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Ivanov P. M., Tomskiy M.I., Kiprijanova N.S., Ivanova F.G., Nikolaeva T.I., Makarova N.N., Zharnikova T.N., Myreeva S.A., Aleksandrova E.N.

Epidemiological aspects of malignant growths in Yakutia

32, 9 thousand cases of malignant tumors of the population of Yakutia for the period from 1991 to 2007 were under analysis. Nature of the disease has a distinct sex-age and territorial conditioning. According to forecast, by 2012 overall incidence rates will increase among the male population in the 1, 2 times, female - 1, 4 times in comparison with 1991, mainly due to the growth rate of colorectal cancer localization, reproductive organs, skin, thyroid, hemoblastoses.

Keywords: neoplasms, prevalence, dynamics, forecast.

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Nogovitsyna A.N., Maksimova N.R., Suhomjasova A.L., Grigoreva A.N.

Congenital developmental anomalies of the central nervous system and efficacy of their prophylaxis for 2000-2009 in RS (Y)

In article results of monitoring of congenital developmental anomalies of the central nervous system of newborns, children and the aborted fetuses for the 10-years period (2000-2009) in Republic Sakha (Yakutia) are presented. Frequency in regions and dynamics of their prevalence on years is analyzed. The analysis of risk factors is held. Frequencies of congenital defects of the central nervous system of fetus, revealed on early terms and interrupted on medical indications are certain. Estimation of the efficiency of antenatal diagnostics and prevention of defects of the central nervous system is given.

Keywords: congenital developmental anomalies, central nervous system, newborns.

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INDEXES OF CARBOHYDRATE EXCHANGE AT NEW-BORN IN DIFFERENT ETHNIC GROUPS OF MOTHERS WITH PREECLAMPSIA.

SEE HPE BSU Department of obstetrics and gynecology with the course of pediatrics of SEH the Republican Prenatal center.

E.V. Radnaeva, I.B. Fatkullina, B.B. Tudupova.

Resume. The author of the article conducted the analysis of dynamics of indexes of carbohydrate exchange at new-born from mothers suffering from preeclampsia. Right after birth the lowest indexes of glucose, which rise to the third days, are marked in umbilical cord blood. Thus new-born of the Buryat nationality have level of sugar in umbilical cord blood lower, than the Russians. The expressed fluctuations of level of glikemias are considered as violation of processes of adaptation.

Keywords. New-born, glucose, umbilical cord blood, preeclampsia, the Buryats, the Russians.

Introduction. Energy needs of a germ, a placenta and a fruit are provided mainly at the expense of glucose from an organism of mother. In process of increase in term of pregnancy glucose level in blood of mother on an empty stomach decreases. Braking gluconeogenesis because of decrease in level of amino acids in blood becomes the additional reason glucopenia on an empty stomach. Since the second trimester of pregnancy, there is an increase of level of glucose in blood after the meal, caused by placental hormones (a progesterone, an estrogen, placental lactogen, etc.) That is develops hyperglycemia physiological insulinorestants. Long hyperglycemia after meal stimulates development on 10-13 weeks of pregnancy of a pancreas of a fruit and secretion of its insulin, cages as insulin of mother, unlike glucose, through a placenta does not get. Under the influence of placental hormones at healthy pregnant women amplifies lipolysis and ketogenesis, thus β -oxybutyric and acetoacetic (ketosis) freely pass acids through a placenta and are used by a liver and a fruit brain as an energy source. Thus, moderated hypoglycemia, hyperglycemia and a metabolic acidosis are typical changes of an exchange at healthy pregnant women [1].

The fruit does not produce glucose, it does not have gluconeogenesis, and all glucose of a fruit - parent. The fruit receives glucose with a speed about 5-6 mg/kg/minutes. At the expense of glucose 80 % of energy needs, and 20 % of energy needs a fruit become covered scoops from arriving from mother lactats, amino acids, glycerol, fat acids. Mothers hyperglycemia, leading to increase of level of glucose in fruit blood (glucose level in fruit plasma makes approximately 70 % from its level in blood of mother), raises synthesis by its organism of insulin.

Right after births and bandagings of an umbilical cord the child should provide independently a brain with glucose (requirements of a brain of the newborn for glucose make about 6-8 mg/kg/minutes and twice exceed requirements of a brain of the adult for the account большей weights in relation to weight of a body) that occurs at the expense of activation glicolysis, glicogenolysis, lipolysis and gluconeogenesis. After a birth for the power purposes carbohydrates, and in some hours are used fats (it is sharply lipolysis activated).

Biological basis of the period newborn is transient in functioning of systems and the bodies, providing to an organism of the child possibility of independent existence in an environment. In many respects it is defined by power security of the newborn, which in direct dependence on conditions antenatal, intranatal and postnatal its developments [3,4.] . It is known that in the period of prenatal development the organism uses as the basic power raw materials glicogen which intensive synthesis follows the account of the parent glucose arriving to it transplacental [5]. As at the newborn stocks glicogen are insignificant (gliconeogenesis starts to function only after a birth) in connection with its exhaustion at sorts at them propensity to hypoglycemic reactions [6,7] is marked. Hypoglycemia after a birth can remain within 3 days. Long decrease can result not only in heavy neurologic semiology, but also to hypoglycemic to a clod [8]. Definition of indicators of a carbohydrate exchange in blood of children allows to estimate degree of their power possibilities in the period newborn [9,10].

As carbohydrate stocks of a fruit are quickly exhausted also glucose level decreases, there is a stabilisation of resources of a fatty fabric and at the newborn speed of mobilisation of fats raises. At the analysis of the publications characterising a carbohydrate exchange at the newborn as in dynamics, and of dependence on a sex of a child pays attention considerable divergences of results the researches received by different authors. In this connection the exchange of glucose at newborns, taking into account its changes in dynamics of the adaptable period is considered.

Material and research methods. The analysis of the maintenance of glucose in blood at 181 newborns, from them from mothers with not complicated pregnancy of 50 newborns, with preeclampsia easy degree of 69 children, the heavy degree - 62 is carried out, all groups are divided into 2 subgroups depending on an accessory to Russian and Buryat nationality. The

blood sampling for the analysis was spent at a birth from an umbilical cord, then level of glucose of blood for the first days and for the third days of a life on an empty stomach was defined. Glucose maintenances in blood it was defined by means of a set of reactants of firm "Dialab" (Austria) on biochemical analyzer FP 901. Statistical processing of results was spent by means of the program «Statistics-6,0», average sizes were defined, an average error, an average square-law deviation, series compared among themselves on dispersions by means of criterion of Stjudenta.

