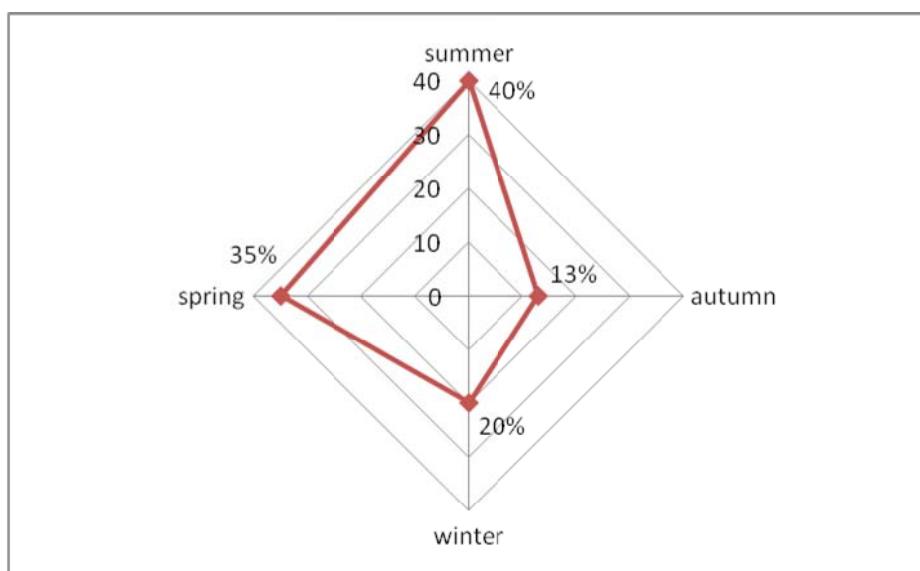


Fig. 4. Frequency of occurrence hypovitaminosis E among highly skilled athletes of Yakutia during different seasons of year (in %)

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Autosomal recessive deafness 1A (DFNB1A): identification of the endemic *GJB2*-allelic variant in Eastern Siberia

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ABSTRACT

In this study we registered a large cohort of Yakut patients homozygous for the IVS1+1G>A mutation (70 unrelated deaf subjects in total). The extremely high carrier frequency of the IVS1+1G>A mutation (11.7%) from six investigated populations has been found in Yakut population. Reconstruction of 140 haplotypes with IVS1+1G>A mutation demonstrates the common origin of all mutant chromosomes found in Yakuts. The age of mutation was estimated to be approximately 800 years. These findings characterize Eastern Siberia as the region with the most extensive accumulation of the IVS1+1G>A mutation in the world as a result of founder effect.

Key words

Autosomal recessive deafness 1A, *GJB2*, IVS1+1G>A, Eastern Siberia

Congenital deafness is one of the most frequent sensory disorders which accounts for about 1 in 1000 newborns, and approximately half of all cases have a genetic etiology. Hereditary forms of hearing impairment (HI) are characterized by clinical polymorphism and genetic heterogeneity. One of the main forms of nonsyndromic HI is autosomal recessive deafness 1A (DFNB1A, MIM ID#220290) caused by mutations in gene *GJB2* (13q11-q12), including digenic (*GJB2/GJB6* and *GJB2/GJB3*) mutations in two genes *GJB6* and *GJB3* in chromosomal regions 13q12 and 1p35.1, respectively [1,5]. The genes *GJB2*, *GJB6*, and *GJB3* encode gap-junction proteins connexins 26, 30, and 31, respectively that oligomerize to hexamers to form transmembrane channels for the potassium ions being recycled across supporting cells in an inner ear [4]. Main cause of DFNB1A in various human populations are *GJB2* mutations, and *GJB6* and *GJB3* mutations are less prevalent. [5] To date, about 150 different mutations (mostly recessive), polymorphic variants and changes in nucleotide sequence of *GJB2* gene with unknown relation to the disease have been reported [3].

15-20 cases of congenital/early onset HI in 14000 - 15000 live births (~1:900-1:750 newborns) are detected per year in the Sakha Republic (Yakutia) located in Eastern Siberia (that is an extensive Asian part of territory of the Russian Federation). According to the epidemiological data, high rate

of congenital HI is caused by some hereditary forms of deafness spread in indigenous populations of Sakha Republic. We suggested that high prevalence of congenital HI in the Sakha Republic may be caused by mutations in non-coding region of *GJB2* gene or in other genes responsible for hereditary forms of deafness, among Yakuts.

The first study of molecular and population features of autosomal recessive deafness (DFNB1A) associated with the donor splicing site mutation IVS1+1G>A in *GJB2* gene was performed in Yakut population of the Sakha Republic (Eastern Siberia).

We revealed 70 homozygotes for the mutation IVS1+1G>A. This finding characterizes Eastern Siberia as the region with the most extensive accumulation of this mutation in the world [2]. We estimated the prevalence of DFNB1A associated with splice site IVS1+1G>A mutation in *GJB2* gene as 16.2 in 100 000 in Yakut population.

We studied carrier frequency of IVS1+1G>A mutation in several indigenous populations of Sakha Republic (Eastern Siberia): Turkic-speaking Yakuts and Dolgans, Tungusic-speaking Evenks and Evens, and Yukaghirs with uncertain (Paleo-Asiatic or Uralic) linguistic affiliation, as well as Slavic-speaking Russians inhabiting the Sakha Republic. Interestingly, carrier frequency of IVS1+1G>A is apparently associated with specific linguistic affiliation of studied ethnical groups. Highest carrier frequency of this mutation was revealed in Turkic-speaking populations of Yakuts (11.7%) and Dolgans (4.7%). Lower rate of this mutation was found in Tungusic-speaking populations of Evenks (3.8%) and Evens (2.0%), and this mutation was not found at all in Uralic or Paleo-Asiatic-speaking Yukaghirs and Slavic-speaking Russians [2]. The extremely high carrier frequency of IVS1+1G>A mutation was found in Yakut population (11.7%).

Reconstruction of 140 haplotypes with IVS1+1G>A mutation demonstrates the common origin of all mutant chromosomes found in Yakuts. Highest diversity of haplotypes was found in the Central and Vilyuy subpopulations of Yakuts (excluding of the Yakutsk city), indicating that the expansion of mutant chromosomes on the territory of the Sakha Republic had started from the Lena-Amga interfluves area (Central district) and the Vilyuy river basin (Vilyuy district). The calculated age of mutation (~ 800 years) correlates with last migration of Turkic-speaking Yakut ancestors in East Siberia in 13th-14th centuries AD [2].

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CYP2E1 gene polymorphism and tolerability of chemotherapy for ovarian cancer

The response to chemotherapy and CYP2E1 polymorphism gene in groups of ovarian cancer patients and healthy women of Yakut ethnic group was analyzed. Significant differences in the frequency of allele CYP2E1 * 1D (96 bp insertion in the promoter region of the gene) were revealed. The higher content was observed in the group of healthy women.

Keywords: DNA polymorphisms, CYP2E1, chemotherapy, ovarian cancer, Yakuts.

Introduction: Due to the rapid development of molecular genetic studies in oncology individualization of treatment for cancer is becoming increasingly important. Ethnic differences in the risk of cancer of different locations associated with both environmental and lifestyle factors, and genetically determined features of pathogenetically relevant genes functioning. Outcome of cancer is caused by two main groups of factors: biological characteristics of malignant process, determining the risk of progression and treatment efficacy. In recent years, there is evidence that genetic differences associated with ethnos contribute significantly to the character of the tumor progression (clinical course of the disease) and in response to specific anti-tumor therapy, providing its different efficacy and tolerability based on racial (ethnic) identity. However, ambiguity, and sometimes contradictory results obtained by different authors, makes it relevant to further research in this area in order to establish ethno-specific genetic features, which on the one hand, will optimize drug therapy in certain groups of patients, and on the other - will provide progress on the way to cancer treatment individualization [1].

CYP2E1 gene encodes one of the most important enzymes of the cytochrome P450. It accounts for about 7% of all isoforms of cytochrome P450, constitutively expressed in the human liver. *CYP2E1* plays an important role in the metabolism of endogenous substrates, such as ethanol and acetone. However, its functional significance of this is not enough, as, due to its broad substrate specificity, it is able to participate in the metabolism of more than 80 connections facing modern man. Among them are not only drugs, but also a number of highly toxic compounds which have, in particular, and carcinogenic property (vinyl chloride, nitrosamines, etc.) [2,6]. Above all, the reactions catalyzed by *CYP2E1*, are accompanied by the formation of significant amounts of reactive oxygen species, also capable to run processes that lead to malignant transformation of cells [3].

Research objective: to study of the relationship of the *CYP2E1* gene polymorphism with chemotherapy tolerance and the risk for ovarian cancer.

Research materials and methods. To conduct our investigations we used genomic DNA, prepared from peripheral blood leukocytes of non-family women of the Yakut origin. Ethnicity was determined by questionnaire: this study included only women in the family of which up to the second generation were no interethnic marriages, and whose ancestors lived in the territory of Yakutia. The sample of patients was composed from women with the verified ovarian cancer who received standard chemotherapy Cisplatin 100mg/m² in the 1st day, Cyclophosphamide 600mg/m² in the 1st day in «the Yakut republican oncological dispensary». The final group of patients was 88. The control group included 98 people. Isolation and purification of DNA samples was performed by standard methods based on the use of K proteinase followed by phenol chloroform extraction [12]. Amplification of DNA sectors containing the studied polymorphic sites, and their genotyping was performed using primers and restriction enzymes [7]. Statistical processing of the results of genotyping was performed using PowerMarker 3.25 (testing frequency distribution of genotypes to meet Hardy-Weinberg equilibrium, comparison of the distribution of genotypes and alleles in the groups of patients and control one [9]) and GraphPad InStat 3.00 (calculation of the odds ratio (GraphPad Software, Inc., San Diego, CA, USA). Tolerability of chemotherapy was analyzed by the WHO recommendations.

Results and Discussion. Study of the contribution of *CYP2E1* in the pathogenesis of various forms of cancer has revealed an association between certain polymorphic variants of the gene and the risk of certain malignant tumors. However, in most studies the most frequent subject of research was the so-called “PstI / RsaI polymorphism” - two linked one-nucleotide polymorphic sites, localized in the promoter region of the gene *CYP2E1* (rs3813867 and rs2031920), allelic status of which is analyzed using endonucleases PstI and RsaI restriction. Functional significance of this polymorphism is associated with its effect on gene expression. The associations of the other gene polymorphisms with risk of tumors studied to a lesser extent [4, 8]. In this study, we have conducted a comparative analysis of distribution of alleles of at once its four polymorphisms in healthy women and in patients with ovarian cancer from Yakutia to examine the relationship of *CYP2E1* gene polymorphism with the risk of ovarian cancer (Table).

Polymorphisms of the gene *CYP2E1* *

Polymorphism	Allele, genotype	Patients (88 p.)	Control (98 p.)	P
96 - bp insertion (5' gene region)	<i>CYP2E1*1C</i> (- 96 bp)	163	164	0.007
	<i>CYP2E1*1D</i> (+ 96 bp)	13	32	
	<i>CYP2E1*1C /</i>	75	67	
	<i>CYP2E1*1C</i>			
	<i>CYP2E1*1C /</i>	13	30	
	<i>CYP2E1*1D</i>			
SNP, rs3813867 (5' gene region)	<i>CYP2E1*1D /</i>	0	1	0.012
	<i>CYP2E1*1D</i>			
	G	155	178	
	C	19	18	
	G/G	68	81	
SNP, rs6413432 (intron 6)	G/C	19	16	0.391
	C/C	0	1	
	T	155	168	
	A	21	28	
SNP, rs2070676 (intron 7)	T/T	67	72	0.440
	T/A	21	24	
	A/A	0	2	
	C	167	181	
	G	9	15	0.384
	C/C	79	83	
	C/G	9	15	

* SNP (single nucleotide polymorphism).

Based on the fact that the loci rs2031920 and rs3813867 are fully coupled, our study analyzed the polymorphisms of only one of them - rs3813867. In the absence of rare homozygotes in a sample of patients with a probability distribution estimation of differences between groups was performed using an exact test. Differences were considered statistically significant at $p < 0.05$.

The frequencies of alleles and genotypes of all the studied polymorphic loci of *CYP2E1* gene in samples of patients and control group are presented in the table. Frequency distribution of genotypes in the control group for each of the loci corresponded to the expected by the Hardy-Weinberg equilibrium.

Comparative analysis of the distribution of the investigated gene polymorphisms in the groups of patients and control showed a significant difference between them in the frequency of variants, characterized by the presence of additional 96 bp (table). In the case of the other polymorphic loci statistically significant differences in the incidence of allele and genotype frequencies were not found.

According to the existing nomenclature of polymorphic alleles of *CYP2E1* gene this allelic variant is designated as *CYP2E1 * ID*. At the molecular level, each such a gene is characterized by the presence of an allele of two additional repeats - VII (42 bp) and VIII (48 bp) - and a 6-bp

insertion in III repeat, in a total of 96 bp [5]. Allele with six repeats designated as *CYP2E1 * 1C*. In the studied group of patients with ovarian cancer *CYP2E1 * 1D* allele was found only in the heterozygous state. In the control group heterozygous genotypes also prevailed: homozygous for the allele *CYP2E1 * 1D* genotype was identified in only one woman. In contrast to the group of patients with ovarian cancer, recorded in the control group the allele and genotype frequencies were similar to those described in other studies [5]. Given results refer mainly to the populations of Asian origin. The frequency of *CYP2E1 * 1D* allele in Caucasians is much lower [8]. To quantify the identified differences between groups we calculated the "odds ratio» (odds ratios, OR). The results give evidence of a higher risk of ovarian cancer in women homozygous for the *CYP2E1 * 1C* allele (OR = 2.67, CI 1.291 - 5.521).

Currently, the standard doses of chemotherapy are used to treat cancer patients from different ethnic groups, excluding interpopulation pharmacokinetic and pharmacodynamic differences. At the same time, ethnic-specific differences in the function of the genes involved in the metabolism of drugs may significantly affect both the tolerability and efficacy of cytostatic treatment. The most important in determining the antitumor efficacy and toxicity are the genes of xenobiotic metabolism enzymes - (cytochrome P450 (CYP), glutathione (glutathione-S-transferase, GST) different classes of DNA repair genes, cell cycle control genes, genes of multidrug resistance [1]. Polymorphisms in these genes may modulate the toxicity and efficacy of the representatives of different ethnic groups in terms of influence specific to each population of external factors on the bioavailability and metabolism of cytotoxic drugs.

The revealed association may be due to differences in the functional activity of the analyzed polymorphisms of the gene *CYP2E1*. The available data support this assumption. Thus in the experiments in vitro *CYP2E1 * 1D* variant showed slightly greater transcriptional activity [15]. However, this effect may not be so obvious, especially from the standpoint that the differences in the effect of *CYP2E1 * 1D* and *CYP2E1 * 1C* sequences on the transcriptional activity of the gene may be related to their differences as suppressors [13]. It is assumed that the various activators and suppressors can affect to different degrees to the displayed *CYP2E1 * 1D* and *CYP2E1 * 1C* suppressor activity. The latter, obviously, may also vary on the background of the differences in the ecology of the environment and related with them features of the feeding [8, 11]. Sic, studied in this paper, groups of women from Yakutia, at least, lived in a harsh climate conditions in comparison with the Japanese, in which the risk of developing of cancer of the esophagus and colon was associated with the *CYP2E1 * 1D* variant [9,14].

Comparative study of tolerability and efficacy of cisplatin according to the polymorphic

gene variants of detoxication of xenobiotics glutathione-S-transferase enzymes and DNA repair genes was carried out in groups of patients with ovarian cancer from Yakut and Russian population. Chemotherapy was conducted by the standard procedure with the inclusion of cyclophosphamide and cisplatin. Genotyping of 10 genes on 21 polymorphisms in relation to efficacy and toxicity indicators was performed. For the sample of Caucasian patients the association of gene polymorphism *GSTP1* (Ile105Val) with disease-free survival, *GSTA1* (-69C> T, rs3957357) - overall survival is shown. Significant contribution to the toxicity (neutropenia, anemia, neuropathy, thrombocytopenia) have made polymorphisms *GSTM1* (gene deletion), *GSTM3* (intron6, AGG / -, rs1799735), *XRCC1* (Arg399Gln, rs25487), *ERCC1* (Asn118Asn, rs11615), *ERCC1* (C / A, rs3212986), *TP53* (Arg72Pro), *XPD* (Asp312Asn, rs1799793). In the patients of the Yakut population the relationship with the toxicity of *GSTA1*, *GSTM1*, *ERCC2* genes polymorphisms is shown, while on the survival indicators influenced variation of genes *GSTM2*, *ERCC1*, *CYP2E1*, *ERCC2*. It is also shown that the side effects have occurred significantly more often in the Yakut women, whereas remissions frequency in them was lower than that of the Slavic women.

Conclusion. Thus, the presented data indicate genetically determined ethnic differences in the clinical course of malignant tumors in different locations, survival rates, efficacy and tolerability of drug therapies. Currently, only the first steps are made on the accumulation of information about pathogenetically important for tumor progression and pharmacologic response of genetic variations that contribute to the clinical outcome in different ethnic groups. As one of the possible effective pre-clinical approaches to identify the contribution of ethnic genetic differences in sensitivity to the drugs is supposed to use the B-lymphoblastic cell lines transformed by Epstein-Barr virus, which were obtained from healthy individuals of 11 ethnic groups in the performance of Hap-Map project [1].