Results and discussion. Researches confirm that transient in functioning of systems and the bodies, providing to an organism of the child development and growth possibility in an environment is in many respects defined by power security of newborns which is in direct dependence on its conditions antenatal developments [2]. The increase in concentration of glucose in blood of newborns can be connected with change of its recycling at the raised requirement and its limited use on the power and plastic purposes in conditions of hypoxia [2].

The table1

Level of glucose of blood at newborns from mothers without preeclampsia in dynamics.

	An umbilical cord .	The first day.	The third day.
Buryat (n-25)	3,00±0,81 mmol/l	3,47±0,90 mmol/l	4,76±0,52 mmol/l
Russian (n-25)	3,52±0,65mmol/l*	3,09±0,71 mmol/l	3,87±0,62mmol/l**
* p<0,05 **p<0,05			

In group of newborns of the Buryat nationality at not complicated preeclampsia pregnancy at their mothers, it is noticed that at a birth level of sugar of blood it is authentic more low, than at Russian children ($p < 0,05$). In dynamics, for 1 and 3 days of a life at all newborns the tendency to increase in level of glucose of blood is noted. Thus at the Buryat this tendency is more expressed, especially for 3 days of a life ($p < 0,05$).

The table2

Level of glucose of blood at newborns from mothers with easy preeclampsia in dynamics.

	An umbilical cord	The first day.	The third day.
Buryat (n-30)	2,57±0,43 mmol/l	2,98±0,89 mmol/l	4,61±0,84 mmol/l
Russian (n-39)	3,16±0,72 mmol/l *	3,26±0,77 mmol/l	3,27±0,65mmol/l **
*p<0,05 **p<0,05			

In groups of newborns from mothers with easy preeclampsia degree the Buryat at definition of level of glucose of blood from an umbilical blood is marked propensity to realisation of hypoglicemia. Umbilical blood glucose it is authentic more low at children of the Buryat nationality ($p < 0,05$), than at Russian newborns. In dynamics at children of Russian nationality level of glucose of blood remains practically at one level for 1 and 3 days of a life, at the Buryat the tendency to increase in this indicator is marked. For 3 days of a life glucose of blood at newborns of the Buryat nationality has grown and is authentic more ($p < 0,05$).

The table 3

Level of glucose of blood at newborns from mothers with severe preeclampsia in dynamics.

	An umbilical cord.	The first day.	The third day.
Buryat (n-32)	$2,50 \pm 0,89$ mmol/l	$3,32 \pm 1,16$ mmol/l	$5,81 \pm 4,68$ mmol/l
Russian (n-30)	$2,76 \pm 0,74$ mmol/l	$2,59 \pm 1,1$ mmol/l *	$3,58 \pm 0,59$ mmol/l**
	* $p < 0,05$	** $p < 0,05$	

Glucose level in an umbilical blood at newborns, at severe preeclampsia at mothers, tends to decrease. In dynamics, for 1 and 3 days of a life, increase of level of glucose in both groups is marked. But newborns of the Buryat nationality for 3 days of a life have a tendency to development already hyperglycemia ($p < 0,05$).

At the analysis of level of the maintenance of glucose in blood at women with preeclampsia in 3 trimester of pregnancy are revealed, what at women of Buryats this indicator authentically more low ($3,7 \pm 0,45$ mmol/l), than at Russian - $4,19 \pm 0,64$ mmol/l ($p < 0,05$).

The lowered level of glucose of blood at pregnancy with preeclampsia at women of the Buryat nationality and the available tendency to hypoglicemia at their children after a birth are interconnected. At newborns of Russian nationality the glucose exchange is stabler. Children of the Buryat nationality in dynamics, especially for 3 days, give stable growth of indicators of glucose of blood. The increase in concentration of glucose in blood of newborns can be connected with change of its recycling at the raised requirement and its limited use on the power and plastic purposes in conditions hypoxia [2].

The conclusion. Thus, at newborns of the Buryat nationality from mothers with preeclampsia, at dynamic supervision, more labile exchange and the big figures of the maintenance of glucose in blood in comparison with Russian children is revealed. Probably, it is an indicator of more intense current of adaptation of newborns against preeclampsia. Researches

confirm that transient in functioning of systems and the bodies, providing to an organism of the child development and growth possibility in an environment is in many respects defined by power security of newborns which is in direct dependence on its conditions antenatal developments [2].

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Clinical and functional features of diabetic polyneuropathy in children

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Introduction

Diabetes mellitus (DM) is one of the leading medical-social problems of the modern medicine. The incidence rate growth of insulin-dependent diabetes mellitus (IDDM), or type 1 diabetes mellitus (type 1 DM), is observed worldwide. In 2000 in St. Petersburg the prevalence rate of DM in children (0–14 years) was 91.5 per 100 000, twice as high as in 1985. Also the incidence rate changed from 5.7 per 100 000 children in 1985 to 14.6 in 2000 [2]. Nervous system disorders are the most frequent complication of DM which negatively affects quality of life, causes disability, growth of mortality rate, and large economic losses [10, 11]. Neurological complications may be observed in patients with both type 1 DM, and type 2 DM [8, 9].

The aim of this investigation is to study clinical characteristics, neurophysiological picture and dynamics of these indices in children with diabetic polyneuropathy during the basal-bolus insulin therapy and adjuvant treatment.

Materials and methods

During 2005–2009 in St. Petersburg Child Diabetes Centre 102 children were observed aged 7– 17 (mean age 14.1 years), among them 45 girls (44%) and 57 boys (56%) with type 1 DM complicated by diabetic polyneuropathy. Disease duration ranged from 3 to 16 years (mean 8.6).

The group for examination and dynamic monitoring consisted of 39 patients chosen from these 102 children. Disease duration ranged from 3 to 15 years (mean 7.8). The mean age in this group was 14 years old.

The observed children were divided into 2 groups: 45 patients (44.1%) got only basal-bolus insulin therapy with glycaemic control, the rest 57 children (55.9%) – additionally the preparation of thioctic acid (Thioctacid, VIATRIS GmbH & Co KG, Germany) up to 6 months (mean 4.8 months).

The degree of diabetic polyneuropathy was estimated according to the classification of American Academy of Neurology and American Diabetes Association in San-Antonio [7]: thus, 69 children (67.6%) had peripheral diffuse polyneuropathy, 33 patients (32.4%) – subclinical stage. Severity of polyneuropathy was estimated with international neurological questionnaires: Neurological Symptoms Score (NSS), Neuropathy Disability Score (NDS).

Along with routine somatic and neurological assessment [5] a monofilament (weight 10 g, Semmes-Weinstein) was used to define touch sensibility, and a graduated tuning-fork Rydel-Seiffer, vibration frequency 128 hz, – to define vibratory sensibility, also an apparatus Bio-Thesiometer was used for this aim (PVD Bio-Thesiometer, USA). Pain and tactile hyperesthesia as one of the main criteria of diabetic polyneuropathy diagnostics was estimated in our investigation also according to the rules of palm and nines that are usually used in surgery to estimate burns area [3].

Neurophysiological investigation was fulfilled with an apparatus Neuro-MVP (Russia) according to the standard method of stimulating electromyography [1].

The results were processed with the standard programme STATISTICA V.6.0 for Windows (StatSoft, Inc., 2001) with Student's criterion, Whitney–Mann, Phi²*2, Spearman. LSD TEST variance analysis was made, and also discriminant function analysis – to test validity of the classification. The critical confidence level of statistical hypothesis (p) was taken equal to 0.05 [4, 6].

Results

The family history showed that 37 children (36.3%) had close relatives with diabetes mellitus, the rest 65 families (63.7%) denied this disease. Among families with burdened familial history in 25 cases (67.6%) the relatives had type 2 diabetes mellitus, 9 (24.3%) – type 1 DM, in 3 families (8.1%) both type 1 DM and type 2 DM were observed.

In the present investigation glycated hemoglobin (HbA1c) was taken as the main criterion of glycaemic control. Eleven children (10.8%) had HbA1c below 7% (compensation), 42 children (41.2%) – 7–9% (sub-compensation), and 49 patients (48%) were with HbA1c greater than 9%.

During primary inspection 28 children (27.4%) presented problems connected with DM.

18 children stated cramps in calf muscles and feet during night sleep, in the morning and at night, 10 children complained of fatigability in feet and paresthesia in feet and calves during exercises. In neurological state of the examined children no changes of cranial innervation are fixed. Muscle tone and muscle strength are up to the standards. While studying deep reflexes we noted knee-jerk and Achilles tendon reflexes decline in 11 children (10.8%), 1 child (0.9%) had no Achilles tendon reflex. Pain hyperesthesia of lower extremities was noted in 65 patients (63.7%), 21 children (20.6%) had changes in upper and lower extremities sensibility.

When vibratory sensibility was tested the values varied within standards: 8 – in 13 children (12.8%), 7 – in 86 (84.3%), 6 – in 3 (2.9%). In test with Bio-Thesiometer the values were normal: 0.09 μ – in 2 (1.9%), 0.16 μ – in 19 (18.7%), 0.25 μ – in 66 (64.7%), 0.36 μ – in 15 children (14.7%) without significant asymmetry. Scores of neuropathy severity on the scale NDS were as follows: expressed – 0.9%; moderately expressed – 60.8%; on the scale NSS: severe – 3%, expressed – 2%, moderate – 19%. Types of peripheral nerves lesion according to electroneuromyographic data are presented in the picture 1.

In the group for dynamic monitoring 18 children (46.1%) got basal-bolus insulin therapy with glycaemic control, 21 child (53.9%) additionally got the preparation of thioctic acid, treatment course lasted up to 6 months (mean 4.8). Four children in this group had glycated hemoglobin below 7%; 19 children – 7–9%; 16 children – greater than 9%.

As for neurological status, during dynamic monitoring no cranial nerves, muscle strength or muscle tone changes were observed. Only 2 children (5.1%) showed knee-jerk and Achilles reflexes decline.

When vibratory sensibility was tested the values varied within standards: 8 – in 25 children (64.1%), 7 – in 13 (33.4%), 6 – in 1 (2.5%). In test with Bio-Thesiometer the values were also normal: 0.16 μ – in 10 children (25.7%), 0.25 μ – in 24 (61.6%), 0.36 μ – in 1 (2.5%), 0.49 μ – in 4 (10.2%). The values of vibratory sensibility were symmetrical. Scores of neuropathy severity on the scale NDS were as follows: expressed – in 3% of cases, moderately expressed – in 23%; NSS: moderate – in 5.2% of cases.

Neurophysiological data of the examined group is presented in the picture 2.

The statistic analysis results demonstrated that integrated values in children of the main group who got basal-bolus therapy were lower than in children who got thioctacid (4.67 ± 2.84 ; 6.3 ± 3.27 ; $p = 0.008$). Nerve Conduction Velocity of sensory fibers of the peroneal nerve in the

main group was significantly higher than in the group of adjuvant treatment (49.7 ± 5.4 ; 43.7 ± 15.8 ; $p = 0.02$).

Values of Galvanic-skin reflex of footstep in the main group were also lower than in the group of dynamic monitoring (2.06 ± 0.33 ; 2.2 ± 0.34 ; $p = 0.03$). In the latter group NDS scores in children who got basal-bolus therapy were lower than in children who got additional preparation (1.5 ± 2.4 ; 4.2 ± 4.06 ; $p = 0.02$). Results of Spearman correlation demonstrated that child's age correlated with integrated scores NDS of polyneuropathy severity ($r = 0.3$, $p = 0.002$), and several symptoms of sensibility disorders: hyperalgesia area ($r = 0.25$, $p = 0.01$), touch sensibility disorders in foot ($r = 0.2$, $p = 0.02$). The duration of diabetes mellitus affected self-estimation of polyneuropathy severity at night on the scale NSS ($r = 0.2$, $p = 0.02$), growth of ulnar nerve M-responses amplitude ($r = 0.2$, $p = 0.03$) and decrease of Nerve Conduction Velocity of afferent fibers of the peroneal nerve ($r = -0.2$, $p = 0.04$). Dynamic monitoring showed that additional therapy correlated with absence or decline of knee-joint and Achilles reflexes ($r = 0.4$, $p = 0.008$), and higher scores on the sub-scales NDS и NSS (complaints' period and symptoms) ($r = 0.3$, $p = 0.04$).

The obtained data processed with variance analysis by LSD TEST showed that in both sub-groups of the main group decrease of NDS scores was observed. There was no significant difference on the scale NDS between children who got basal-bolus insulin therapy and the ones who got the preparation of thioctic acid ($p = 0.57$).