Detection of ethno-specific genetic signatures that would describe a unique set of regulatory drug susceptibility polymorphisms can be the end result of the researches held within ethnic pharmacogenetics. The phenomenon of ethno- specificity of pharmacological response opens the possibility of individualization of therapy based on the formation of certain target groups of patients that are similar to a set of genotypes involved in the efficacy of cytotoxic drugs, to improve tolerability and efficacy of chemotherapy. Implementation of pharmacogenomics in the clinical practice will increase the chances for the development of safer and more effective drugs for specific groups of patients.

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SURVIVAL RATE OF THE LUNG CANCER PATIENTS IN THE TOMSK OBLAST

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Abstract

Survival rate of lung cancer patients was estimated given in the Tomsk region. It was shown that 1-year and 5-year observed survival rate in males was lower than in females. Higher values of the adjusted survival rate, than observed, indicated the presence of other causes of death in patients with malignant lung neoplasms. Observed survival rate is higher in urban population, than in rural population. The lowest survival rate is noted in patients with small cell carcinoma. The maximum indicators of 1 and 5-year observed survival rate are diagnosed in males of 40–49 years, in females – in 30–39 years, the minimum rates –in the 70–79 yrs old males, for females – 1-year – in 70–79, 5-year – in 60–69 years. In the males' population the older age was at diagnosis time, the lower was the five-year survival rate. The median of the observed survival rate without the recorded after death was for males 6. 1 month, for females – 7. 2 months.

Keywords: lung cancer, Tomsk region, survival rate.

Introduction. The lung cancer holds first place in incidence structure and mortality from malignant neoplasms of the Tomsk oblast population. The age-standardized incidence rates (ACR) for males was $69,1 \pm 3,6$ per 100 000 population ($/_{0000}$) (the Russian Federation – $54,6 \pm 0,3 /_{0000}$), for females – $7,5 \pm 0,9 /_{0000}$ (Russian Federation – $7,0 \pm 0,1 /_{0000}$), mortality – $60,0 \pm 3,3 /_{0000}$ (the Russian Federation – $50,0 \pm 0,3 /_{0000}$) and $6,4 \pm 0,8 /_{0000}$ (Russian Federation – $5,6 \pm 0,1 /_{0000}$) accordingly, and that was higher than Russian average data. The condition of lung cancer oncology service in the Tomsk oblast was characterized by low detectability on prophylactic survey of 7,2 % (the Russian Federation – 19,7 %), high rates of neglect (III-IV stage) – 77,4 % (the Russian Federation – 68,4 %) and one-year lethality – 58,8 % (the Russian Federation – 54,1 %) [3]. Objective criteria for assessing the general

condition of cancer care provided to the population, is the survival rate of patients. Assessment of survival of cancer patients is the final indicator of the level of diagnostic, therapeutic and organizational work [2].

The purpose of the study is to evaluate survival rate of the lung cancer patients in the Tomsk oblast.

Materials and methods. Survival of patients, consisting in the Cancer Center in the MUZ "Tomsk Oblast Cancer Center" with a diagnosis of lung cancer malignant neoplasm was calculated in the period from 01.01.2004 to 31.12.2009. Information on monitoring the status of cancer patients was obtained from a database of population cancer registry. The study did not include cancer patients who live in the city of Seversk. Observed (OS), adjusted (AS) and relative survival (RS) calculated by actuarial method. OS and AS were calculated by the life table in Statistica 8.0., RS was calculated by the mortality table and life table of the Tomsk oblast in Microsoft Excel. Median survival was calculated by Kaplan-Meier method in Statistica 8.0. Lung cancer survival was calculated by sex and residence (urban and rural), histologic tumor type, age, stage of disease according to V.M. Merabishvili's references [1].

Results and discussion. Based on a database of population cancer registry of the Tomsk oblast (2098 men and 462 women) was calculated lung cancer survival. It was shown that the survival rate was higher in females than in males (table 1).

Table 1

Observed survival 1-year females ($34,2 \pm 2,2\%$) higher at 6.0%, than males ($28,2 \pm 0,9\%$), 5-year – 7.7% ($16,4 \pm 2,1$ and $8,7 \pm 0,8\%$, respectively). AS in females (1-year – $35,4 \pm 2,2\%$, the 5-year – $17,6 \pm 2,2\%$) and females (1-year – $29,6 \pm 1,0$, 5-year – $10,2 \pm 0,9\%$) higher the OS, because 72 men (3.4% of the total) and 13 women (2.8%) died of other diseases. RS women (1-year – $35,7 \pm 2,4\%$, the 5-year – $20,6 \pm 2,8\%$) and men (1-year – $29,9 \pm 1,1$, 5-year $11,8 \pm 1,1\%$) and higher OS as used in calculating the hypothetical indicator of expected survival. The observed differences in 5-year survival rates in men and women corresponds to the word-wide data. Thus, the relative 5-year survival rate in the U.S.A. in this disease was for men and white women 13,9% and 18,4% of the black race 10,9–11,3% and 14,4–15,0% in blacks women [8]. In European countries is lower – 10,9% (10,5–11,4%) [6].

Lung cancer survival rates of urban population is higher than that of the rural in both males and females. OS 1-year-old urban women have higher by 10,6%, the 5-year by 7,7% in men – 7,3% and 4,7% respectively (table 2).

Table 2

This is probably due to the fact that the urban population has more opportunity to contact the medical facility where the cancer is detected at earlier stages, thus decreasing the number of

advanced malignancy and as a consequence survival increases [5].

Survival of lung cancer patients depends in histologic type of a tumor. Five-year survival rate of all patients does not exceed 10–18%, this rate was only 6–7% in small cell carcinoma. During the first year 70–80% of patients die, only about 10% of lung cancer patients have a chance to live more than 10 years [9]. The study evaluated the survival of lung cancer patients with three major histologic types – squamous cell carcinoma (591 patients), adenocarcinoma (255) and small cell carcinoma (139). From the study were excluded patients with other histologic types (large, glandular-squamous, undifferentiated, etc.) due to the small number of groups.

With squamous cell carcinoma total survival rate was higher at 1-year (OS – 44,3%; AS – 45,4%; RS – 45,9%), and at 5-year (OS – 14, 8%; AS – 15, 8% ; RS – 18,0%). With adenocarcinoma survival of the one-year (OS – 42, 2%; AS – 43, 7%; RS – 43, 6%) and five (OS – 13,3%; AS – 16, 4%; RS – 15,9%) was lower. The lowest survival rate was with small cell carcinoma: 1-year survival rate – within 30% (OS – 30,9%, AS – 34, 3% RS – 31,8%), no one of the patients lived five years. In the USA the 5-year survival (RS) rate in patients with no nonsmall cell cancer was 18,5%, with a small cell – 6,6% [7].

In order to assess the causes of the observed low survival rate of lung cancer patients, a study is conducted of its dependence by the stage of tumor process [4]. In males only 3,5% of patients with newly diagnosed lung cancer had I stage of disease. One-year OS was 90,4%, the 5-year – 46,1%, 9,1% lung cancer patients had stage II after treatment, 1-year survival rate was OS 64,3%, the 5-year – 23,3% respectively. In stage III process identified 33,3% of cases, 1-year survival was 39,3%, the 5-year – 10,7%. Stage IV was diagnosed in 40,8% of patients, 1-year OS was 13,7%, the 5-year – 3,2%. Unstages was diagnosed 13,3% of patients, 1-year OS – 4,3%, the 5-year – 1,1% (Figure 1).

Figure 1

In females, I stage of lung cancer patients was diagnosed in 6,9%, II stage – in 11,5%, III stage – in 22,5%, IV stage – in 41,6%, unstages – in 17,5% of cases. Accordingly, an OS 1-year is in stage I – 87,5%, and II – 73,3%, in the III – 47,8%, with IV – 18,1%. 5-year OS – 58,9%, 33,8% and 22,3%, respectively, with 5 years no one patient survived. 1-year OS in patients with unstages was 8,6%, the 5-year – 1,5% (Figure 2).

Figure 2

Consequently, index of 1-year and 5-year survival rates are inversely related to stage of disease. In our study, more than half of lung cancer patients (men – 54,1%, women – 59,1%) had

stage IV or unstages that partially explains unsuccessful activities to increase the life expectancy of these patients. Higher rates of OS survival in women (16,4%) than men (8,7%) can be explained by the fact that they have larger number of cases diagnosed in the early stages.

Age-specific distribution of lung cancer cases in men and women begins to differ significantly from age of 50–59 years. The men in this age get sick 30,5% of the total number of patients, women – 21,4%. The largest number of cases at men is observed in 60–69 years – 31,7%, women – in 70–79 years – 35,1%. At the age of 80 years and over is occur 4,7% of men, women – 14,9% of cases.

5-year cumulative observed and relative survival for both males and females decreases sharply at diagnosis over the age of 60–69 years. In the male population, older age at diagnosis, the lower the five-year survival (Table 3).

Table 3

The study calculated the cumulative observed survival median, the period for which dies half of the patients (not included posthumously recorded cases) [2]. For stage I, five-year index was not calculated for the remaining stages, since more than 50% of patients died within one year after diagnosis, the median was calculated in months.

In males with stage II a median made up 23,4 months , stage III – 8,8 months, with stage IV – 2,6 months, females – 31,4 months, 11,8 months and 3,4 months respectively. The median survival time (excluding the stage) in males in the Tomsk oblast was 6,1 months, that for 0,9 months was less than in St. Petersburg. In females the index was higher than in males – 7,2 months and practically corresponds to that in St. Petersburg (7,4 months). [2].

Conclusions. Thus, the estimation of survival in lung cancer patients in the Tomsk oblast in has shown that observed survival rate for men more low, than for women: 1-year – on 6,0% ($28,2\pm0,9$ % and $34,2\pm2,2$ %), 5-year – on 7,7 % ($8,7\pm0,8$ % and $16,4\pm2,1$ %). Higher values of the adjusted survival rate (1-year – $29,6\pm1,0$ %; 5-year – $10,2\pm0,9$ % – men; $35,4\pm2,2$ % and $17,6\pm2,2$ % – women) than observed survival the presence of other causes of death in patients with lung malignant neoplasms. The observed survival in the urban population was higher than at the rural: males – 1-year – 7,3% (31,4 and 24,1% respectively), 5-year – 4,7% (10,8 and 6,1%) in females 1-year – on 10,6% (37,6 and 27,0 %), 5-year – on 7,7% (18,1 and 10,4%). The observed survival of patients with small cell cancer is lower than non-small 1-year (30,9%) – on 13,4%, squamous cell carcinoma (44,3%) and on 11,3% in adenocarcinoma (42,2%); 3-year (7,5%) – on 13,9 and 13,3% (21,4 and 21,1%) respectively. Maximum index of 1- and 5-year observed survival rate marked at diagnosis in males 40-49 years (34,8 and 16,2%), for females – in the 30–39 years (57,1% and

15,3%), the minimum rates – for males 70–79 years (22,6 and 2,2%), for females –1-year – in 70–79 (32,1%), 5-year – in 60–69 years (9,2%). The median observed survival not recorded after death is for men 6,1 months for women – 7,2 months. Complex study of survival rate shows unsatisfactory organization of lung cancer early detection (54,1% males and 59,1% females had stage IV or unstages) and an adequate enough level of antitumor therapy. The results of studies on population survival rate in lung cancer patients suggest the need for a targeted program of prevention and early diagnosis of lung cancer in the Tomsk oblast.

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DIAGNOSTIC ALGORITHM PREDICTION OF COMPLICATIONS PNEUMONIA IN MILITARY

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Introduction.

The problem of community-acquired pneumonia (CAP) remains relevant throughout the world. According to statistics, the mortality rate of the CAP is 1 - 3% of young and middle-aged with no accompanying the disease [6], and in the last decade has seen a trend towards an increase. The annual incidence of CAP in Europe varies from 2 to 15 cases per 1,000 four-Rights [6], in Russia - 3, 9 deaths per 1,000 persons aged 18 years [1]. One of the contingents of Comrade, the most susceptible to respiratory infections, including the CAP, are military officers. [5] The annual incidence of CAP personnel held military service was at 35 - 40 %, reaching in some parts up to 70 - 90 % [7, 8]. Outbreaks of CAP in a closed military units sometimes take considerable extent, and the overall incidence of 250 - 350 % [4]. Risk factors for adverse outcomes of CAP, including those in the military, is the development of complications such as pleural effusion and parapneumonic infectious and toxic hepatitis. In this regard, the fact remains urgent task of developing a diagnostic algorithm that would enable the practitioner to the earliest possible time to identify the indirect signs of the possibility of the above complications of CAP.

The aim of the study. The development of diagnostic algorithms for the prediction of complications of community-acquired pneumonia.

Materials and methods. Examination and treatment of patients with CAP was conducted in the pulmonology department of the military hospital in the period from 1998 to 2008. The study included 2000 patients CAP, men, soldiers undergoing military service, at the age of 18 to 22 years

(19, 2 ± 0,19). Patients received etiopathogenic and symptomatic therapy in accordance with the standards of treatment of this disease. According to the testimony appointed as mucolytics, and antitussives antipyretic drugs and physical therapy facilities and physiotherapy.

Criteria for inclusion in the study: presence of clinical and radiological signs of CAP. Exclusion criteria were patients with concomitant diseases.

The study used clinical and instrumental diagnostic methods in accordance with the methodological guidelines Main Military Medical Management of Department of Defensein RF 2009, as well as the standard for the diagnosis and treatment of patients with nonspecific lung diseases, approved by order of the Russian Ministry of Health 9. 10. 1998 № 300 [3, 9].

In patients who were treated at the Department of Anesthesiology and Reanimation (193 people). Additionally monitored several body functions, including blood pressure, central venous pressure, urine output. Determined by blood gas, electrolytes (potassium, sodium, serum), indicators of protein composition, blood coagulation and renal excretory function.

To organize the survey results, we have developed and used "Consolidated sheet for recording the results of laboratory and instrumental investigations patients with pneumonia"¹, which takes into account the main factors and anamnestic dynamics. Consolidated sheet - it is a schematic and a summary of all the objective data obtained from research.

Consolidated sheet consisted of the following major sections: personal information about registered patient, some passport data, the diagnosis of underlying disease and comorbidity, the results of X-ray surveys with the visual image of the segmental structure of the lungs of laboratory boards, tables, bacteriological examination of sputum with the definition of sensitivity to antibiotics, antibiotic schedule therapy and assess its effectiveness (Fig. 1).

Consolidated sheet of substantially easier to work with medical records, especially in cases that require a collective examination and discussion (crawls, analyzes, consultation, expert advice). Thanks to the schematic, it is very clearly reflected the dynamics of research in the treatment process, especially for the research data of peripheral blood. We have conducted a detailed account of antibiotic therapy (antibiotic, daily dose, duration of treatment). In addition, using data from thermometry. The consolidated sheet issued if the patient's admission to the department by the attending physician. After discharge, the patient remained in a consolidated list archive at the doctor.

The obtained data were processed using the statistical software Microsoft Office Excel 2007 and Statistica 6.0 (StatSoft, Inc., 2001).

Results and discussion. Parapneumonic pleural effusion - one of the frequent complications of CAP. In this effusion can vary greatly in size, ranging from a small amount of fluid in

1 – Certificate for rationalization proposal № 4457 (Irkutsk State Medical University, 10. 04. 2009.)

the pleural cavity prior to joining a large serous-fibrinous effusion and empyema development. The accumulation of pleural fluid is a result of increased capillary permeability, when the rate of formation exceeds the rate of fluid absorption from the pleural cavity. Some forms of parapneumonic effusion

does not require special treatment, except for an effective antibiotic, whereas in complicated and pleurisy may require surgical intervention.

We offer the patient at admission to the hospital to use diagnostic algorithm parapneumonic likelihood of exudative pleurisy², which will allow your doctor to anticipate this complication at an early stage of the disease and promptly adjust the treatment to avoid the development of this complication or to minimize its appearance.

The principle of constructing an algorithm to predict the development of exudative pleurisy parapneumonic is as follows. On admission the patient was evaluated at the hospital clinical picture, including the identification of clinical markers of the presence or absence parapneumonic exudative pleurisy. Further evidence was analyzed, indirectly indicating the possibility of this complication and its degree of severity in the disease. The proposed algorithm took into account the following symptoms: fever, the severity of infection and symptoms of intoxication, the presence and severity of pain in the chest, the nature of cough, physical picture of the affected segments of the lung, the hemodynamic parameters, the results of x-rays of the chest cavity. Depending on the degree of manifestation of any of the above symptoms, taking into account the destruction of lung tissue according to x-rays of the chest cavity phased manner determined by the likelihood of developing this complication (Fig. 2).

In the treatment of patients assessed the nature of the flow of CAP on clinical picture and changes the status of the local area according to the defeat of the physical examination the patient. Depending on positive or negative depended on the dynamics of the disease and the likelihood of parapneumonic exudative pleurisy. Thus, the proposed diagnostic algorithm for predicting the development of exudative pleurisy parapneumonic help your doctor in the early stages of CAP

suspected this complication, as well as time to adjust the treatment to avoid adverse effects and improve outcomes in patients with CAP, including reduced length of stay in hospital.

Another serious complication of CAP may be infectious and toxic hepatitis, accompanied by a violation of the detoxification of the liver, contributing to the accession of other

2 – Certificate for rationalization proposal № 4459 (Irkutsk State Medical University, 10. 04. 2009.)

complications of the disease and leads to an increase in treatment time.

In order to predict the development of infectious and toxic hepatitis we have developed a diagnostic algorithm³, whereby the first phase revealed clinical signs of the presence or absence of this complication. Were then analyzed markers, indirectly indicating the possibility of this complication. The proposed algorithm takes into account the following symptoms: high fever, hemodynamic parameters, the presence of acute cardiovascular failure and syndrome of disseminated intravascular coagulation. In addition, attention was drawn to the amount of destruction of lung tissue on the results of x-rays of the chest cavity. As a result, depending on whether or not any of the above symptoms, as well as their manifestations, we have predicted the likelihood of this complication of CAP (Fig. 3).

Thus, the developed diagnostic algorithm used to determine the risk of infectious and toxic hepatitis patient with CAP, which allowed time to adjust treatment and to avoid adverse effects. Thus, depending on whether or not the risk of infectious and toxic hepatitis we made the correction of antibiotic therapy based metabolism in the liver.

Conclusion. The proposed diagnostic algorithm to help the practitioner, including the stage of primary health care, in the early stages of development to suspect the possibility of community-acquired pneumonia in a patient adverse events. This will allow time to adjust the therapeutic and diagnostic tactics to avoid adverse effects, and thereby improve outcomes in patients with pneumonia, reduce length of stay in hospital.

3 – Certificate for rationalization proposal № 4460 (Irkutsk State Medical University, 10. 04. 2009.)

SUMMARY. Diagnostic algorithms for the prediction of complications of community-acquired pneumonia were worked out, for that 2000 patients with community-acquired pneumonia, men,

soldiers undergoing military service, at the age of 18 to 22 years ($19,2 \pm 0,19$) had been under study.

It was revealed that the proposed diagnostic algorithms helped the practitioner, including the stage of primary health care, in the early terms to suspect the possibility of development of undesirable complications in a community-acquired pneumonia patient, which allows timely adjusting therapeutic and diagnostic tactics and improving outcomes in patients with pneumonia, reducing length of stay in hospital.

Keywords: community-acquired pneumonia, complications predicting, algorithms.

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Long-term results of resection menisci arthroscopic knee and the role of visual diagnostics in post-traumatic gonarthrosis in Yakutsk

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A retrospective analysis of case histories of 41 patients hospitalized from 2009 to 2010, undergone arthroscopic intervention for chronic meniscus injuries of the knee joint, was reported. MRI diagnosis of lesions in the knee joint is one of the reliable methods. Quality of life in the postoperative period with post-traumatic arthrosis is lower than in patients without changes in the articular surface.

Keywords: MRI diagnosis of knee, knee arthroscopy, knee arthrosis.

Introduction.

A traumatic injury of the knee joint is one of the most common condition that causes difficulty in diagnosis and preoperative planning. At the same damage to soft tissue structures (ligamentous-capsular apparatus, meniscus and articular hyaline cartilage), which often require surgical intervention, up to 85% of all injuries of the knee. Revealed by examination of the clinical picture is often not the true amount of damage. Thus, according to various sources the accuracy of diagnosis of structures damaged knee on physical examination in the range 33-96% [6,7]. In connection with this increased demand for non-invasive methods for accurate diagnosis of radiation damage of large joints. The effectiveness of magnetic resonance imaging (MRI) allows the knee joint with an accuracy of 79 to 100% to estimate the extent of damage, reduce the time of diagnosis and thus increase the effectiveness of treatment of traumatic injuries of the knee joint [4]. At the same time, often orthopedic trauma faced with significant differences of preoperative diagnosis (by MRI) and arthroscopic pictures.

The advantages of MRI - the ability to obtain an image of the meniscus in several planes, and lack of ionizing radiation. The disadvantages of MRI include high cost and the possibility of an incorrect interpretation of the changes resulting from additional studies [1,2]. The normal meniscus in all Pulse sequences gives a weak homogeneous signal.

For the diagnosis of rupture can focus on the shape of the meniscus. Typically, the image in the sagittal plane of the meniscus is shaped like a butterfly. Any other form may be a sign of rupture. A

sign of the gap is a symptom of a "double posterior cruciate ligament" (or "third cruciate ligament"), as a result of displacement of the meniscus in the intercondylar fossa is the femur, and adjacent to the posterior cruciate ligament.

The main feature of meniscus tear - pain in the knee joint arising or growing at a certain movement. Severity of pain depends on the place in which there was a torn meniscus (the body, posterior horn, anterior horn of the meniscus), the size of the gap, the time elapsed since the injury [3].

Degenerative rupture may occur at night, people sleep code and manifest pain in the morning, on rising from bed. Most degenerative tears occur when rising from a low chair.

Purpose: To determine the role of visual research methods in the diagnosis of meniscus injury and post-traumatic gonarthrosis.

Objectives:

1. To study the reliability of MRI diagnostic arthroscopy and data.
2. To study the long-term results of arthroscopic intervention for damaged meniscus of the knee.
3. To study the long-term outcomes in patients with chondroprotector posttraumatic gonarthrosis.

Materials and methods.

A retrospective analysis of case histories of 41 patients were on inpatient treatment in trauma and orthopedic department of the Republic of Belarus № 2 TSEMP from 2009 to 2010., Which was carried out arthroscopic intervention for chronic meniscus injuries of the knee joint. The average patient age was $38 \pm$ years. Dominated by persons of working age. Of women was 18 (44%), men - 23 (56%).

MRI of the knee joint (Fig. 1, Fig. 2) performed preoperatively in 30 (73.2%) patients. 11 patients (27%) were diagnosis is physical examination.

The analysis of the MRI findings of knee and arthroscopic intervention protocols in 41 patients.

In 21 patients failed to follow up results from a change of residence. Investigated patients were divided into two groups: Group 1 (n-10) - no change of the articular surface, Group 2 (n-10) - with the change of the articular surface (arthrosis of the knee joint). To evaluate the long-term outcome survey conducted in patients 1 and 2 groups using the SF-36 questionnaire (Ware JE, 1992), was studied quality of life. SF-36 questionnaire was created to satisfy the minimum psychometric standards necessary for group comparisons. The method is designed to study all the components of quality of life. Includes the following scale:

1. Physical functioning (PF).
2. Role (physical) functioning (RP).

3. Pain (P).
4. General health (GH).
5. Viability (VT).
6. Social functioning (SF).
7. Emotional functioning (RE).
9. Mental health (MH).

All scales of the questionnaire combined into two summary dimension - the physical health component (1 - 4 scale) and mental (5 - 8 scale).

Postoperatively, all patients assigned to the derivatives of hyaluronic acid.

Results and discussion.

In 30 patients on MRI in 28 (90%) cases were detected damage to the meniscus.

In 2 (10%) patients on MRI revealed degenerative-dystrophic changes of the menisci and arthroscopic intervention in these same patients was found torn meniscus (Fig. 3).

Symptoms of post-traumatic gonarthrosis (change of the articular surface) detected by arthroscopy in 11 patients (36.7%) patients who were not found in the MRI diagnosis.

After arthroscopic resection of the knee meniscus in all patients recommended hondroprotection. In patients of group 1 10% (n - 1) received no treatment, 80% (n -8) received a one-time administration of chondroprotective, 10% (n -1) treatments were carried out. In patients of group 2 received chondroprotectors rate of 30% (n -3), and 70% (n -7) received a one-time administration of chondroprotective.

Analysis of the quality of life of patients was carried out on two components: physical and mental. The results of the questionnaire were evaluated on the following parameters: 0-25% is not satisfactory, satisfactory 26-50%, 51-75% is good, 76-100% excellent. When filling in a questionnaire from a group of patients in the physical component had to be 100% (good), the psychological component - 80% (good), 20% (excellent) from the two groups on the physical component had 30% (good), 70% (satisfactory), the psychological component - 40% (good), 60% (fair) (Fig. 4).

It should be noted that the quality of life in the physical component in 30% (n -3) 2 groups of patients receiving treatment chondroprotector rates were higher than in the remaining 70% (n -7) patients.

Thus, the MRI diagnosis of lesions in the knee joint is one of the reliable methods. Quality of life in the postoperative period with post-traumatic arthrosis is lower than in patients without changes in

the articular surface. Since pain is stored in long-term results.

Conclusions:

1. MRI diagnosis in 90% (n -28) cases allowed to reliably estimating the damage to the meniscus. In 36,7% (n -11) cases showed no signs of post-traumatic gonarthrosis.
2. Quality of life after arthroscopic interventions in patients of group 1 were higher in the physical component is 40% mental component by 20% than in those two groups.
3. In 30% of patients with post-traumatic gonarthrosis treated hondroprotektormi quality of life was higher than in the remaining 70% of patients.

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M.Yu. Yezhov

Diagnostics and surgical treatment of degenerative-dystrophic diseases of metatarsophalangeal joints

The treatment of patients with degenerative-dystrophic lesions of the foot joints in order to assess the effectiveness of treatment of patients with new, including the high-tech methods, was analyzed. It was noted that good and excellent outcomes in patients with degenerative-dystrophic diseases of the metatarsophalangeal joints were achieved in 90.74% of cases. Differentiated approach to the choice of surgical treatment of the forefoot in a specialized hospital allows to avoid unwarranted operations, and hence the complications and improve efficiency.

Keywords: metatarsophalangeal joints, joint replacement, osteotomies.

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Vinokurov I.I., Shamaev V.E., Basharin K.G., Garmaeva D.K.

**The new method of osteoplastic operation at destructive forms of pulmonary tuberculosis,
bronchial fistula and pleural empyema**

A new approach to the methodology of the osteoplastic surgery in patients with neglected forms of destructive pulmonary tuberculosis with the features of the anatomical structure of the chest and shoulder area is worked out.

Studies in patients with neglected forms of destructive pulmonary tuberculosis showed that simple in technical solution, affordable way of a surgical intervention allows to create collapse of the upper, middle and partly (6 segment) of the lower lobes of the lungs to the boundaries of the mediastinum, thus improving the effectiveness of treatment to 90 cases. In this case, in order to obtain effective lung collapse one should not only remove the rib frame of the chest, but also with the special formula to resect segment of the clavicle, as the holding of the acromioclavicular and sternum joint of shoulder girdle.

Keywords: surgery, pulmonary tuberculosis, pleural empyema.

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A.N. Alipov, V.A. Mos'kin, V.A. Sivtseva

The expediency of using a portable immunoassay analyzer in the Republic Sakha (Yakutia)

The article represents information about advanced modification of biochemical analyzer on strips for immune-enzyme analysis implementation, which area of use is diagnostics of various diseases. Analyzer is oriented to use in small laboratories, where over hundred analyses are realized. The device is one of cheapest but has high metrology. Analyzer is developed with demands and requirements of medical centres on the territory of Republic Sakha (Yakutia).

Keywords: immune enzyme analysis, immunoassay analyzer, diagnostics, small settlements.

Introduction. Immune-enzyme analysis is important part of present laboratory diagnostics. It makes possible to conduct researches of blood for the presence of allergy and virus diseases. For implementing of such analysis modern and high-precision immunoassay analysers are used. Analysers have been applied in clinical practice, in clinical and experimental virology, microbiology, biochemistry, immunology, toxicology and pharmacology. It can be used for the control of production technology in the medical, pharmaceutical and food industry; in the field of ecology for toxic substances detection, in agriculture in order to detect viral and bacterial infections of animals and plants.

Purpose of development – is to design intellectual device, intended for realization of immune-enzyme analysis. The device is satisfies the requirements of metrology and represents results of analysis with high accuracy.

Materials and research methods. ZAO “Desmo” many years been producing immunoassay analysers, designed for automated optical density of biological samples measurements in 96 holes sample form or 8 holes strip with the method of immune-enzyme analysis. The specialists of the company and employees SPbGUT prof. MA Bonch-Bruevich jointly developed immunoassay analyser, which is the next step in the development of this product. Analyser is intended for immune-enzyme analysis with sample form in 8 holes strips together with a PC.

The main characteristics of this device, as well as its previous variants, it is: the ability to use in outreach laboratories for various applications, high precision of results and high metrological characteristics, versatility methods used. Distinctive features of this same design are its low cost,

ease of use, portability, light weight, and intelligence, which is provided by the device functions such as self-diagnosis internal state, control of operator actions to eliminate the "human factor", digital filtering, signal selection against interfering factors.

Immune-enzyme analyser works as a peripheral device connected to a PC or laptop via USB. Power supply and communication with the computer via the USB cable.

Weight and design of the device greatly facilitated, to increase mobility and reduce cost. In comparison with already available, the instrument does not have own LCD display and printer to output the results, and the drive to put the test samples. Injection into the device is done manually by the user - the operator.

Measurement and management of all primary data processing is carried out using the built-in device microcontroller. The microcontroller controls the switching on and off of the optical system, which includes the LEDs on the following wavelengths - 405 nm, 450 nm, 492 nm, 620 nm. The choice of radiation sources based on the following technical passport data LEDs: spectral characteristics, intensity, angle of radiation. According to the parameters have been chosen three LEDs: two white LEDs with emission limits the visible area, and the third, an ultraviolet LED.

The device is operated with the program developed for the analyser. The program allows you to navigate and control the phased realisation of immune-enzyme analysis. The program stored procedures for various types of immune-enzyme analysis, it is possible to fill up the application with new techniques and store the results of the analysis software and patient data. The program interface is simple and user-friendly.

Results and discussion. Given a technical project was designed layout tool for alignment and metrological verification. The results of the technical tests for verification of neutral glasses certain density values were obtained close to the real parameters of calibration glasses.

Conclusion. In developing the device one of the priorities was to meet the needs of domestic diagnostic centers. Economic feasibility, subject to the accuracy of mobility present results make it possible to use the immunoassay analyzer during the existence of settlements located far from central medical institutions for village clinics with minor medical diagnostic laboratories. And as for the veterinary laboratories to diagnose animal diseases prevalent in the Republic of Sakha (Yakutia).

Specialists SPbGUT prof. MA Bonch-Bruevich: ALIPOV Alexander Nikolaevich Ph.D., lecturer; MOSKIN Viatcheslav Andreevich engineer of (sub)department TiM; SIVTSEVA Valentina Antonovna engineer of (sub)department TiM.

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T.V. Chepel**PROBLEMS OF MEDICAL SERVICES IN THE FORMATION OF CHILD DISABILITY**

The influence of some parameters of organization of maternal and child health care service at the regional level of disability of the child population of the Far Eastern Federal District is regarded.

Keywords: children's disability, risk factors, maternal and child health care service.

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Introduction. The urgency of the problems of childhood disability due to the steady growth of severe health problems that cause limitations of life in childhood, which should be regarded as a marker of health and social disadvantage and lower levels of public health [1, 2, 5]. At the beginning of the millennium indicators of disability of the child population of the Far Eastern Federal District (DFO) are among the highest in the country, with growth rates of child disability in the region three times higher than the average [6, 7, 8].

The prevalence of childhood disability in the administrative territories of DFO has a high variability ($Cv = 23,2\%$) and does not depend on the climatic conditions of the area of residence. Given the nature of the medical and social problems of childhood disability, is a scientific and practical interest to analyze the features of organization of maternal and child health in areas with low population density, which, undoubtedly, are the territory of the Far East, it is far from highly specialized medical centers [3, 4].

Materials and methods. The object of the present study were children with disabilities aged 0-17 years living in the DFO. The status of a child with a disability was defined in accordance with Federal Law "On social protection of invalids in the Russian Federation" (1999). Clinical and epidemiological characteristics of childhood disability in the territories of Far Eastern Federal District Information obtained by the method of data analysis of the State Committee for Statistics, Department of Health and Social Development, Ministry of Health Representative in the Far East Federal District.

For the analysis of medical and social problems and risk factors for childhood disability has been developed "Map of medico-social survey of the disabled child and his family," one of the units which reflect the scope and timeliness of health and social care for a disabled child and his family.

The sample of 2490 families with disabled children.

An assessment of shares of quantitative and qualitative traits was carried out using Fisher's angular transformation (ϕ), followed by the calculation and assessment of the reliability of the argument of the normal distribution (up) on the statistical tables. To assess the relationships of regional indicators of child health disability and organizational risk factors was determined by Pearson's correlation coefficient of the pair (r), whose validity was assessed by Student's t (t).

Results and discussion. It is well known that patients with severely impaired child health in particular need of a comprehensive examination and treatment in a hospital. In the Far Eastern territories, the level of child disability is inversely proportional to indicators of beds hospitals: primary level of child disability in all age groups depends on the availability of somatic (from $r = -0,68$ to $r = -0,85$) and specialized beds for children ($r = -0,38$ to $r = -0,71$) ; at the same time, the "burden" of the total disability of children and adolescents, by contrast, is largely determined by the level of provision of specialized beds than the general pediatric (respectively $r = -0,73$ and $r = -0,59$), and the strength of this connection increases with age, from $r = -0,40$ at 0 - 4 years up to $r = -0,81$ 15 - 17 years.