Taking into account the results of dynamic examination of children with diabetic polyneuropathy, we offer to arrange clinical units of polyneuropathy in the following way. The present scheme is based on the patients' complaints, use of international scales NSS and NDS, rules of palm and nines to define area of hyperesthesia as one of the first symptoms of diabetic polyneuropathy, values of glycated hemoglobin affecting diabetes mellitus course.

Diagnostics scheme of diabetic polyneuropathy severity level in children

Mild: no complaints; NSS 0; NDS 6 scores; tactile hyperesthesia 1% (ankle and hand base); pain hyperesthesia 1% (ankle and hand base); glycated hemoglobin greater than 7–9% .

Moderate: complaints are possible; NSS 3–4 scores; NDS 7–8 scores; tactile hyperesthesia 1% (ankle and hand base); pain hyperesthesia 8% (mid-calf); glycated hemoglobin greater than 9%.

Severe: complaints of cramps, pain in feet; NSS 5–6 scores; NDS 8 and more scores; tactile hyperesthesia 8% (mid-calf), 9% (knee-joint); pain tactile hyperesthesia 8% (mid-calf), 9% (knee-joint); glycated hemoglobin greater than 9%.

To test validity of the present scheme we used discriminant function analysis with computation of linear discriminant function (LDF). The following results were got: in main group diagnosis accuracy was 88.1% average, for mild level – 98.1%, moderate – 81.8%, severe – 64.3%.

Viewing the results of discriminant function analysis we can state that the suggested scheme is highly informative. The most significant symptoms are NDS and NSS scores, and also values of tactile and pain hyperesthesia which are defined with the rules of palm and nines.

Conclusions

The present investigation demonstrates that clinical symptoms of diabetic polyneuropathy develop in children with type I diabetes mellitus when the disease duration exceeds 3 years. Polyneuropathy presents itself as disorders of upper and lower extremities peripheral nerves with prevalence in distal parts of lower extremities. EMG shows disturbances of peripheral nerves electrogenesis, decrease of nerve conduction velocity, amplitude and distal latencies of M-responses and F-waves in motor, sensory and autonomic nerve fibers. Correlation of clinical and electroneuromyographic data allows to define prevalence and severity of difficult to be identified sensory disorders in children with diabetic polyneuropathy. Variance analysis of clinical data and neurophysiological examination allowed to develop the differential diagnostics scheme of neuropathic disturbances according to severity level.

Under dispensary observation with adequate basal-bolus insulin therapy and strict glycaemic control mild forms of diabetic polyneuropathy prevail, and symptoms of autonomous neuropathy are absent.

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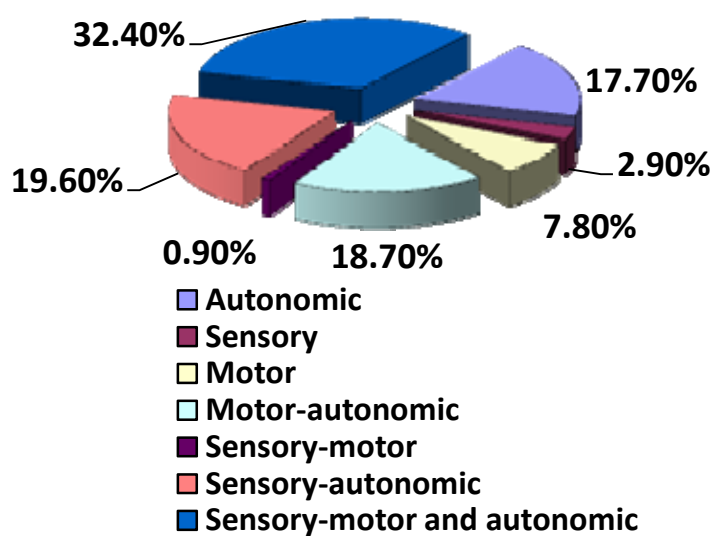
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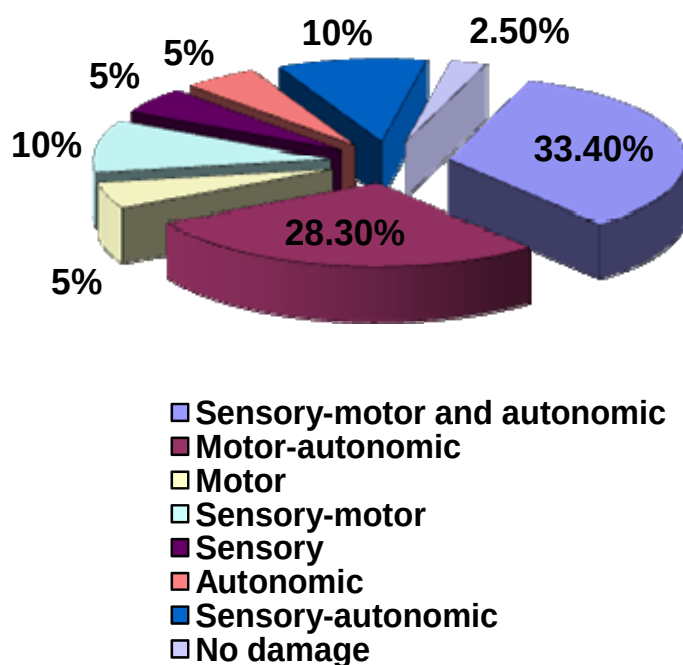
Summary

In St. Petersburg Child Diabetes Centre 102 children aged 7–17 with type 1 DM complicated by diabetic polyneuropathy were observed by means of the routine neurological assessment, standard neuropathic scales (NDS, NSS), EMG and Nerve Conduction Velocity. The investigation demonstrated that the clinical symptoms of neuropathy developed in 3 years after the DM had been diagnosed. Polyneuropathy presents itself as disorders of upper and lower extremities peripheral nerves, with prevalence in distal parts of lower extremities. EMG showed decrease of nerve conduction velocity, amplitudes and distal latencies of M-responses and F-waves in motor, sensory and autonomic nerve fibers. Variance analysis allowed to develop the differential diagnostics scheme of neuropathic disturbances according to severity level.

Key words: children, type I diabetes mellitus, polyneuropathy, functional disturbances.



Picture 1. Types of peripheral nerves lesion according to electroneuromyographic data in the main group



Picture 2. Types of peripheral nerves lesion according to electroneuromyographic data in the examined group

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Neonatal Hypoglycemia as the Factor in the Development of Neurologic Impairments in Infants.

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Key words: hypoglycemia, newborns, neurodevelopment.