The highest degree of tightness of feedback to the presence of pediatric beds in areas defined by DFO for the level of child disability due to diseases of the endocrine system and metabolism ($r = -0,93$), diseases of the musculoskeletal system ($r = -0,70$) and sensory organs ($r = -0,69$).

The dependence of child disability and the number of beds obstetric services in the region, with the effect of gynecological beds availability index ($r = -0,75$ and $r = -0,61$) is more pronounced than the profile of obstetric beds ($r = -0,49$ and $r = -0,51$). No significant correlation of the level of disability due to perinatal pathology of obstetric and gynecological beds do not ($r = -0,36$ and $r = -0,40$), suggesting a crucial role in the formation of this type of disability in the first place the quality of care in maternity hospitals, and no access to it as such.

Staffing of health facilities in areas of DFO has a significant influence on the regional level of child disability. The most significant dependence of the following: the level of disability and the provision of primary medical staff ($r = -0,83$), a common indicator of disability and lower medical qualifications ($r = 0,72$). The higher proportion of doctors with the first and second qualifying category, the lower the level of total disability of the child population area ($r = -0,84$ and $r = -0,74$, respectively).

In the current socio-economic conditions of the country and the Far East in particular, funding for the program of state guarantees of free public health care has a significant impact on the level of

child disability. For example, the rate of actual funding of regional programs of compulsory health finance (% of current standard for an insured) is inversely proportional to the level of total disability for children and adolescents ($r = -0,41$).

Analysis of questionnaire data showed that the availability and quality of care the children's population in the Far East is much higher than in rural areas:

12. compared to the central district hospital in a reliable diagnosis in city hospital is set to 3 times more likely and, consequently, health care in the community for the urban population of more timely and adequate ($P < 0,001$);
13. every second child with a disability residing in the city, has the ability to complete clinical and laboratory examination under the Children's edge (regional) hospitals or clinics in central Russia (respectively 37.2% and 19.0% of children ($P < 0,001$), and in most cases for children with disabilities in rural areas (84.3%) the diagnostic process was completed in a regional center. Absence of providing medical diagnostic services in the central hospitals of the country can be regarded as inaccessible for the rural population of high technology specialist care (in Fig. 1).

Medical and social expertise to design a sick child disability was conducted delayed in 5.4% of the cases in the city and 9.9% of cases in rural areas, $P < 0,001$. Among the children of the urban population the most frequent cases of late diagnosis of severe disability and untimely processing of disability due to diseases of the musculoskeletal system and the effects of trauma: respectively, 12.0 and 10.0 per 100 people. (Fig. 2). In rural areas dominated by the frequency of inspection of the late Disability and processing of disability due to injuries (18.2 per 100 people), diseases of the nervous system (14.8 per 100 people) and mental disorders (10.4 per 100 people).

Therapeutic and diagnostic problems of medical care and rehabilitation of disabled children are most pronounced in rural settings, among them the lack of dynamic laboratory testing (5.2% of the cases in the city and in 10.0% of cases in rural areas) and the annual inspection of narrow specialists (4, 6% and 30.0% respectively). Inaccessibility of high quality medical care for their sick children say 6.5% of parents and 27.1% in rural areas, $P < 0,001$.

Against the backdrop of greater awareness of the urban population percentage of parents who indicate difficulty in a free vacation of medications, 1.5 times higher (32.7% and 20.0% respectively in urban and rural areas). Planned, but never had the opportunity to sanatorium treatment 42.5% of children with disabilities residing in the city, and 22.9% of children with disabilities in rural areas.

Under these circumstances, the effectiveness of medical surveillance, medical and social care

for disabled children is higher in urban environments. The share of children with disabilities with improved health status in an urban setting is 2 times higher than in rural areas (27.4% and 12.9% respectively, $P < 0.01$), and the deterioration - 3 times less (6.0% and 20.0% respectively, $P < 0.01$).

Conclusion. Inaccessibility and poor quality of care is one of the reasons for the decline in health of the younger generation, the late diagnosis of debilitating diseases and untimely medical and social care for disabled children. It is difficult to be solved diagnostic and treatment challenges faced by people in far eastern suburbs, is one of the reasons for the accelerated growth of childhood disability in the region.

The modernization of the health system, focused on regional issues of service maternal and child health must take into account the organizational features of health sector in depressed areas with low population density and provide a solid financial investment to implement the main objectives of the reforms.

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VS Stupak

Regional model of medical and social, psychological and educational assistance to the children of the first year of life with perinatal pathology

Summary. Analyzing the number of children born with perinatal pathology, the author comes to the conclusion that the provision of timely and comprehensive medical and social, psychological and educational assistance to children with complex medical conditions and development. As an innovative approach developed regional model of medical and social, psychological and educational assistance to the children of the first year of life with perinatal pathology and implemented organizational technology medical and social, psychological and pedagogical support for children with perinatal lesions and their consequences.

Keywords: organizational model, the technology of social health and psycho-pedagogical support, medical social, psychological and educational assistance to the children of the first year of life, perinatal pathology.

Introduction. In recent years there has been growth in the number of children born with signs of perinatal pathology. This is an important medical and social, psychological and educational problems, as these children often had severe disabling neuropsychiatric and somatic disorders [2,6,8]. Among the causes of childhood disability disease of the central nervous system, causing mental and physical disorders of the child comes first. Problems in delivery of timely and comprehensive medical and social, psychological and educational support for children with complex medical conditions and development acquired a special urgency.

The need to form an organizational model of medical and social, psychological and educational assistance to the children of the first year of life due to the feature of early childhood for the development of a number of functions in the mental development of the child. The results of domestic and foreign scientific studies clearly show that early detection and early correction of complex abnormalities in the development from the early years, or even months of life can prevent the emergence of further variations in its development, 'corrected existing ones, significantly reduce handicaps children achieve more high level of their overall development and, subsequently, of education, and a more successful integration into society [1,5]. Currently, however, is not sufficiently taken into account the full range of factors that influence the formation of children's

health and, as a result, effectively implemented preventive and organizational technologies. Hence, acquire a special urgency to develop and implement new approaches to the integrated support of young children suffering from perinatal pathology, which is one of the least expensive and most effective ways to improve the health of children. [3]

Materials and methods. The study was conducted on the basis of the regional State Organization "Perinatal Center" of the Ministry of Health of the Khabarovsk Territory. In a pilot study of 891 children took part in the first year of life, are treated in the unit with the diagnosis were studied inpatient medical records (Form 003-y), out-patient card (Form 112-y), a survey of parents, psychodiagnostic testing children includes primary and dynamic examination in terms of method of diagnosis epikriznye neuropsychological development in infants (Frucht EL), supervision of children, methods of mathematical and statistical analysis of the results.

Results. The analysis of the factors stunting children revealed multifactorial trouble in 86% of children, including the disadvantage of biological history, coupled with the adverse social and psychological factors.

Of the surveyed children with neuro-developmental - 416 people (48%) had a normal development. Behind in development 455 (52%), of whom 396 have 46% of the development gap to 1-2 epikriznyh term, and 7% of children are lagging behind in the development of 3 or more epikriznyh period. In the dynamics of the observations showed a trend increase in the number of children with developmental delays, especially significant. An experiment data showed that all the children studied categories marked disharmonious development of the leading lines of the first year of life. Most children lag depth is 1-2 epikriznyh term by sections of audio responses and prerequisites for the formation of active (53%) and to understand (57%) in the pre-speech and speech predrechevom periods in children, as well as in sections of visual orienting responses in 54% of children , auditory orienting reactions in 53% of the surveyed children. It should be noted that the divisions of the preparatory stages of active and understood language in 10% of children and the development of general movements (9%) had a lag of 3 or more epikriznyh dates (Fig. 1). By analyzing the development of the leading lines of attention was paid to changes in the level and rate of development of children at certain ages.

Children in the study were divided into four age groups, each corresponding to a certain critical period. The first age group (birth to 2 months. 29 days) were assigned 264 children, of whom 47% stunted 1-2 epikriznyh period. In the age group of 3 to 5 months. 29 days behind in the development of 51% of the children, including minor developmental delay found in 49%. In the

third group (6 to 8 months, 29 days) corresponds to the development of age norms in 47% of children with developmental delays found in 53% of children have a slight delay was detected in 46% of the children and 8%, far behind in development. In the fourth group of 139 children aged 9 to 12 months behind in development 63% of the children.

The complexity of the risk factors identified age-specific disorders of nervous and mental development were the justification of social health and psycho-pedagogical support of infants with perinatal pathology and provide adequate comprehensive care (social, psychological, speech therapy), aimed at the prevention and correction of these violations . Basic principles of the social model of health and psycho-pedagogical support are: consistency, comprehensiveness, unity, early diagnosis and correction, the prolongation, the consistency of the support of all the participants, the continuity of diagnostic and rehabilitative services, the unity of the corrective influence of specialists and family. [4]

The most important conditions that ensure the functioning of a model for integrated health and social, psychological and pedagogical support (Fig. 2) are defined: screening in the newborn period and in-depth examination of the first year of life in order to clarify the structure of the disability of children with perinatal pathology; complexing activity professionals working in the perinatal center (neurologist, pediatrician, psychologist, speech therapist, etc.) to generate adequate medical and psycho-pedagogical route alignment or leveling of the distorted lines of child development, provision of adequate health and social, psychological and educational assistance with the application of innovative technologies, involvement of the mother (parents) in the optimization process of child development, with a gradual increase in their role in it, the selection of certain units designed to support the dynamic development of the child from infancy in a perinatal center.

Currently in the perinatal center organized a unique multi-stage medical care for nursing of children with perinatal pathology with various specialists: neonatologists, neurologists, pediatricians, ophthalmologists, psychiatrists, geneticists, orthopedists, endocrinologists, ENT doctors, psychologists, speech therapists, speech pathologists, allowing control every step in the treatment of the child to obtain optimal results.

Main experts in interaction is a complex diagnosis, coordination of medical and rehabilitation intervention programs based on a common methodology for the provision of patient care in each of the areas of treatment, compensation and rehabilitation. Multidisciplinary, given somatic, neurological, mental condition of the patient, especially violations had higher mental

functions, determine the indications for treatment and neurorehabilitation, the amount of any of its parts, dosage loads.

We have developed a technology of social health and psycho-pedagogical support of the development of children has two main areas: working with children and their parents (Table 1).

Building a model of integrated health and social and psychological-pedagogical support of the development of children with perinatal pathology involves the allocation of certain blocks (Figure 2):

I block - screening level psychomotor development of neurological symptoms in the definition of perinatal lesions of the central nervous system;

II unit - differential diagnosis, in-depth survey of children at risk, the development of individual treatment and rehabilitation programs;

III unit - specialized care in accordance with the individual program by using technology of complex medical, psychological and educational rehabilitation, including the correction of motor disorders, psychological diagnostic and remedial developmental assistance, speech therapy, diagnostic and remedial help.

Indicator of efficiency of implementation model of medical-social and psycho-pedagogical support for children with perinatal pathology is the dynamics of development. A comparative analysis of primary survey data and the results of the formative experiment, we can conclude that most of the children there was a positive trend. In 36% there was a significant improvement, psychological development was fit age norms, 16% - an improvement (reducing the depth of the backlog in the psychological development).

After the research was carried out a quantitative analysis of the results of each child and the group as a whole. These control experiment showed that the first group of children who have been trained and developed in accordance with the age-regulatory measures. The children of the second group with which to work in accordance with the proposed medical-social and psycho-pedagogical system was able to prevent the growth of underdevelopment, and in the future - to speed up the pace of their development. Children in the third group of adequate psychological and educational support to the end of the first year of life was evident in the development of a positive trend. At the same time, the control group was noted growth lag compared to their initial level of development. The effectiveness of psycho-pedagogical support of infants with psychomotor disturbances confirm positive changes in the rate of development of all children of the groups (a positive trend was 95.5%), the normalization of psychomotor development of a significant group of children (15.6%)

with psychomotor disorders to end of the twelfth month of life.

Thus, we have proved the effectiveness of the model complex medical and social, psychological and educational assistance to support the development of technology in infants in the perinatal center, subject to conditions, such as early detection of disorders and early onset of remedial work with the child on the basis of individual differentiated approach depending on the child's development and the structure of the existing disturbances in children with perinatal pathology, and integrated interdisciplinary exposure to the active involvement of parents in the correctional process. Develop a regional model of medical and social, psychological and educational assistance to the children of the first year of life has been successfully applied in the system to prevent perinatal pathology and correction of development and may be recommended for implementation in the work of perinatal centers.

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Fig.1. The mental development of children in the first year of life of children with perinatal pathology

Fig. 2. Model of integrated health and social and psychological-pedagogical support of the development of children with perinatal pathology

Table 1.

Technology of social health and psycho-pedagogical support of children with perinatal pathology

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INFLUENCE OF SPORTS ON QUALITY OF LIFE OF SCHOOL STUDENTS AS CRITERION OF EFFICIENCY OF PREVENTIVE MEDICINE

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The purpose of the conducted research were studying of influence of intensive physical activity on indicators of quality of life of young sportsmen 10 - 18 years in Yakutsk, and comparison of parameters of quality of life of young sportsmen and their coevals who are not going in for sports. Young sportsmen estimate quality of life above, than their healthy contemporaries who are not going in for sports on scales of psychosocial functioning. At young sportsmen high indicators of physical and social functioning in all presented sports that confirms high motivation to playing sports and had satisfaction, the importance of additional education for socialization of children, in comparison with the contemporaries who are not going in for sports. High indicators quality of life of children who are going in for sports, confirm efficiency of actions of preventive medicine.

Keywords: young sportsmen, child – youthful sports school, intensive physical activity, quality of life.

Urgency. The strengthened attention of the state to improvement of quality of life and welfare of Russians, strengthening of health and development of children, questions of creation of material base of sports, to the importance of sports as important factor for the solution of many social and economic tasks became the main precondition for serious changes in the sports sphere. One of fundamental problems of a state policy is creation of conditions for development of physical culture and sport, attraction, first of all, children, teenagers and youth to an active way of life, to sports activities.

Health protection of children is the priority direction of pediatrics. As one of the most important components of preventive medicine consider physical culture and sport [3]. Systematic physical trainings promote formation of the harmonious personality, strengthening of health of children and teenagers. Today formation of a healthy lifestyle and harmonious development of younger

generation is considered among national priorities.

Studying of quality of life of children is the new actual direction of interdisciplinary researches in domestic health care [2, 4, 5, 7]. Research of quality of life in pediatrics – a perspective method of an assessment of the state of health, allowing to add traditional clinical-laboratory and tool inspection by subjective opinion of the child about the wellbeing [1]. The particular interest and an urgency represents studying of quality of life of children of 8-18 years. This period of development is characterized by essential changes in physiology and psychology of the child, emergence in children of new interests, attachments, formation of own views, adaptation to study in school in the new social environment, increase in loadings and an individual responsibility.

Research objective: an assessment of quality of life of young athletes of 10-18 years Yakutsk depending on a sport and comparison with quality of life of their healthy age-mates who are not going in for sports.

Materials and methods

Pupils of Municipal Educational Institution «Child youthful sports school» of No. 1, No. 3, No. of 4 g took part in research Yakutsk, engaged in educational and training groups (more than 3 years of sports activities) and groups of sports improvement (more than 5 years of sports activities). The choice of sports school is defined that in these establishments more than 10 sports most mass of which are track and field athletics, combat sports, sports are cultivated. Young athletes of 11-18 years took part in research ($n = 235$) and their parents ($n = 235$). For the comparative analysis A.D.Savvina's data (2009) [6] are used. Criterion of inclusion in research absence at athletes at the moment of research of an acute disease, complaints and age belonged. The assessment of quality of life of children is carried out with application of the international general questionnaire of Pediatric Quality of Life Inventory – PedsQLTM4.0 (Varni et al., USA, 2001) [8].

Young athletes are distributed on groups on 3 sports. Sports (football) made 1 group, $n = 79$. Game sports, or sports, are characterized by big physical and neuropsychological activity, existence of movements, single combat elements against intensive game thinking at considerable load of the top and bottom extremities, and also continuous alternation of intensive muscular activity and rest.

Combat sports (free-style wrestling, boxing) made the 2nd group, $n = 105$. The combat sports which characteristic feature at an expenditure of energy is changeable cyclic level of the physical activities depending on specific conditions of rivalry and reaching sometimes very high intensity.

Cyclic sports (run) made the 3rd group, $n = 51$. Cyclic sports demand primary manifestation of endurance. In them high-speed endurance is combined with good coordination of movements.

The tool consists of 23 questions united in the following scales: «physical functioning» (PF), «emotional functioning» (EF), «social functioning» (SF), «role functioning – life in school/kindergarten» (RF). In the course of code conversion of data can be got the following total points: a total point of a physical component of quality of life (includes FF scale), a total point of psychosocial functioning (a total scale of emotional, social and role functioning), and also the total scale (the general point on all scales of a questionnaire is estimated).

The total of points after code conversion procedure (the translation of the raw data in points of quality of life) pays off on a 100-mark scale: the total size is higher, the quality of life of the child is better.

Statistical processing of results was carried out with SPSS program use (version 13.0) by calculation of average sizes (an average arithmetic, standard deviation, an error of average) taking into account confidential intervals. The following mathematical calculations were carried out: an assessment and comparison of average sizes of studied parameters; for comparison of average values of samples were used the t-test for independent samples (the test Styyudenta), the t-test for dependent samples, the one-factorial dispersive analysis (ANOVA test).

At significant result of the dispersive analysis aposteriorny tests of multiple comparison (the repeated t-test without alpha correction (LSD test), Duncan's test, Tukey HSD) by means of which the groups which are significantly different from each other came to light were applied. Distinctions were considered significant.

Results and discussion.

It is established that at pupils of sports school it is carried out from 4 to 6 trainings in a week. Duration of one training at young athletes makes 1,5-2 hours, thus at 68 % one training in day, at 32 % - 2 trainings in day. Total duration of trainings of young athletes makes 9-12 hours per week.

The maximum number of points is revealed on a scale of social functioning in all groups ($91,2 \pm 10,2$, $91,6 \pm 9,6$ and $94,4 \pm 8,6$) according to answers of children and parents ($91,6 \pm 11,1$, $92,7 \pm 9,5$ and $93,5 \pm 9,8$), and the lowest point was received on a scale of role functioning at young athletes ($79,3 \pm 13,3$, $80,2 \pm 14,4$ and $81,9 \pm 13,0$.) according to answers of children and parents (tab. 1, 2). Parents estimated role functioning on 5,4 - 7,2 % lower that reflects concern of parents concerning training, the difficulties tested by the child at school, it is possible and at the expense of admissions of occupations because of competitions.

Table 1. The comparative characteristic of indicators of QL of young athletes of 10-18 years (n = 235) in dependence of a sport (to answers of children)

Показатели Indicators	Sports (n= 79)	Combat sports (n= 105)	Track and field athletics (n= 51)	p
PF	86,0±10,1	85,6±15,6	84,7±12,3	p>0,05
EF	80,0±14,5*	86,2±12,9*	83,6±17,2	p<0,05
SF	91,2±10,2	91,6±9,6	94,4±8,6	p>0,05
RF	79,3±13,3	80,2±14,4	81,9±13,0	p>0,05
PEF	83,5±9,2	86,0±9,6	86,6±10,0	p>0,05
Total	84,1±8,6	85,9±9,5	86,0±9,2	p>0,05

On a scale of emotional functioning of QL of children who are engaged in combat sports authentically above QL of children, engaged in sports (+7,7 %, p<0,05) according to answers of children. According to answers of parents of authentic distinctions it is not revealed.

Table 2. The comparative characteristic of indicators of QL of young athletes of 10-18 years (n = 235) in dependence of a sport (to answers of parents)

Indicators	Sports (n= 79)	Combat sports (n= 105)	Track and field athletics (n= 51)	p
PF	83,6±11,2	83,9±12,8	83,7±8,7	p>0,05
EF	77,5±14,3	81,3±15,2	81,4±16,7	p>0,05
SF	91,6±11,1	92,7±9,5	93,5±9,8	p>0,05
RF	73,6±15,9	75,3±14,7	77,3±14,2	p>0,05
PEF	80,9±10,8	83,1±10,9	84,1±11,1	p>0,05
Total	81,6±9,9	83,3±10,5	83,9±8,9	p>0,05

Thus, the gap between social and role functioning made 13,0 - 13,3 % according to answers of children and 17,3 – 19,6 % according to answers of parents.

As a whole, parents estimate quality of life of children slightly below, than children on all scales of functioning (p>0,05).

Table 3. The comparative characteristic of indicators of QL of young athletes of 10-18 years (n = 105) depending on a type of combat sport (M±σ; M; according to answers of children)

Indicators	to answers of children		to answers of parents		p
	Boxers (n = 48)	Fighters (n = 57)	Boxers (n = 48)	Fighters (n = 57)	
PF	88,1±10,6	83,1±13,6	83,3±12,0	84,0±12,4	p>0,05
EF	77,0±14,6**	89,7±10,3**	75,5±11,2*	82,3±15,8*	p<0,03, p<0,05
SF	90,0±12,9	91,5±10,7	90,3±12,1	94,1±7,3	p>0,05
RF	76,8±15,7*	84,5±13,1*	76,9±14,5	77,6±13,3	p<0,05
PEF	81,2±12,3*	88,5±8,4*	80,6±7,6	84,6±10,6	p<0,05
Total	82,9±11,0	87,2±9,5	81,5±7,2	84,5±10,8	p>0,05

In the comparative analysis of indicators of QL of the young athletes who are engaged in boxing and free-style wrestling authentic distinctions on a scale of emotional functioning as according to answers of children ($77,0\pm14,6$ against $89,7\pm10,3$), and according to answers of parents ($75,5\pm11,2$ against $82,3\pm15,8$) and role functioning ($76,8\pm15,7$ against $84,5\pm13,1$) according to answers of children (tab. 4) are also revealed. The gap between QL parameters on scales of physical and emotional functioning, social and role functioning at young athletes according to answers of children, and on scales of SF-RF at children of 13-18 years (28,6-18,6 %) pays attention.

Table 4. The comparative characteristic of indicators of QL of young athletes of 10-18 years and their healthy age-mates who are not going in for sports ($M \pm \sigma$; according to answers of children)

Indicators	Young sportsmens (n = 235)	School children (n = 103)	p
PF	85,4±12,6	85,4±10,3	p>0,05
EF	83,2±14,8*	70,6±19,6*	p<0,05
SF	92,4±9,4	88,2±13,5	p>0,05
RF	80,4±13,5*	74,4±15,8*	p<0,05
PEF	85,3±9,6*	79,0±12,9*	p<0,05
Total	85,3±9,1*	79,6±11,4*	p<0,05

Примечание: p>0,05 – статистически достоверной разницы между группами не получено,
*p<0,05 - статистически значимая разница между группами

At carrying out the comparative analysis of indicators of QL of young athletes (tab. 4, 5) with Savvina A.D. data. (2009) it is revealed authentic high indicators on a scale of emotional functioning (83,2±14,8 against 70,6±19,6) and role functioning (80,4±13,5 against 74,4±15,8) according to answers of children (+15,2 %,) and parents (+8,9 %,). Thus, at children, going in for sports authentically high indicators of QL on a scale of psychosocial functioning (+8,0 %,) and the general point (+7,2 %,) according to answers of children are revealed.

Table 5. The comparative characteristic of indicators of QL of young athletes of 10-18 years and their healthy age-mates who are not going in for sports ($M \pm \sigma$; according to answers of parents)

Indicators	Young sportsmens (n = 235)	School children (n = 103)	p
PF	83,7±10,9	80,3±12,3	p>0,05
EF	80,1±15,4*	73,0±15,8*	p<0,05
SF	92,6±10,1*	86,8±14,1*	p<0,05
RF	75,4±14,9	75,6±16,1	p>0,05
PEF	82,7±10,9*	77,5±12,*	p>0,05
Total	82,9±9,7	78,2±11,3	p>0,05

Parents of young athletes estimate QL of the children on scales emotional (+9,7 %,), social (+6,7 %,) and psychosocial functioning (+6,7 %, authentically above. According to data of a number of researches parents aren't always rather informed on daily activity of the child, especially his psychosocial functioning [5, 6].

Conclusion

Thus, young athletes estimate QL above, than their healthy contemporaries who are not going in for sports on scales of emotional, social, role and psychosocial functioning. Young athletes have high

indicators of physical and social functioning in all presented sports that confirms high motivation to sports activities and had satisfaction, the importance of additional education for socialization of children, in comparison with the contemporaries who are not going in for sports. High indicators of QL of children who are going in for sports, confirm efficiency of actions of preventive medicine. Application of an indicator of quality of life as criterion of efficiency of preventive actions promotes improvement of quality of rendering of medical care to the children's population.

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Family role in formation of health of the population of Evenkia

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Family role in formation of health of the population of Evenki

The summary. Studying of health of the families living in northern territories of Krasnoyarsk region became the purpose of our research. On an example of the radical and alien population of Evenkii the analysis of the social status and health of families is carried out. The conducted research has allowed to define factories of bad health of the radical and alien population of northern territories of Krasnoyarsk region. This material trouble of families, bad mutual relations in a family and an adverse social profile.

Keywords: health; a family; northern territories.

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Nowadays the family becomes the main sphere of social work, means of stabilization of society and its further development. Within this activity three main social institutes work: social protection of the population; institute of formation of the population; public health care institute. New structures are created, technologies, forms and work methods with families [1,2] are developed. One of priorities of a family is the state of health of her members. In researches I.B. [4] it is noted by Nazarova that many respondents connect health deteriorations with change of their life as a whole: loss of constantly paid work, dismissal, a retirement etc.

The problem of health is especially actual costs in families of the indigenous and alien people of Evenkia, the people living in remote northern territories where the person becomes the hostage of an economic situation. The majority of families of indigenous people should be reconciled with bad living, sanitary and unsafe ecological conditions, malnutrition and illiteracy. Social and economic features of northern rural areas and lack of possibility of complete implementation of the program of the state guarantees the maintenance of the population free medical care reduces negotiability and hospitalization level therefore processes of accumulation of chronic pathology progress

Materials and research methods: under supervision there were 444 persons at the age from 18 till 67 years. The questionnaire which contained questions of social and hygienic and demographic character was developed for carrying out research. The analysis of questionnaires allowed to receive information on life family living conditions, material prosperity and psychological climate in a family, the relation to the health. According to self-image respondents of a condition of own health and an approach to interpretation of The I group of health (healthy) – the persons which have pointed to absence of diseases, excellent health;

The II group of health (almost healthy, with risk factors) – the persons which have estimated as a whole the health as good and seldom having sharp diseases;

The III group (sick compensations in a condition) – the persons estimated the health as satisfactory and having frequent sharp diseases or feeling feeling of an illness;

The IV group (sick decompensations in a condition) – the faces which having chronic diseases and have estimated the health as a whole as bad. groups of the health offered by Yu.P.Lisitsin [3], all surveyed persons were distributed on groups of health as follows:

At treatment of correlation dependences considered that the figure of group of health is higher, the state of health of respondents, i.e. direct correlation dependence is worse, return will testify to negative influence of a factor on health, – about positive.

Results of research. Among the surveyed persons with the I group of health it was not revealed, to the II group of health it was carried $26,3 \pm 2,1$ by % of respondents, to the III group – $65,8 \pm 2,3$ in %, to the IV group – $7,9 \pm 1,3$ in %.

The analysis of dependence of level of health from type of a family showed that the majority of respondents lived in own families. The marriage status of the surveyed persons is various at representatives of different groups of health, but the main part of respondents lived in officially registered marriage (drawing 1).

place for drawing 1

At treatment of correlation dependences considered that the figure of group of health is higher, the state of health of respondents, i.e. direct correlation dependence is worse, return will testify to negative influence of a factor on health, – about positive.

Results of research. Among the surveyed persons with the I group of health it was not revealed, to the II group of health it was carried $26,3 \pm 2,1$ by % of respondents, to the III group – $65,8 \pm 2,3$ in %, to the IV group – $7,9 \pm 1,3$ in %.

Psychological climate of the family relations – the most important component of health. It should be

noted that surveyed with the IV group of health ($22,9\pm7,1\%$) own intense psychoemotional condition didn't give every fourth possibility of creation of psychological comfort in a family (drawing 2). The intense psychoemotional condition is directly connected with group of health (the factor of correlation is equal 0,82).

place for drawing 2

It is established that the share of the good family relations is maximum among representatives of the II group of health ($66,7\pm4,3\%$), at persons with the III group of health it practically is twice lower ($33,6\pm2,7\%$), and at persons with the IV group is minimum ($22,9\pm7,4\%$) (table 1).

place for the table 1

The analysis of groups of health depending on number of children in a family (drawing 3) showed that childless persons and parents had II more often or the III groups of health, for the having many children the IV group of health ($R < 0,05$) was characteristic.

place for drawing 3

During research it is revealed that representatives of the IV group of health are more often ($45,7\pm8,4\%$) lived in apartments with another's people than II ($5,1\pm2,0\%$) and III ($11,3\pm1,8\%$) groups of health, $R < 0,05$. The strong direct interrelation between group of health and accommodation in the conditions is established: the factor of correlation is equal 0,93.

Thus, as a result of research it is established that for families of the indigenous and alien people of Evenkia strong correlation dependence between group of health and good family the relations (the factor of correlation is equal 0,95) is characteristic, than it is better the family relations, the group of health is higher than subjects.

At the same time direct strong correlation dependence between number of children in a family and group of health is established: the factor of correlation is equal 0,89, i.e. the more children in a family, the state of health is worse. The facts of bad health of the indigenous and alien people of northern territories of Krasnoyarsk region are material trouble of families, bad relationship in a family and an adverse social profile. Information received as a result of research, formed a basis for development of address actions for public health care of Evenkia.

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Drawing 1. The marriage status of persons with various groups of health (in %)

Drawing 2. Extent of influence of a psychoemotional pressure of respondents on the family relations at persons of various groups of health (in %)

Table 1. An assessment of own family relations representatives of various groups of health (in %)

Assessment of own family relations (versions of answers)	Groups of health		
	II (n=117)	III (n=292)	IV (n=35)
	1	2	3
good	66,7±4,3	33,6±2,7 $p_1 < 0,001$	22,9±7,4 $p_1 < 0,001$
sad	21,3± 3,7	58,9±2,8 $p_1 < 0,001$	68,6±7,8 $p_1 < 0,001$
bad	0	0	0
No family	12,0± 3,0	7,5±1,5	8,6±4,7

Drawing 3. Number of children in a family at representatives of various groups of health (in %)

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DIFFERENTIAL MODELING OF EPIDEMICS SPREAD

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Differential modeling of epidemics spread has allowed receiving time dependence of number of the susceptible to the disease, the recovering and infectious patients; timing moment, when number of the infectious patients is maximal.

Keywords: differential model, speed of change of number of the infectious patients, speed of change of number of the susceptible to disease, speed of change of number of the recovering.

Introduction

Differential equation is obtained when the different states of the studied process or phenomenon can be described analytically using the relationship between some parameters and their derivatives or differentials.

Differential equation obtained from the research of a real phenomenon or process, called a differential model of this phenomenon or process. Differential model is a special case of the set of mathematical models which can be built in studying the world around us. There are different types of differential models themselves.

The models are described by ordinary differential equations are generally unknown function depends only on one variable.

During construction the ordinary differential models is important to know the laws of the science, which is connected with the nature of the problem. In practice often have to deal with such cases, when the unknown laws to make a differential equation. In such cases it is necessary to resort to various assumptions (hypotheses) concerning the occurrence of the process for small changes of variable parameters.

This paper deals with the differential modeling epidemics. This topic is relevant, because the recurring worldwide epidemics of infectious diseases take a heavy toll of lives. Therefore, important issue is to find the time dependence of the parameters on the spread of infectious diseases.

In this paper we find the law of change of the number of susceptible to the disease and infectious patients, the number of healthy and immune to the disease, according to the time, and the point in time at which the number of infectious cases will be maximized. [1]

Finding the model parameters

Consider a sample of n people: $n = x(t) + y(t) + z(t)$,

where $x(t)$ - the number of infectious patients who are sick, and are a source of spread of the disease at time t ;

$y(t)$ - the number of susceptible to the disease, but healthy at time t ;

$z(t)$ - the number of healthy and immune to the disease at time t .

Since the unknown laws to form the equations of the process, so you need to put forward a variety of assumptions (hypotheses) on its course for small changes of variables.

Assume that if $x(t)$ exceeds a certain threshold value of X , ie $x(t) > X$, then the rate of change in susceptibility to the disease dy/dt is proportional to the number of $y(t)$:

$$\frac{dy}{dt} = -ay \quad (1),$$

then the rate of change of infected dx/dt and healthy dz/dt will be equal

$$\frac{dx}{dt} = ay - bx \quad (2),$$

$$\frac{dz}{dt} = bx \quad (3),$$

where ay, bx – the number of new cases and convalescent;

a, b – incidence rates and recovery.

If $x(t) \leq X$, then $\frac{dy}{dt} = 0$ infection disease over time will not happen, because most infectious patients will be in isolation [2,3]

Let the coefficients of morbidity and recovery are different, i.e. $a \neq b$

Suppose that at the initial time ($t=0$) $y(t) = y(0), x(t) = x(0), z(t) = z(0) = 0$.

Consider the case where $x(0) > X$, since $x(t)$ is continuous, then there exists an interval $[0;$

t_{kp}), where $x(t) > X$. At time t_{kp} shifting to susceptibility to the disease is stopped, that is, epidemic is stopped.

In equation (1), separating the variables $\frac{dy}{y} = -adt$

and integrating, we obtain $\ln|y| = -at + c$, hence we find

$$y(t) = e^c \cdot e^{-at}.$$

Given the initial conditions, we obtain the desired number of the variation in susceptibility to disease, depending on the time $y(t) = y(0) \cdot e^{-at}$ (4).