Damaging effect of hypoglycemia on the brain is caused by formation of substances adversely influencing on cerebral tissue metabolism in the oxidation process.) Hypoglycemia syndrome can be of various clinical presentation, and in certain cases of asymptomatic course. In the presence of clinical semiology more often mild and moderately severe hypoglycemia is shown in the form of hyperexcitability syndrome, and profound one – distress syndrome.

Ключевые слова: гипогликемия, новорожденные, неврологическое развитие.

Выявлено, что гипогликемический синдром может иметь различную клиническую картину, а в некоторых случаях имеет бессимптомное течение. При наличии клинической симптоматики чаще всего легкая и среднетяжелая гипогликемия проявляется в виде синдрома гипервозбудимости, а тяжелая – синдрома угнетения.

The nervous system affection in cases of glucose homeostasis in an organism has been studied thoroughly for the last years [12, 14, 15, 16, 19].

Glucose is the basic, and typically the unique substratum of power exchange in brain. If it stops supplying the brain, endogenetic resources can provide its normal metabolism only within 10-15 minutes [5, 8].

Damaging effect of hypoglycemia on the brain is caused by formation of substances adversely influencing on cerebral tissue metabolism in the oxidation process. Besides, glucose,

as glucolise substratum, is necessary for functioning potassium-sodium pump, for maintenance neuroplectrum processes as well [4].

In hypoglycemia oxygen consumption of the brain is decreased, therefore, prolonged and often repeating episodes of hypoglycemia result in irreversible changes in nervous cells. Cerebral cortex functions are affected firstly, followed by midbrain (cerebral hypoglycemia). Oxidizing processes slow down in the brain structure and all kinds of metabolism are impaired abruptly in the brain. Blood inflow to the brain increases, vessel walls lose usual elasticity and tone, causing the enlargement of microcirculatory vessels, increasing their permeability, blood flow speed slow down and clots are formed. In prolonged carbohydrate starvation not only functional, but also morphological changes are noted, up to hypostasis and cerebral necrosis [6, 9].

R.N. Auer [10, 11] states that in some brain parts the cellular destruction after hypoglycemia appears to be of greater intensity. First of all, they refer to cerebral cortex cells, hypocamp and a striped body. Considering that neurons hypocamp play an important role in the process of studying and storing, hypoglycemia causes the deterioration of cerebral tissue function and inhibition process of memory formation.

S.W. Suh [18] identified that the active forms of oxygen were formed after glucose concentration restored in blood as a result of previous hypoglycemia. During this period nitrotyrosine is formed as well as activation of weed (ADF-riboza) of polymerases (PARP-1), enzyme in DNA [17]. Hence, pathogenesis of neuron damage in hypoglycemia is alike to the restoration of blood flow after ischemia, the tissue damaging causing oxidant stress [13].

On the other hand, cerebral functions are affected not only by blood glucose content, but also its quantity passing into the brain. The symptom complex of hypoglycemia can develop at a normal level of glycemia (if small quantity of glucose passes into the brain), and not to be noted at a lower level of glycemia (if necessary quantity of glucose is received). In this connection, it is necessary to take into account variants of absence of the complete dependence between blood glucose level and hypoglycemic syndrome presentation among various patients and even at the same patient within one day [9]. However, the structural affection of nervous system is noted even at asymptomatic course of hypoglycemia (by Kojvisto M, etc., 1972) which can cause the nearest and remote psychoneurological manifestations, thus, the later hypoglycemia is identified, the higher rate of it can be expressed [7].

All above-stated data point out the importance of carrying out the researches concerning the study of the neurologic status features in newborns having hypoglycemia.

Goal: to study the neurodevelopment of newborns having hypoglycemia.

Materials and methods.

Within the research a complex clinical, psychoneurological and laboratorial examination of 151 newborns was performed including the subsequent supervision during 4 – 6 years.

The children examined (n = 151) were divided into two groups: experimental (n = 114) and control (n = 37).

The experimental group included 114 children who had hypoglycemia with various degrees of manifestation. The control group consisted of 37 children who did not have hypoglycemia in the neonatal period. All children (experimental and control groups) were born at more than 37th weeks of gestation in satisfactory state, with 7/8 points on Apgar's scale (not less), without signs of somatic and neurologic pathology, from mothers with satisfactory course of pregnancy and delivery.

According to severity of the hypoglycemia course the experimental group was divided into three subgroups:

Children with mild hypoglycemia	Children with moderately hypoglycemia	Children with profound hypoglycemia
n = 37	n = 40	n = 37

Criteria of hypoglycemia severity:

The severe hypoglycemia was determined as the steady course lasting more than 3 days and tending to recurrence and reduced glucose in blood below 1,3 mmol/l. In 40 % of cases with severe course of hypoglycemia it was necessary make to parenteral injection of glucose rating 10 – 15 mg/kg/minutes.

The degree was considered to be mild hypoglycemia with reduced blood sugar above 1,67 mmol/l.

All children underwent the somatic and neurological examination generally accepted in neonatologic practice, laboratory tests (full blood count; biochemical blood count with definition of total proteins, total bilirubin; definition of glucose in blood by glucose-oxidized method), neurosonography, ultrasonic investigation of inner organs.

The analysis of neurologic status was carried out by means of “Distress Profile – excitation”[3]. For differential diagnostics of neurologic manifestations caused by hypoglycemia Whipple’s triad was used [1] with pathological semiology caused by affection of CNS of another etiology, it consisting of:

- 1) Symptoms incident in hypoglycemia;
- 2) Low concentration of blood glucose;
- 3) Symptoms disappearance at glucose correction after its injecting to a patient.

The technique of carrying out the neurologic examination on studying motor system and cranial-cerebral innervation at postneonatal age was borrowed from the general scheme of the clinical neurologic examination of children based on L.O.Badaljan [2].

Procedures of the statistical analysis were carried out by means of statistical packages SAS 9.2, STATISTICA 8 and SPSS-17. When checking zero hypotheses a critical level of the statistical importance amounted for 0,05. If statistical criterion of this value exceeded the reached level, the zero hypothesis was accepted.

Results and discussion

The research showed that prevalence of hypoglycemia (at a lower rate of blood glucose of 2,6 mmol/l) was 17,5 % from 2500 children of free sample for 2001-2004.

Indices concerning the physical development at birth corresponded to their gestational age. The majority of children had weight from 3500 to 4500g and height from 52 to 55 sm.

The basic group of newborns with hypoglycemia consisted of boys – 59%.

Hypoglycemia in newborns often had no clinical semiology or had monosymptomatic and atypical clinic.

In the experimental group the asymptomatic flow of hypoglycemia was identified in 62.2% of all children. Clinical manifestations of hypoglycemia were frequently observed in the moderately severe course.

Table 1

Data on hypoglycemia symptoms presence according to the disease course severity

	asymptomatic hypoglycemia course (abs) %	symptomatic hypoglycemia course % (abs)
mild hypoglycemia	59,5% (22)	40,5% (15)
moderately severe hypoglycemia	70% (28)*	30% (12)
profound hypoglycemia	56,8% (21)	43,2% (16)

*at value rate $p < 0,05$

As the data show (Table 1), even severe hypoglycemia, proceeding with decrease of blood glucose below 1,3 mmol/l, can be of an asymptomatic course.

The basic manifestation of a symptomatic hypoglycemia at newborns were:

- 1) hyperexcitability, tremor, irritability, twitchings, the raised reflex of Moro often combined with the increase of a muscular tone.
- 2) slackness, unemotional shout, decrease in muscular tone, sucking weakness.
- 3) possetting, anorexia, instability of body temperature.

The following results were obtained after carrying out the research «Distress Profile – excitation»:

Table 2

The research «Distress Profile – excitation» data

	«distress Profile – excitation» indices					
	- 1	- 0,5	- 0,2 + 0,2	+0,5	+1	+1,5
Mild hypoglycemia (n = 37)	2,7 % (1)	-	59,5 % (22)	16,2 % (6)	21,6 % (8)	-
Moderately severe hypoglycemia (n = 40)	5 % (2)	2,5 % (1)	70 % (28)	7,5 % (3)	10 % (4)	2,5 % (1)
Profound hypoglycemia (n = 37)	10,8 % (4)	5,4 % (2)	56,8 % (21)	5,4 % (2)	21,6 % (8)	-

When analyzing the data presented above, we revealed that the symptomatic hypoglycemia proceeded mostly in the form of a hyperexcitability syndrome.

Notably, the quantity of children with distress syndrome hypoglycemia ($p < 0,05$) increases at severe degree of hypoglycemia.

During the data analysis of neurologic inspection of these children aged 4 - 6 we found out that more than 87 % of them in the experimental group had the complaints to mood swings expressed in fast mood change: anger, low mood, behavior disorder combined with aggression, etc. Moreover, in experimental group children with disseminated focal signs in the form of muscular dystonia, mild pyramidal insufficiency with increase of muscular and periosteal reflexes, mild tongue deviation, signs of cerebellar insufficiency (staggering in Romberg's pose, uncertainty in doing finger-nose test) were registered more often than in the control group. Evidence and number of these symptoms varied, but prevailed in the group with severe and moderately severe neonatal hypoglycemia course.

Additionally, in the experimental group more than 50 % of children had signs of vegetative disturbance – acrocyanosis, mottled skin integuments, red proof dermographism. These signs were registered in a certain degree of intensity being disregulation of vegetative nervous system.

The detailed characteristics of neurologic disorders are summarized in the Table 3.

Table 3.

Neurological characteristics of patients

	Experimental group (n=114) % (abs)	Control group (n=37) % (abs)	P
Neurological status in norm	25,4% (29)	73% (27)	< 0,005
Bruxism	5,3% (6)	2,7% (1)	<
Enuresis	7,9% (9)	8,1% (3)	
Stutter	3,5% (4)	2,7% (1)	

Tics	1,8% (2)	-	0,005
Febrile convulsions	1,8% (2)	-	
Nightmares	6,1% (7)	2,7% (1)	
Residual encephalopathy	23,7% (27)	8,1% (3)	< 0,005
Attention deficit hyperactivity disorder	21,1% (24)	2,7% (1)	
Epilepsy	1,75 % (2)	-	
ICP	0,9 (1)	-	0,005

As appears from table 3, in control group healthy children prevail making 73%, whereas in the experimental one only 25,4 % of children had no neurologic pathology. Enuresis and stutter in both groups were determined approximately with identical frequency. Bruxism, tics, febrile convulsions and nightmares were registered more often in the experimental group is. High rates, i.e. 21,1 %, on attention deficit hyperactivity disorder were indicated in the experimental group. In the control group attention deficit hyperactivity disorder was found in one child that made 2,7 %. Residual encephalopathy was observed in 23,4 % of children of the experimental group, that is much higher compared with the control group (8,1%). The significant consideration should be given to the presence of children with profound neurological disorders, such as epilepsy (1,75%) and ICP (0,9%) in the experimental group. In the control group the profound neurological pathology was not defined. Contingency between severity of neurological manifestation and presence of changes in neurosonogram during the neonatal period was not found ($p = 0,1$; Cramers $V = 0,34$).

The interrelation between severity of neurological pathology and presence of neonatal hypoglycemia semiology was identified (Table 4).

Table 4.

Indicators of neurological pathology contingency in children with neonatal hypoglycemia semiology

Presence of hypoglycemia clinical manifestations		Severity of neurological impairments			Total %
		mild	moderately severe	profound	
No	%	20,4%	32,7%	14,3%	67,35%
	Cell Chi-Square	1,21	0,8	0,15	
Yes	%	22,5%	6,1%	4%	32,65%
	Cell Chi-Square	2,5	1,65	0,29	

$P = 0,03$; Cramers $V = 0,37$

As shown in Table 4 newborns with symptomatic hypoglycemia had mild neurological manifestations whereas moderate severe and profound neurological pathologies are more often identified at hypoglycemia asymptomatic course in catamnesis.

Therefore, awareness about the features of glucose exchange, cause of disorders development, diagnostics and treatment methods makes possible to avoid the development of many pathological conditions, so to improve the quality of medical aid, to elevate the survival rate, and to decrease the degree of children's disability.

Conclusions:

1) The planned monitoring of glycemia is an important condition for prevention of development of neonatal neurological disorders.

2) Hypoglycemia syndrome can be of various clinical presentation, and in certain cases of asymptomatic course. In the presence of clinical semiology more often mild and moderately severe hypoglycemia is shown in the form of hyperexcitability syndrome, and profound one – distress syndrome.

3) Frequency and evidence of neurological impairments in infants correlates with severity of hypoglycemia in the neonatal period.