Substituting y in equation (2), we obtain 1st order linear differential equation.

$$\dot{x} + bx = ay(0) \cdot e^{-at}.$$

Replaced $x(t)$ with a product of two auxiliary functions $x(t) = uv$, we obtain the system

$$\begin{cases} v' + bv = 0 \\ u'v = ay(0) \cdot e^{-at} \end{cases}$$

Separating the variables in the first equation of the system

$$\frac{dv}{v} = -bdt$$

and integrating the resulting expression, we find the auxiliary function v

$$v = e^{-bt}.$$

Substituting this value v in the 2-th equation by separating the variables and integrating, we obtain the utility function u

$$u = \frac{ay(0)}{b-a} e^{(b-a)t} + c_1.$$

Given the initial conditions (at $t = 0$, $x(t) = x(0)$), we obtain the required law changes in the number of infectious patients, depending on the time

$$x(t) = \frac{ay(0)}{b-a} (e^{(b-a)t} - e^{-bt}) + x(0)e^{-bt} \quad (5).$$

Number of healthy at time t is defined by the formula

$$z(t) = n - x(t) - y(t) \quad (6)$$

We find the point in time t_{\max} , at which the number of infectious diseases will be maximized.

Differentiating equation (5) we get

$$\frac{ay(0)}{b-a} (be^{-bt} - ae^{-at}) - bx(0)e^{-bt} = 0,$$

solving this equation we find the required t_{\max} :

$$t_{\max} = \frac{\ln(aby(0) - b^2x(0) + abx(0)) - \ln a^2 y(0)}{b - a} \quad (7).$$

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Chronic Viral Hepatitis Type C in the Republic Sakha (Yakutia)

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The data of the official registration by Rospotrebnadzor of acute and chronic hepatitis C virus infections in the Russian Federation and Republic Sakha (Yakutia) are presented. According to the data of "Yakutsk City Hospital" department of viral hepatitis for 2007 - 2011 872 patients diagnosed with hepatitis C were analyzed. The ratio of the various forms of viral hepatitis C, their distribution by age, gender and by stage of disease were determined.

Keywords: chronic hepatitis C, liver cirrhosis, HCV-infection.

Introduction: Now in the Russian Federation as well as in the majority of the countries bad epidemiological situation concerning parenteral viral hepatitis is marked [1, 5]. It is expected that in 2015 - 2020 the number of infected people all over the world will be doubled [4, 5]. By estimations of experts 1.4 – 2.4 % of citizens of the Russian Federation are infected by virus C hepatitis (VHC) and the majority of these people has already the chronic form of the disease [2, 3]. For chronic hepatitis C the progressing form of the disease leading to hepatocirrhosis (up to 30 %), primary hepatocellular carcinoma (up to 15 %) and extrahepatic manifestations (up to 74 %) is characteristic [6].

The purpose of research: the analysis of prevalence and parameters of virus C hepatitis in the Republic of Sakha (Yakutia).

Materials and methods: For comparative evaluation of dynamics of viral hepatitis C from 1999 to 2010 in the Russian Federation and in the Republic of Sakha (Yakutia) used the data of the official registration by Rospotrebnadzor (the head of the Federal Service for Supervision of Consumer Rights Protection and Human Welfare in the Republic of Sakha (Yakutia) Ignatieff M . E). For the analysis of virus C hepatitis morbidity in Yakutsk the data of the viral hepatitis department of Yakutsk City Clinical Hospital for the period of 2007 - 2011 (the head of the department - Tikhonova N.N.) are used.

Results and discussion: According to Rospotrebnadzor incidence of acute hepatitis C in

Russia reached a peak in 1999, and was 41.9 per 100 thousand population. In 2000 there was a sharp decline in incidence to 21.1 per 100 tys.naseleniya. Starting from 2002 to 2010, there was a gradual reduction in the incidence of 7.1 to 2.13 per 100 thousand population. For the appropriate period, cases of acute hepatitis C virus in the Republic of Sakha (Yakutia) was not so high, and also tended to decrease from 4.8 in 1999 to 1.37 per 100 thousand population in 2010, which is below the average by the Russian Federation (fig. 1). Reducing the incidence of severe disease in the country and in the country associated with the use of disposable medical instruments and the use of new high disinfectants.

The incidence of chronic hepatitis C each year is growing. In 1999, the indices in chronic hepatitis C in the Russian Federation and the Republic of Sakha (Yakutia) were 12.9 and 11.3 per 100 thousand population, respectively, in 2010, these figures increased to 40.2 and 51.2 to 100 thousand of the population, respectively (fig. 2). Widespread use of ELISA (enzyme-linked immunosorbent assay), PCR (polymerase chain reaction) in the diagnosis of unverified hepatitis, hepatitis with poor clinical and so-called "carriers" will actively identify chronic forms of hepatitis C among different population groups.

We analyzed hospital morbidity various forms of viral hepatitis C according to the department of viral hepatitis YAGKB for the period from 2007 to 2011 (Head office hepatic Tikhonova NN). During this period, 872 received hospital treatment of patients with a diagnosis of hepatitis C, including acute hepatitis C - 50 (5,7%), chronic hepatitis C - 444 (51%), chronic hepatitis C cirrhosis - 302 (34,6%), chronic hepatitis C in combination with hepatitis B (mixt hepatitis C + B) - 76 (8,7%). Thus, patients with various forms of chronic hepatitis C was 94,3%. Among the chronic form of the disease in terms of prognosis is alarming high proportion (46%) patients with cirrhosis of the liver to form and mixed with hepatitis C + B.

Distribution of patients by ethnicity showed that hepatitis C in the indigenous population occurred in 59.4% of cases (518), 33.4% were Caucasians (291), persons of other nationalities – 6,7 (58), Evenki - 0.5% (5). Gender-dominated by women – 52,8%, men – 47,2%. Patients with hepatitis C in the 15-19 age group was 1.7%, 20-29 years-10, 3%, 30-39 years - 19%, 40-49 years – 21,2%, 50-59 years - 23,6%, 60 + -24,2%. Half of the patients (52,2%) were men younger, working age (table 1).

The most severe forms, medication trudnokorregiruemymi are viral hepatitis C cirrhosis and mixed with other hepatitis viruses (mixt hepatitis C + B). From 2007 to 2011. to the Department of Viral Hepatitis YAGKB were treated with the diagnosis of ChHC with HC 302 people, with mixed

hepatitis C + in 76 patients, their proportion among HCV-viral infection was 34,6% and 8,7%, respectively. Stage of liver cirrhosis in women diagnosed almost twice as likely (62,3%) than in men (37,7). In hepatitis C stage cirrhosis developed in 48.4% of cases aged 40-59 years.

Of the total number of patients with HCV-infected chronic hepatitis C + mixt in was seen in 8,7% of patients and about the same in both sexes (men 51,3%, women 48,7%). Half of the patients with hepatitis C + mixed in were young people and those active life position, working age 20-49 years (table 2).

The conclusion: It is necessary to note that data of official registration cannot reflect true picture of acute virus C hepatitis morbidity as icteric variant of the disease is met rather seldom and in 75-80 % of acute hepatitis C cases the disease develops almost without symptoms with the minimal clinical semiology. It is also necessary to note that till 2002 the level of ChHC morbidity in the Republic of Sakha (Yakutia) did not exceed the level of morbidity of the Russian Federation but since 2003 to 2010 the general level of this parameter in Yakutia was above the Russian one.

Epidemiological situation of virus C hepatitis in the Republic of Sakha (Yakutia) is unfavourable since the disease is mostly registered in able-bodied part of the population at the age of 20-49. Increase of chronic hepatitis C (51 %) and increase of the level of the disease in the stage of hepatocirrhosis – 34.6 % were observed. For the analyzed period of 2007 - 2011 increase of morbidity of chronic hepatitis C with hepatocirrhosis outcome was marked. Since 2008 there was a tendency of decrease of chronic hepatitis B, D (mixt) with hepatocirrhosis outcome morbidity. Distribution of morbidity according to sex showed prevalence of the disease in women – 82.9 % than in men – 17.1 %.

At absence of specific prevention of hepatitis C decrease of chronic hepatitis C morbidity in the nearest future is improbable that represents real threat for health of the ethnic population living in the territory of the Republic of Sakha (Yakutia).

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DYSLIPIDEMIAS IN MEN DEPENDING ON THE ETHNICITY

Z. N. Krivoshapkina, G. E. Mironova

We examined 440 men, 205 of them indigenous people, and 235 arrivals. The Studies in Yakutia identified shifts in lipid metabolism that are not dependent of ethnicity affiliation: have the indigenous inhabitants dyslipidemia are mainly caused hypercholesterolemia, of new arrivals residents, it is caused by hypertriglyceridemia.

Key words: lipid metabolism, lipid profile, indigenous peoples and new arrivals in Yakutia. The priorities of modern medicine are prevention and early detection of diseases prepathological changes during long-term adaptation. I.B. Ushakov, A. G. Sorokin, (2004) suggest that adaptive levels indirectly reflect the energy potentials, invested in the mobilization of reserves under the influence of unfavorable factors [10].

Climatic conditions in Yakutia not are favorable for human habitation and require the formation of a functioning level of the major systems of the body to maintain homeostasis. In the course of adaptation of indigenous inhabitants of the North formed the so-called "polar metabolic type" based, which is increased lipid metabolism [5, 7]. At the same time disadaptation changes that affect lipid metabolism, observed in representatives of the adapted (indigenous) and unadapted (newly arrived) dwellers, which is evidence of depletion of the reserve capacity of the organism. The increase in morbidity and increase mortality among the population of Yakutia, especially from coronary heart disease and stroke, with a tendency to rejuvenate [1, 4] indicates that at the inhabitants of Yakutia there are of showing signs of exhaustion of functional reserves. Given the role of lipid metabolism in the adaption to changing environmental conditions study the mechanisms of adaptation remains urgent.

The purpose of this study was to identify the characteristics of lipid metabolism in residents of Yakutia, depending on ethnicity.

Materials and Methods. The materials for the study were drawn during a comprehensive medical and biological expeditions in the winter season. A total of 205 indigenous and 235 alien inhabitants of Yakutia, a male aged 21 to 65 years. In the group included the rural so and urban residents. Determination of serum total cholesterol high-density lipoprotein (HDL), triglycerides (TG) was carried out by an enzymatic method on the automatic biochemical analyzer «Cobas Mira Plus»

company «La Roche» (Switzerland) using reagents «Biocon» (Germany). Apoproteins - apo A-I and apo B were determined immunoturbidimetric method using reagents «La Roche».

To evaluate of hypercholesterolemia and dyslipidemia used criteria of proposed by AN Klimov and NG Nikulcheva (1999) [6].

The value total cholesterol levels above 6.45 mmol / l and of LDL cholesterol above 4.2 mmol / l was considered high , value of HDL cholesterol in the blood below 0.9 mmol / l - to low . The value total cholesterol levels above 6.45 mmol / l and of LDL cholesterol above 4.2 mmol / l was considered high , value of HDL cholesterol in the blood below 0.9 mmol / l - to low .

Statistical processing was performed using statistical software application package SPSS 11.5 for Windows 2000.

Results and discussion. Analysis of lipid metabolism in men Yakutia depending on ethnic origin revealed that the level of total cholesterol in both groups, although it did not exceed the generally accepted norms, but in the present it was within the limits considered in the present, moderately elevated [6].

Dyslipidemia arrivals, most likely caused by connection with hypertriglyceridemia. In the blood of the alien population of Yakutia triglyceride was 1.5 times higher than that of the indigenous population and higher than normal values (Table 1). At present, hypertriglyceridemia is considered as an indicator of high risk atherogenic changes[9]. The high value of triglycerides male visitors may indicate a violation of exogenous metabolizing lipids. Assimilation of lipoprotein associated with the activity of lipoprotein lipase, which breaks down key lipids - triglycerides into fatty acids and glycerol.

Statistically significantly lower values of HDL-C compared with arrivals have been reported have the indigenous inhabitants of Yakutia. Reduced HDL cholesterol was associated with tendency to an increase in LDL cholesterol, levels, which ethnic groups were at the upper limit of normal.

Statistically significantly lower values of HDL-C compared with arrivals have been reported have the indigenous inhabitants of Yakutia. Reduced HDL cholesterol was associated with tendency to an increase in LDL cholesterol, levels, which ethnic groups were at the upper limit of normal.

The content of VLDL in the blood in the two groups was below the accepted norm, and the most pronounced decrease found in the indigenous population of Yakutia. Significantly lower levels of triglycerides and VLDL in the indigenous population than with have arrivals shows the activity of the enzyme lipoprotein lipase [3] involved in the catabolism of lipoproteins and genetically fixed in the course of adaptation to the harsh climatic conditions at high latitudes.

The reason for differences in the content of VLDL in the blood in the ethnic groups of Yakutia, is perhaps the excessive consumption of carbohydrates arrivals, which increases the concentration of VLDL in the blood. It is known that stress increases the synthesis of lipase, which leads to an increase in free fatty acids circulating in the blood mainly in the VLDL and is a sign of their adaptation to northern conditions, increases lipid metabolism.

As a result of violations of the relations of atherogenic lipid fractions the factor of atherogenicity exceeded the permitted limit in both groups, of indigenous inhabitants of this figure of lipid metabolism exceeded in a 1.52-fold, from arrivals - is 1.4 times, which increases circulating modified LDL blood [6].

The level of apo A-I, involved in the mechanisms of action of antiatherogenic HDL cholesterol, in both ethnic groups was within normal limits. Increase in serum HDL combined with the arrivals men with a statistically significant increase have they apo A-I in comparison with natives.

The levels of apo B in men investigated did not depend on ethnicity (Table 2).

Meanwhile, the content of apo B in men surveyed depended on age, so the lowest level of the apoprotein (38 mg/dL) was observed in young people, and in individuals older than 60 years the concentration of serum apo B reached 141mg/dl.

Apo B plays a major role in the mechanisms of recognition and binding of LDL-C specific receptors of cell membranes and a tendency to decrease in the level of the apoprotein in both groups indicates a reduction in the formation and increase the time circulating in the blood of atherogenic lipoproteins.

The nature of dyslipidemia indicates that a violation of lipid metabolism in inhabitants of Yakutia has an ethnic dimension. Dyslipidemia in the indigenous population is mainly caused by hypercholesterolemia, associated with the final stages of the metabolism of apo B-containing lipoproteins, primarily - LDL [2]. The arrivals have inhabitants of it is due to hypertriglyceridemia, indicating that violation of the catabolism of VLDL and XM, and possibly related to stress, of residents in the course of adaptation to the conditions of the Far North.

Hypercholesterolemia and hypertriglyceridemia are related primarily with an increase in circulation time in blood atherogenic cholesterol fractions, which leads to a modification of lipoproteins and is a risk factor for atherosclerosis. Given the increase in blood cholesterol in VLDL arrivals versus indigenous by 1.7 times, we can conclude that arrivals have the most high risk of disease-related lipid disorders, [2, 8].

Conclusion. The results of our investigations in Yakutia, show that the inhabitants of Yakutia are observed changes in lipid metabolism, regardless of ethnicity. Have the representatives of the alien population of dyslipidemia characterized by an increase in blood triglycerides and VLDL (compared to indigenous), at the same time there is a compensatory increase in blood antiatherogenic lipoproteins (HDL). Among natives of Yakutia dyslipidemia associated with a reduction in antiatherogenic lipoproteins (HDL). Thus, have the alien inhabitants of Yakutia violation of lipid metabolism is associated with adaptation to northern conditions, but they have indigenous population due to decreased adaptive capacity.

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Table 1

LIPID PROFILE IN MEN YAKUTIA

Biochemical tests	Indigenous people	Come population of Yakutia
Cholesterol (mmol / l)	5,51±0,16	5,87±0,11
Triglycerides (mmol / l)	1,02±0,05	1,80±0,09* (p=0,000)
HDL cholesterol (mmol / l)	0,98±0,04* (p=0,010)	1,15±0,04
LDL cholesterol (mmol / l)	4,04±0,15	3,85±0,09
VLDL cholesterol (mmol / l)	0,48±0,03* (p=0,000)	0,83±0,04
The coefficient of atherogenicity	4,55±0,22	4,34±0,15

Note: * - the reliability of the Kolmogorov-Smirnov.

Table 2

Apoproteins levels in the blood, depending on ethnicity identity

Apoproteins	Yakuts	Russian
Apo A-I, (mg / dl)	136,32±6,11	166,06±3,66* (p=0,000)
Apo B, (mg / dl)	81,35±3,88	79,19±3,43

Note: * - the reliability of the Kolmogorov-Smirnov.

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GENETIC AND ANTIGENIC CHARACTERIZATION OF OUTER MEMBRANE PHOSPHOLIPASE A OF *YERSINIA PSEUDOTUBERCULOSIS*

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The analysis of gene polymorphism of *Y. pseudotuberculosis* membrane-associated phospholipase A was carried out. The high conservation of this enzyme at the nucleotide and amino acid levels was revealed. Recombinant phospholipase A expressed in *E. coli* cells was used as an antigen to detect specific antibodies. Antibodies against this protein were detected in sera of patients with acute intestinal and secondary forms of pseudotuberculosis.

Keywords: *Yersinia pseudotuberculosis*, phospholipase A, allelic polymorphism, antibodies

Introduction

Infections caused by *Yersinia* (*Y. pseudotuberculosis*, *Y. pestis*, *Y. enterocolitica*) are found in many countries. In Russia *Y. pseudotuberculosis* infection is most relevant to the Siberia and the Russian Far East, where sporadic cases or outbreaks of pseudotuberculosis are registered almost every year and where the Far-Eastern pathogenic type (YPMa+ HPI-) of the systemic infection agent circulates [8].