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THE COMPARATIVE FEATURE OF THE QUALITATIVE COMPOSITION OF THE BREAST MILK OF WOMANS OF DIFFERENT ETHNIC GROUPS OF THE RUSSIAN NORTH

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Summary. Results of research foremilk of 236 women belonging to different ethnic groups of the Russian north are put in a work basis. Foremilk of native women contains more fat and less protein than the foremilk of Russian and Yakut women living in the same regions; the amount of carbohydrates is the same as in the milk of Yakut women which is less than in Russians.

Keywords: breast milk, body length, body weight, proteins, fat, carbohydrates, native women.

Introduction. The ideal product of the feeding for children of the early age is a breast milk [1,2,3,5,6,9,10]. It contains the balanced complex of the nutrients, vitamin, microelements, big amount of biologically active substances and defensive factors, influencing on growing, development, shaping of immunal system, behavioural and psychic reactions of children and ability to education. Aside from this, breast milk possesses the ability to change its composition depending on functional maturity of child and his age, satisfying, thereby, all specific nutritive needs of the increasing organism. Provision of this optimum model of the feeding implies changes of the feminine organism already with beginning of pregnancy [4]. Preparing the mammary gland to production of milk is identified the lactogenes, but process of the maintenance to lactation by feeding woman – the lactopoez. Hormone regulation of lactogenes and lactopoez is complex and depends on activities of many hormones [8].

The protein composition of breast milk corresponds to needs of the organism of child. The main protein – lactalbumin, which contains irreplaceable amino acids (tryptophan, lizin, cistein), promotes quick suction of calcium and zinc, stimulates strait of mucous hutches of the bowels and growing of double-wound bacterial. [1,4]. The fatty component is presented by essential easy adopted long chained polyunsaturated fat acids of the row omega-3 and omega-6 (arahidon and eikozopentaen acids), adjusting immunal processes in organism. Fat acids enter to

breast milk from blood or are synthesized by gland (basically average chained). The content of the fat acids in the blood plasma of woman depends on her ration, fatty centers and liver metabolism. The content of fat in breast milk depends on period of the lactation and phase of the milk removing.

It is revealed that consumption of fish fat and fish by the feeding woman enlarges the content of long chained polyunsaturated fat acids (DPNZHK) in breast milk. The carbohydrates of feminine milk is presented by lactose, galactose, ksilose, fructose, arabinose and others. On share of the lactose happens to beside 90% gross amount of carbohydrates. The lactose hydrolyzes in fine bowels at participation of the lactase ferment in glucose and galactose. At the last years in breast milk oligosaharidies which present itself second carbohydrate faction of milk after lactose and are "double-wound gene factor" are discovered. Oligosaharidies practically in unchangeable type pass the fine bowels, and only in thick bowels fermentise double-wound- and lacto bacterias, providing their growing and development [7].

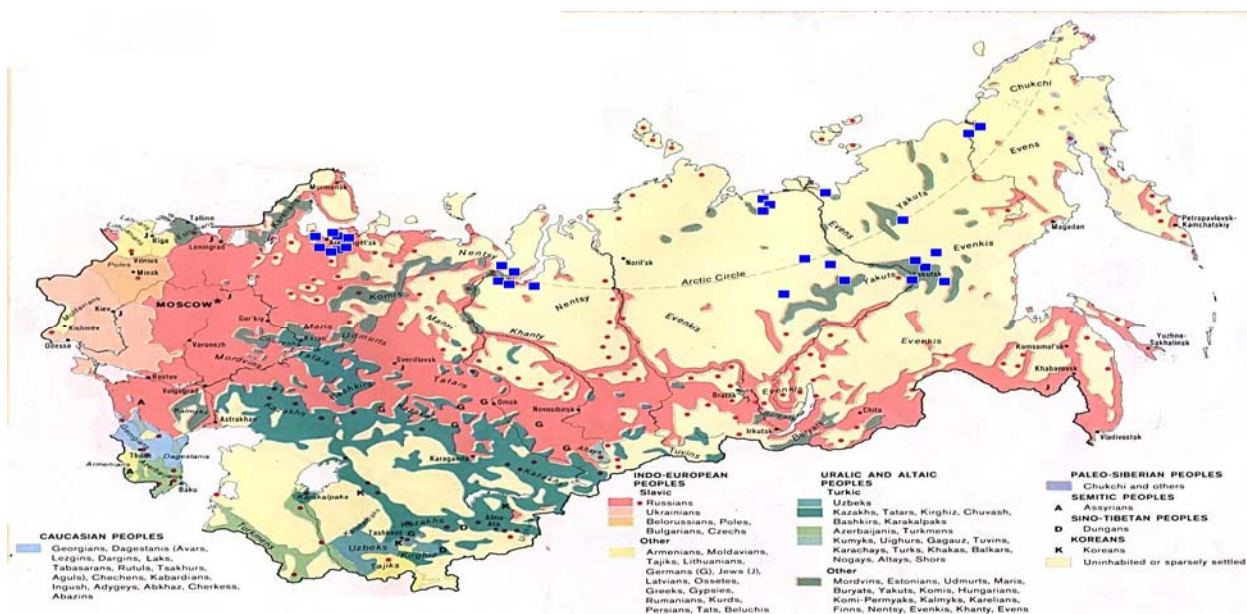
Aside from the main nourishing components there is the big amount of biologically active substances in feminine milk. The content of micro elements in breast milk vastly depends on geographical zone of the residence of the woman and ecological situation in region [1].

Thereby natural nursing is a natural model which brightly and directly illustrates the main positions of the concept of the optimum feeding of children of the early age.

The purpose of the research: To value the particularities of the feeding and qualitative composition of breast milk of women of the miscellaneous ethnic groups of the russian North. To reveal the differences of length of the body and weight of newborns and children of the first year among representatives of indigenous small in number peoples of the north, yakuts and russians.

The materials and methods.

The drawing 1. Places, Where Milk Samples Were Obtained



On this drawing is presented card of the areas where studies are conducted at present. Archangelsk area, Yamalo-Nenets autonomous county and Republic Sakha (Yakutia) are noted by the blue marks. With the exclusion of Archangelsk all areas are rural terrains with very low density of the population which is equal 7 persons on square kilometer. Some of explored mothers and children lived in the cities, but some in very small settlements. This fact is very important for determination of quantity and quality of the feeding.

The whole we explored 236 samples of breast milk collected among different representatives of ethnic groups (table1).