Pseudotuberculosis is a food-transmitted disease mainly implemented through raw and long low temperature stored vegetables contaminated with rodent droppings.

Human clinical manifestations of *Y. pseudotuberculosis* infection are characterized by a variety of clinical symptoms that appear to be due to the different means of its virulent factors. In addition, the characteristic features of the pathogenesis of yersiniosis are the long-term preservation of the pathogen in the host, the incompleteness of the pathological process and defections of immunogenesis leading to the development of secondary forms of the disease. Annually in Russia there are nearly 4.5 thousand cases of yersiniosis (of which more than 50% are children of up to 14 years) [4].

Diagnosis of intestinal infections caused by *Yersinia* is characterized by low efficiency of the

detecting methods. This problem defines the sustained attention of scientists aimed to improvement the development of bacterial and immunochemical methods for laboratory diagnostics of intestinal yersiniosis and pseudotuberculosis. Therefore, the relevant search of the specific bacterial antigens for the development of effective methods of differential diagnostics of yersiniosis from other intestinal infections, remains actual.

The most promising diagnostic antigens are the outer membrane (OM) proteins of bacteria, one of which is a lipolytic enzyme - membrane-associated phospholipase A (PldA - detergent-resistant phospholipase A, gene *pldA*) [9]. This enzyme hydrolyzes acyl ester bonds in phospholipids producing lysophospholipids and free fatty acids. PldA is a calcium dependent enzyme located in the inactive form in the OM. The PldA activity is modulated by dimerization that triggered by outer membrane perturbation. Phospholipase A is found to be a virulent factor of bacteria, but targets and mechanism of action on host cells remain unknown [10]. It is shown that bacteria *Helicobacter pylori* with high lysophosphatidylethanolamine (LPE), which is a main hydrolysis product of the membrane phospholipase A, are highly pathogenic [15].

We have shown that at a lack of oxygen *Y. pseudotuberculosis* has significant level of LPE that correlates with the change in the physical properties of membranes and increase of cell invasiveness [1]. It should be noticed that there are very few investigations on the structural and functional characterization of bacterial phospholipases. Studies of *Y. pseudotuberculosis* PldA have not been conducted earlier.

The goal of current work is a genetic characterization of *Y. pseudotuberculosis* PldA based on allelic polymorphism study of *pldA* gene. In addition, the work was carried out to assess the possibility of a recombinant phospholipase A as a diagnostic antigen for verification of pseudotuberculosis.

Materials and Methods. The genomic *Y. pseudotuberculosis* DNA was isolated from the *Y. pseudotuberculosis* cultures following the protocols of kit NucleoSpin® Tissue («Macherey-nagel», USA). The determination of *Y. pseudotuberculosis pldA* polymorphic variants was performed by «hot-start» PCR with constructed primers and HSTaq –polymerase («Evrogen», Russia). PCR-fragments were sequenced by automatic DNA analyzer 3130xL («Applied Biosystems», USA). The search for homologous sequences was performed using the GenBank server with BLASTN algorithm (<http://blast.ncbi.nlm.nih.gov/Blast.cgi>). The nucleotide sequences analysis was conducted in MEGA v.4 [14]. Phylogenetic trees were inferred using the Neighbor-Joining method

with «Kimura-2parameter» algorithm and bootstrap test in the 1000 replicates.

Isolation, folding and purification of recombinant phospholipase A (rPldA) were performed using protocols described previously [7]. The blood sera of patients with acute intestinal and second forms of pseudotuberculosis were obtained from the Vladivostok City Hospital № 2, Medical Union FEBRAS Hospital and «Center of hygiene and epidemiology in Sakha (Yakutia) Republic» of Rospotrebnadzor (Yakutsk). The enzyme immunoassay (ELISA) indirect variant was used for analysis of the blood sera in Costar microplates (USA). The ELISA peroxidase conjugates purchased from Gamalei Institute of Epidemiology and Microbiology (Moscow) were applied as antispecies antibodies. The spectrophotometer μQuant («BIO-TEK INSTRUMENTS.INC», USA) was used to measure samples at 492 nm, the 0.04% o-phenylenediamine solution was used as a chromogenic substrate.

Results and Discussion.

The lipolytic enzymes (lipases, phospholipase and lysophospholipase) play an essential role in bacteria, promoting phospholipid metabolism. The enzymes can contribute to a virulent potential of pathogenic Gram-negative bacteria. It is shown that phospholipases are involved in the bacteria adaptation to the host environmental conditions, facilitate the secretion of virulence factors, and bacteriocins, as well as have the ability to damage/destroy the host cell membrane [9]. *Y. pseudotuberculosis* contains two structurally different phospholipases A, one of them is the membrane-bound enzyme encoded by *pldA* gene, and another is a secreted protein encoded by *yplA* gene. It is shown that *pldA* gene is under control of constitutive promoter, 500 copies of inactive enzyme are always present in the cell [12]. However, the regulation of *Y. pseudotuberculosis* PldA expression likely is different from that of *E. coli* at translational or post-translational levels [13]. In the literature, there is no data of bacterial phospholipase gene polymorphism. Thus, the analysis of *Y. pseudotuberculosis pldA* gene in comparison with that of *Y. enterocolitica* from GeneBank is essential for understanding of the molecular and genetic characterization of lipolytic enzymes.

In this study 20 *Y. pseudotuberculosis* strains isolated in Russian Federation during the years of 1955-2009, and 15 *Y. pseudotuberculosis* strains isolated in other region of world were used. All the *pldA* genes were PCR amplified, sequenced and analyzed using software MEGA v.4 [14]. The comparison of *Y. pseudotuberculosis pldA* genes was performed with similar genes from *Y. pseudotuberculosis*, *Y. pestis* и *Y. enterocolitica*, the genomes of which are presented in GenBank (<http://www.ncbi.nlm.nih.gov>). In general, 47 *pldA* sequences were aligned with ClustalW 2.0.10 [11]. The size of analyzed nucleotide sequence was 876 bp. To study the *pldA* polymorphism alleles

of *Y. pseudotuberculosis* and *Y. enterocolitica* phospholipase A genes were identified. Five alleles were obtained for *pldA* gene. The vast majority of *Y. pseudotuberculosis* strains (67,6%) belonged to the allele 4, 11,8% of the strains did to the allele 1 (together with *Y. similis*), 8,8% did to the allele 3, and 5,9% did to the allele 2. The *Y. pestis* strains is mainly referred to the allele 1 (data not shown), and only strain Angola formed its own allele 5. At the same time, for the nine strains of *Y. enterocolitica* six *pldA* nucleotide and four amino acid PldA alleles were identified. Six *Y. enterocolitica* subsp. *palearctica* strains were the PldA allele 3 (4 and 5 *pldA* alleles), two *Y. enterocolitica* biotype IA strains belonged to the PldA allele 1 (1 and 3 *pldA* alleles), one *Y. enterocolitica* subsp. *enterocolitica* strain formed its own allele 2.

To study the phylogenetic structure the *pldA* tree was constructed. As one can see in Figure 1, *Y. pseudotuberculosis* strains clustered to three groups. The largest group I was represented by strains belonging to the allele 1. This group included all three *Y. pestis* strains. The group II was formed by three *Y. pseudotuberculosis* strains belonging to the allele 3. Five *Y. pseudotuberculosis* strains (1 and 2 *pldA* alleles) were grouped with *Y. similis* and formed the group III.

The *Y. enterocolitica* strains formed individual cluster with two distinct groups, which coincide with the modern view on the separation of *Y. enterocolitica* into two subspecies, *Y. enterocolitica* subsp. *enterocolitica* and *Y. enterocolitica* subsp. *palearctica*. The biotype IA strains were grouped together with the *Y. enterocolitica* subsp. *enterocolitica* strain. It should be noticed that *Y. pseudotuberculosis pldA* intraspecies divergence was 0,021-0,027, while *Y. enterocolitica pldA* one was twofold higher (0,057-0,059). These data suggest that *Y. pseudotuberculosis pldA* has low genetic polymorphism, and, consequently, phospholipase A is highly conserved sequence.

The current generation of diagnostic systems is based on the latest achievements in the biotechnology. For the detection of antibodies in sera commonly recombinant proteins and synthetic peptides are widely used. The use of recombinant proteins in diagnostic test systems has a number of advantages compared with antigens isolated from the microorganism cells. First of all, this is the stop of use of highly infectious agents in the production of components of the test systems. Another important advantage of this technology is the standardization the quality of new immunodiagnostic systems, and the lack of unwanted impurities in recombinant proteins avoids to reduce nonspecific over diagnostics and the percentage of false-positive reactions.

In this article, rPldA was used as antigen in the ELISA test system for the detection of specific antibodies in the serum of patients with acute intestinal and secondary forms of pseudotuberculosis. To detect specific antibodies against PldA the samples of patient blood sera, which detect diagnostic

quantity of antibodies against OmpF porin, using as an antigen in ELISA test system for verifying pseudotuberculosis was taken [2, 3]. As can be seen from Figure 2, the sera studied contained antibodies against rPldA. Levels of antibodies against phospholipase was lower compared to that against OmpF porin, however, in 50% of samples the optical density values of color reaction ($A > 0.62$) indicated the presence of antibodies in diagnostic quantities. Thus, we have shown that phospholipase A from *Y. pseudotuberculosis* OM, due to its location on the cell surface, is not only one of the virulence factors of Gram-negative bacteria, but also relates to immunogenic for human components of OM. Interestingly, antibodies against such enzymes isolated from the membranes of other Gram-negative bacteria pathogenic for human were not previously detected in the blood sera of patients [6].

Conclusion. Thus, the dominant variant of the membrane-associated phospholipase A is the allele 4, encoded by *pldA* genes of *Y. pseudotuberculosis* genetic group I. *Y. pseudotuberculosis* PldA is characterized by the high conservation at the nucleotide and amino acid levels in comparison with *Y. enterocolitica* ones. Recombinant phospholipase A expressed in *E. coli* cells was used as an antigen to detect specific antibodies. Specific antibodies against *Y. pseudotuberculosis* rPldA were detected in the blood sera of patients with different forms of pseudotuberculosis. In this regard, the development of new effective diagnostic test systems for verification of pseudotuberculosis infection on the base of rPldA is an urgent task, and requires further research in this area.

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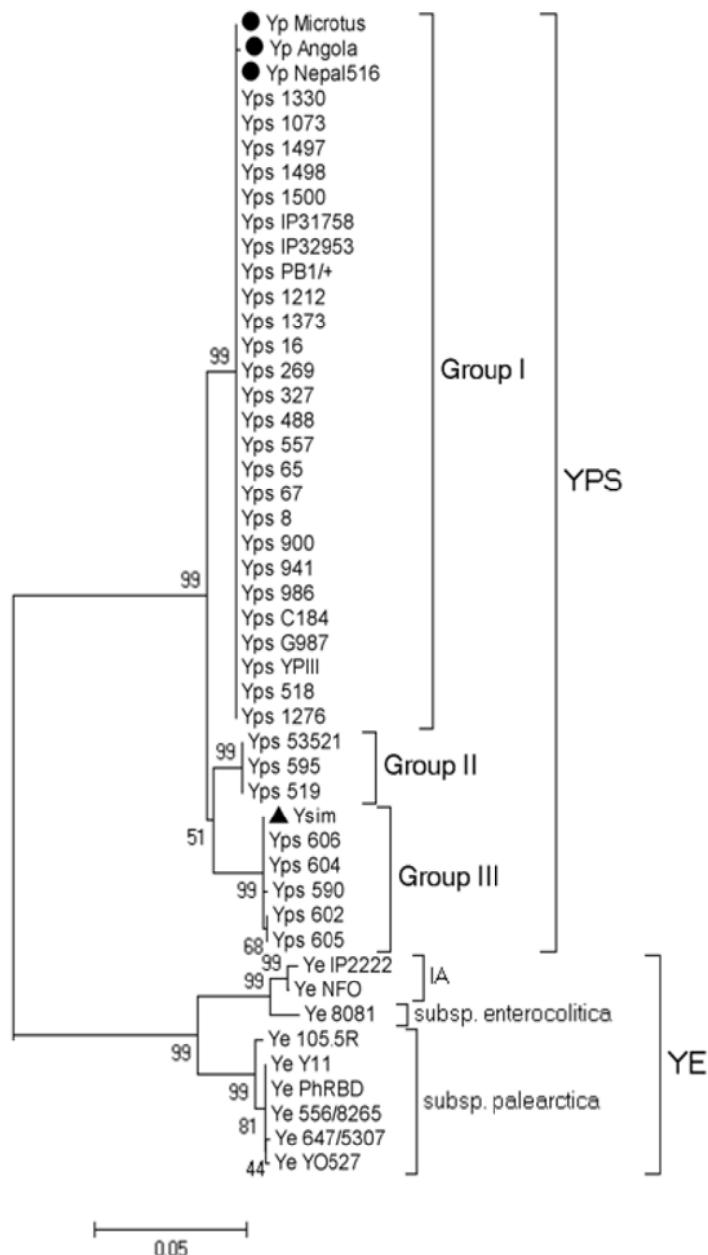


Figure 1. *Yersinia* phylogenetic tree of *pldA* gene was constructed using the Neighbor-Joining method. The scale indicates the number of nucleotide substitutions per nucleotide site. The number at the tree nodes indicates the value of bootstrap test (1000 replicates). Designations: YPS – *Y. pseudotuberculosis*; YE – *Y. enterocolitica*; ● – *Y. pestis*; ▲ – *Y. similis*.

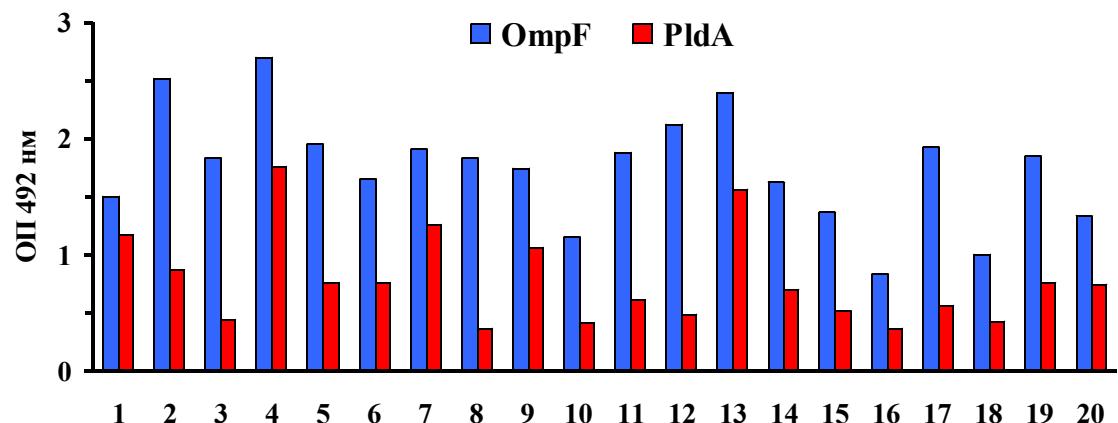


Figure 2. ELISA interaction of OmpF porin and rPldA with patient blood sera of acute intestinal (1-4) and secondary (5-20) forms of pseudotuberculosis.

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MAIN CAUSES OF FAULTS AND DISCREPANCIES IN THE DIAGNOSIS OF SCHIZOPHRENIA DURING 25 YEARS

Summary

Analyzed the objective and subjective reasons for the discrepancies and faults in the diagnosis of schizophrenia for 25-30 years at the Centre V.P. Serbsky, the central region of Russia and Yakutia. Use a large array of authors own observations and the published data, based on archives. These findings point to the continued relevance of the same causes of hypo-and overdiagnosis of schizophrenia throughout the period studied. It is concluded that the importance of further improvement of diagnostic approaches and methods.

Keywords: schizophrenia, subjective and objective diagnostic errors and discrepancies.

Introduction

Diagnostic discrepancies and faults in psychiatry - as in general and in the judiciary, despite numerous studies aimed at clarifying the diagnostic criteria are relatively frequent. According to the Center V.P. Serbsky, for some 30 years (1980 - 2012), about one-third of repeated forensic examinations (EIT) disagree with the conclusions of the primary POC [10, 17].

Based on analysis of the literature and our own observations lawfully division is a change in diagnosis at two main options: due to a mistaken previous objective possibility for correct qualification psychopathological state (the first version), and failing that at some stage of the disease (the second option). The second option is largely due to the constant multifactorial pathomorphosis schizophrenia and diversity of its atypical presentations to nosological neutral design [9, 12, 23], as well as permanent quickening cultural features of psychopathology and dynamics [21]. The last factor is related to the intensification of migration in the world [2, 24, 25].

The main part of the diagnostic discrepancies and errors in psychiatry there is difficulty in distinguishing psychopathic schizophrenia, neurosis manifestations of personality disorders, including organic origin, and, mainly in terms of underdiagnosis endogenous disorder.

Considering the problem of improving the diagnosis of schizophrenia as a priority in general and forensic psychiatry, is the objective of the study. The purpose of this study is a comparative analysis of the causes of discrepancies and errors in the differential diagnosis of schizophrenia in

the period 1980 - 1990 and in the last 10 years.

Materials and methods

Comparative system analysis, catamnestic clinical, clinical-psychopathological. Material comparison: analytical monograph N.G. Shumsky [19], based on a study of errors in the diagnosis of schizophrenia in forensic psychiatry (data archive the Center V.P. Serbsky for the period 1962 - 1983 years), 225 cases of change of diagnosis of hypo-or over-diagnosis of schizophrenia in the period 1985 - 1990 at the second forensic examination (EIT) at the Centre. V.P. Serbsky (personal observations), especially for schizophrenia due to pathomorphosis in 268 patients of the Khabarovsk Territory, hospitalized in the period 1965-1970 and 2006 - 2009 in hospital prof. Galant (personal observation), as well as published data last 10 years. The principle of presenting the data - chronological.

Results and discussion

Among the subjective reasons for erroneous underdiagnosis of schizophrenia at the Centre. V.P. Serbsky for the period 1962 - 1983, identified N.G. Shumsky [19] on archival materials, the following: 1) underestimation of the information on the terms of the interests, character and history of mental illness and the high priority given expert patient behavior during CIT. Ignoring the information obtained from relatives. But noted that only 1 of 414 cases relatives reported incorrect information, and 2) the desire of experts based on data from the criminal case, that is, the information obtained is not a psychiatrist, and a lawyer. The underestimation of data from health care providers (even hospitals), and 3) ignoring data on heredity (50% of cases they are incomplete), 4) an incomplete description of premorbid features, particularly age crises (particularly adolescence), 5) an incomplete description of the mental state at the time of criminal behavior, ignoring the available psychotic 6) distrust of what they say expert patient, giving disproportionate importance "dissociation" between the statements of patients and their behavior, and 7) ignoring the defect in the emotional-volitional sphere, the presence of infantilism, lack of criticism to his condition and situations, 8) ignoring violations of thinking (eg, logic-chopping) 9) underestimation of the severity and depth of mental disorders. For example, qualification delirium as overvalued ideas, as an expression of hysterical reaction or as delusional fantasies, 10) ignorirovation catatonic disorders, 11) desire races → regarded autoaggressive behavior, suicidal → wide and impulsive behavior, even in combination with delusions, hallucinations, catatonic manifestations as psychopathic (in the personality disorders by ICD-10. depression rating with the vital sensations as "the natural state of depression", 11) assessment of psychosis as simulative or safety, the installation

(about 1/6 of the expertized) 12) disregarding or underestimation of many psihopatological violations of rank 1 on K. Schneider, 13) revaluation value traumatic situation and transferred last time according organic brain, ignoring features psihopatological symptoms, 14) insufficient analysis of syndromal qualification available a history of disorders and dimensions change syndromes 15) underestimation of the depth of the defect.

Shumsky N.G. concluded that the subjective and objective errors peripheral expert committees and commissions them to Center V.P. Serbsky essentially identical [19]. Cause of underdiagnosis schizophrenia author sees in the insufficient use made of psychiatry examination methods, principles, deontology, and the imperfection of diagnostic – anyone approach.

Most often mistakenly diagnosed psychopathy (personality disorder), on the 2nd and 3rd places - most reactive states and organic CNS lesions (personality disorders and acute stress reactions to ICD-10).

According to N.G. Shumsky, identified the causes of schizophrenia is characterized by underdiagnosis and for general psychiatry theory, occur in outpatient and inpatient settings. This is partly due to the features of the flow disease, in part - with fears damage premature diagnosis of the patient, but for the most part with the above factors. For comparable periods the number of false diagnoses of schizophrenia remained at the same level or tended to increase. Expert patient prevail among persons sick in children – velocity adolescence. Initially, the disease is determined by the sluggish flow with predominantly psychopathic – races in series, and later give way overt psychosis - often with a continuous or paroxysmal progressive chronic schizophrenia, including 93% of moderate and severe cases of the disease. Shumsky N.G. stated that at the time of establishing the correct diagnosis of psychiatric illness duration may be 10-20 years old, in some patients the disease began long before they were committed wrongful acts resulting in the direction of the CIT. Emphasized that most often incorrectly classified state, in which pronounced psychopathic disorder - in particular, as "a deep psychosis."

According to the data of S.N. Oskolkova [17], the hierarchy of diagnostic information and expert noticeable symptoms in schizophrenia and organic personality disorder depends on all their array. The same sign in every information "context" (ie, both for dynamic monitoring, and various diagnostic or expert alternative situations) may belong to different groups - neutral information specific disorders, etc. - which emphasizes the importance of system-functional approach to psychiatric diagnosis and its complexity in the initial diagnosis "schizophrenia."

Into account the relationship between the symptoms in identifying symptoms of information

of one group and in schizophrenia and other psychiatric disorders should be the basis for a targeted search features (symptoms) of another group, but doctors can be regarded as sufficient information available, although it is not such . This is facilitated by the complexity of patient contact and dissimulation. Important features, it is difficult to detect, but the "alarming" in relation to schizophrenia, are situationally independent affective to \neg vibrations, feeling uncertain change to its "I", the loss (decrease) in the nuances of interpersonal relationships, motiveless fears and the emergence of gross psychopathic behavior and / or autism, and approval of the patient about the strangeness for him perfect solution. Major "advance" the symptoms of schizophrenia can be considered as statements that reflect a sense of split personality, presumably delusional explanation of certain events, psevdogallyutsinations in the form of hail soundless, splitting holistic mimic emotional response times mentism, single shperrungi, unstable of sensitive ideas of reference , absurd behavior with \neg standing intoxication.

The reasons for overdiagnosis of schizophrenia in the case of organic personality disorder may be the state, gathering with geboidnym, neurosis disorders like schizophrenia genesis somatopsychiatry fragility, lack needs in spiritual intimacy with people, reduced ability to work purposefully, constant irritation, malice affect close to negativism, short wait state something terrible, with polymorphic psychotic history, symptoms similar to "alarming" in relations \neg endogenous process. Psychotic syndromes in overdiagnosis of schizophrenia in individuals with organic personality disorder, as a rule \neg rule, due to alcohol abuse and have schizophrenia form inclusion.

Diagnostic study and expert discrepancies and errors often reveals the dynamics of the disease is relatively unusual to more violations nosological delineated, "concentrating" many manifestations pathomorphosis as schizophrenia and organic personality disorder, and such exogenous intoxication psychoses. While in schizophrenia prevails \neg give slow-moving form with psychopathic condition (ratio of approximately 1:5 with the other), and for organic personality disorder - the options with the period of unfavorable dynamics of psychiatric disorders.

In the structure of psychopathic states in underdiagnosis of schizophrenia combined isomorphic positive and negative (in the possession of the first pre - disorders, and for over-diagnosis of schizophrenia in the case of organic personality disorder other than severe personality dynamics of psychopathy mark individual not negative symptoms usually quickly formed in pubertation period.

Analysis of the most qualified nosological wrong psychopathic states in schizophrenia

suggests inherent structural elements and brief psychotic episodical, including exogenously provoked by and / or with worn simulation symptoms. Many signs, "alarming" in terms of the probability of schizophrenia, "forward" or as specific nosological for it at some point in the dynamics of not only masked isomorphic psychopathic condition, but also determine its patopsihological.

Among the reasons for follow-up, non-confirmed the conclusion of sanity in schizophrenia large place occupied untimely recognition further sluggish flow of the process during the remission deficiency of mind, productive-psychotic symptoms, and inadequate attention to the short duration and pharmacological determinism improvement.

Among the reasons overdiagnosis of schizophrenia in persons with organic personality disorder essential complexity of correlating symptoms, "alarming" in the relationship of schizophrenia with limited history of illness, links to other information. [16]

The main subjective reasons (factors), facilitates diagnostic (expert) discrepancies and errors are likely to be asocial premorbid personality, psychology motives antisocial behavior and its actual character and amenity, rarely - a simulation [14, 15].

The results of this study indicate that the author is a relative can not correct qualification psychopathology state at some stage clinical dynamics. Nosological qualification of such states can be regarded as undue preference to syndromal diagnosis.

Comparison of patients with schizophrenia pathomorphosis of Khabarovsk, in contrast to the Yakutia in the periods from 1965 to 1970 and from 2006 to 2009 [21] showed a reduction in the level of social adaptation, social status, with less cognitive defect, and alcohol abuse has lost gender relationship. In the last decade, people with schizophrenia in the initial period were significantly less likely to have paranoid syndrome, fanciful, absurd senestopatii with general laws reduce the frequency of psychopathological symptoms among contemporary patients. Respectively, and decreased the incidence of hypochondriacal delusions. At the present stage pathomorphosis bodily sensations acquire more resemblance to somatic sensations. The percentage of occurrence of true deception perception was significantly reduced, and pseudohallucinations increased. During the period of comparison decreased frequency motor component of psychic automatism and refusal of food as a reflection of reducing the frequency of ideas poisoning. These factors, in turn, enhance the possibility of dissimulation. At the same time, increased religious experiences are not always treated as the ravings of recovery due to religious denominations. Decreased relevance of such crazy story line as "hypnotic" and "electric shocks", which reflects a certain cultural progress and development

of the content. When comparing affective syndromes found that modern schizophrenics were significantly more frequent depressive disorder than before, that is likely to have medical and social reasons. Overall, the study identifies the authors found a significant pathomorphosis schizophrenia with blurring of the boundaries between the "classical" forms, the design of the atypical clinical disorder with reduced brightness of many syndromes. Thus, for the investigated period increased the probability of diagnostic discrepancies and errors.

Catamnesis value in clarifying the nosology of mental disorder is confirmed by all the new works. Thus, S.N. Oskolkova and T.V. Fedorova [18] describes the division of schizophrenia and dissociative personality disorder. On the one hand, the changes can be expressed emotional and volitional, including the inability to higher forms of emotional response that is common to both disorders. On the other hand, are obligate for schizophrenia disorder (delusions) may be of a transitory nature. Further complicate the differential diagnosis and forensic pathology assessment can drives, which determines the offense.

Deep disharmony personality may reflect the schizophrenic process and the progression of disorders emotional and volitional, which began with dizontogenesis. In such cases, we can assume catamnesis only objective criterion of the diagnosis.

In 2000, S.N. Agafonov described observations of late diagnosis of schizophrenia, drawing attention to the underestimation of anamnestic information about early autism autochthonous variations and disturbances drives (dromomanii) in adolescence, when aggressive and auto-aggressive tendencies, paranoid-hallucinatory episodes of frustration with the affect of fear, followed by emotional and volitional changes specific disorders of thinking and social maladjustment. [1] Also, do not always analyzed external unmotivated heavy offenses against the person, witness to the inadequacy of the behavior of patients. At the same time overestimate the role of psychogenic-traumatic situation of the reach expert patient productive contact, hypochondriacal experiences senestopatiyah.

V.G. Vasilevsky and O.I.Pechenkina analyzed the problem of overdiagnosis of schizophrenia, personality disorders, and concluded that in some cases only catamnesis shows no clear psychopathological shift or overt attack throughout life. [4] In addition, the causes of misdiagnosis of schizophrenia may be acting skills expert patient, a certain margin of psychiatric knowledge, if he had previously been treated in psychiatric institutions.

N.B. Bolshakov identified in a particular case, the cause of delayed diagnosis of paranoid schizophrenia, sexual disorders: persecutory activity presenting complaints, the variation of

personal reaction, which included the hysterical forms, ordering behavior and emotional flatness to describe psychotic experiences. [3] According to the author, the diagnostic error appeared insurmountable in traditional and practical understanding of uncharacteristic for schizophrenia psychologically understandable behavior, lack of attention to the specific changes in nonverbal behavior, emotional deficiency of. Also, when a qualification psychopathology was not analyzed phenomenological design autoerotic activity with unusual alternate female sex organs. V.P. Krytsky [11] examined this phenomenon in terms of the specific violations of the election thinking - ignoring the functional properties of the relevant items. Also, was not immediately a correct estimation of transformation parafiling complex, was in close connection with the manifestation of schizophrenic psychosis, with the transformation of initially involuntary violent impulses in, and then alienated from delusional personification. This reflects the successive stages bad automation mental processes with the formation of paranoid experiences. Bolshakov N.B. in the example underlines the importance of the diagnostic process in coping with the disorder, comorbid major nosology.

F.V. Kondratyev said that, despite the external loss of affect, people with schizophrenia are often capable of emotional experiences to normal or even elevated, especially in stressful or negative events [10]. He also said that all over the world about the same number of people are suffering schizophrenic psychoses, but the symptoms on which the diagnosis, fable vary from culture to culture.

This author noted that forensic psychiatric practice often expert patient that appear to show no psychiatric disorders that require the active assistance, they are not rejected social environment. Many after remission tend to go under psychiatric observation. Insufficient knowledge ascertained long postpsychotical states when patients arrive at the POC primary. F.V. Kondratiev notes as one of the causes of diagnostic discrepancies schizophrenic attitude of confrontation and physician has been because the patient believes that the diagnosis is to remove him from objective investigation and dissimulation manifestations of the disease. Same objective information expert patient can be quite contradictory, which may be due to the very nature of schizophrenia. In forensic psychiatric practice in patients with schizophrenia, as before, we can not exclude the influence of the clinical picture of psychogenic factors. It was 100 years ago, and is now considered essential for diagnostic errors. According to S.P. Elkina [7], half the debut of paranoid schizophrenia there are stressful situations. According to F.W. Kondratiev [10], the complexity of diagnosing schizophrenia in forensic psychiatric practice, the compounded rate of early organic disease of the brain, the effects

of a head injury. A.A. Dvirsky [6], K.D. Malkov [13] point of diagnosis of schizophrenia in combination with chronic intoxication. Particular difficulties are atypical clinical forms - the result pathoplasty of schizophrenia at various exogenous factors [10, 12]. According to N.S. Lebedeva, annual 4-6% of patients with schizophrenia is established a diagnosis. [12] According to F.W. Kondratiev [10], 8-12% expert patient sent for compulsory treatment without addressing the expert questions from atypical pattern of schizophrenia. Atypical psychopathological states due to exogenous factors can have a significant phenomenological similarities with syndromes in individuals who do not suffer from schizophrenia. At the same time, the differences with the true exogenous disorders can be mild and unstable. In addition, the prevalence of schizophrenia psychopathic disorder to subjective "stamping" of clinical presentations.

Naturally, diagnostic errors and discrepancies always possible because of simulative behavior surveyed. No less important in this respect mental changes that mimic the symptoms of schizophrenia and the resulting physical illness, social factors, including the macroeconomic (difficulties with work, etc.). However, the reduction of energy potential, apathetic disorders may occur not only in schizophrenia but also chronic infections (tuberculosis, infectious hepatitis, etc.), which is also observed for a long time.

Conclusion

An analysis of the data obtained in the last 20-35 years, the main objective reasons for the discrepancies and errors in the differential diagnosis of schizophrenia was not significantly changed. This is due to a permanent pathomorphosis, modification of the "classic" clinical picture up to the atypical, part of its design nosological neutral traits. It may be noted more frequent dissimulation, often a lack of information, which significantly complicated due to social factors.

Subjective reasons for hypo-and overdiagnosis of schizophrenia, depending on the skill and care of a psychiatrist, of course, over time, may lose their relevance to timely correct assessment of mental state. In this important role to play different courses and training cycles, the development of mental status rating scales, the expansion of knowledge of international criteria for the diagnosis.

Described in the cause of diagnostic discrepancies and errors can have a scientific and practical value in the classification of various mental disorders. For example, the findings are relevant to the problem of differentiation of schizophrenia and epilepsy [8, 20, 22], and expert diagnostic assessment of mental retardation, especially in terms of the unity of medical and psychological criteria of insanity or disability. [5]

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Assessment of the impact of social factors on health status of rural population in the urban district (on v. Magan example)

The article presents estimation of the influence of social factors on health of Magan village population, located in the city district "Yakutsk" (II phase of the study).

Keywords: social factors, influence on health, health groups.

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Forecasting of portocaval shunting in patients with the liver cirrhosis

The results of portocaval shunting (PCS_h) in 61 patients were studied. In all patients they aimed to implement the partial bypass with the limited size of the vascular anastomosis (mean diameter 10 mm), regardless of the version of the overlay anastomosis.

In the majority (67%), the results are satisfactory, and mainly at partial PCS_h. Unsatisfactory outcomes of the operation (17 from 20) were due to the development of acute liver failure and encephalopathy, due to the complete reduction of blood flow in the portal vein and total bypass. In the remote period in 61% of patients satisfactory results were noted, mostly at partial bypass and only in 4 people - at total. Unsatisfactory results of the operation were observed in 16 patients, of whom in 12 (75%) at total PCS_h and in 4 - at a partial bypass.

Keywords: portocaval shunting (bypass), results.

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Spinocerebellar ataxia type 1: observation of the family with a homozygous inheriting of the gene

Clinical-genealogical observation of a family with five sick siblings where both parents suffered from spinocerebellar ataxia type 1 was carried out. In all five children (siblings) on the results of genetic testing a mutation in *SCA1* gene on chromosome 6p was revealed. The result of the quantitative analysis of the mutated gene *SCA1* among siblings revealed two homozygotes.

Keywords: spinocerebellar ataxia type 1, homozygotes.

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