Table 1. Number of Studied Milk Samples (foremilk)

nationalities	amount		whole	day to lactation (diapason)
	village	city		
Evens	22	11	33	18 – 730
Evenks	3	0	3	18 – 300
Chukchis	5	0	5	14 – 480
Yakuts	55	52	107	3 – 605
Nenetses	6	1	7	25 – 376
Hanty	17	0	17	20 – 365
Russians	15	49	64	3 – 360
Total	123	113	236	3 – 605

For determination of the ration of the feeding we have asked the mothers to fill the three-day diary book of the feeding. Then, the test of breast milk was made. The milk was transported in frozen type under $t - (-20^{\circ}\text{C})$. The analysis of the qualitative composition of the taken material was produced on infrared analyzer SCANNER model 4250.

Data management and statistical analysis are made using printed forms, which were collected in database during the research. We used the traditional methods of the descriptive statistics and "tree" method in categorization.

The Results.

Table 2. Prior Probability to Classify 236 Women

Classes	Probability	Amount of the women
Russian	0.27	64
Indigenous	0.28	65
Yakuts	0.45	107

This table shows the amount of explored mothers, classified by ethnic groups. So the whole 64 russian women, 65 women of indigenous small in number peoples of the North and 107 yakuts were explored.

Classification criterions of ethnic groups are chosen the most important factors as life in city and rural terrain, levels of protein, fat and carbohydrate in milk.

Table 3. Ethnicity and Quality of Breast Milk in Different Ethnic Groups

	Indigenous – Russains	Indigenous – Yakuts	Yakuts – Russians
Protein (g/100ml)	Indigenous < Russains (P=0.00)	Indigenous < Yakuts (P=0.00)	Yakuts = Russians (P=0.09)
Fats (g/100ml)	Indigenous > Russains (P=0.00)	Indigenous > Yakuts (P=0.00)	Yakuts = Russians (P=0.64)
Carbohydrates (g/100ml)	Indigenous < Russains (P=0.01)	Indigenous = Yakuts (P=0.21)	Yakuts = Russians (P=0.11)

On this table is seen that the comparative analysis of the qualitative composition of breast milk of the women of indigenous small in number peoples contains realistically smaller amount of protein and carbohydrate in contrast with the russian women, and in contrast with yakut women the more fat and contains protein less. Also it is noticed that analysis of milk of yakut women and russian women has not revealed the reliable differences.

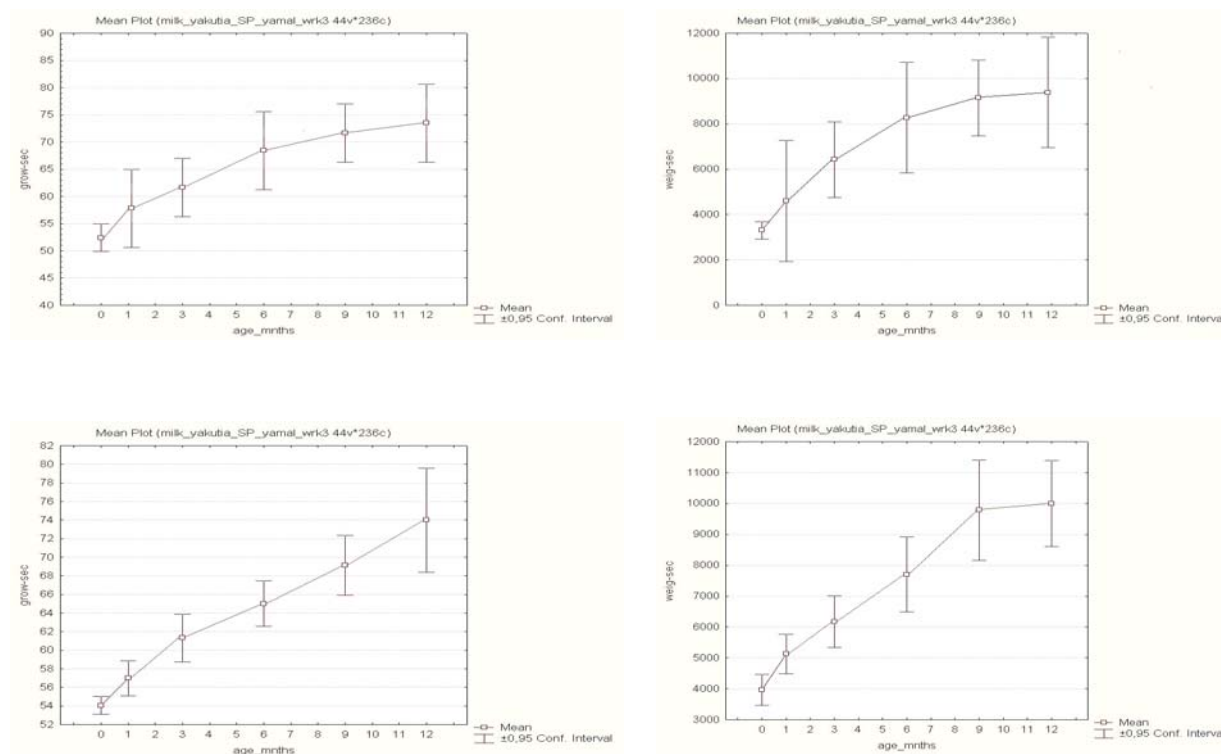
As it is shown in the table 4 the results witness that fact of the residence in city or rural terrain is not essential for ethnic groups.

Table 4. Weight and Length at Birth in Different Ethnic Groups: Town and Region Do not Influence

Ethnic groups	Yakuts		Russians	
	Weight (g)	Height (cm)	Weight (g)	Height (cm)
Town	3454	52,4	3457	51,9
Rural	3595	53,5	3286	51,6
Validity	P=0,28	P=0,08	P=0,23	P=0,66

The revealed difference of the qualitative composition of breast milk of women of the miscellaneous ethnic groups does not bring about difference of height of the body and weight of children of first year. It confirms the table 5. Here it is seen that diagrams are nearly identical with broad range of the dispersion.

The drawing 2. Length (cm) and Weight (gr) of Russian and Yakut Babies During Their First Year of life



The study of dietetic habits and food ration has shown that amount of consumed calories among women of the miscellaneous ethnic groups was equally, but there is essential difference in consumption of fish and animals. So according to our data women of indigenous small in number peoples of the North consumes fish and animals in 10 times more than russian women.

The conclusions: Milk of the women of indigenous small in number peoples of the North contains more fat and protein less in contrast with milk of the russian women and yakut women lived in the same region. During the research it is determined that defining factor influencing upon quality of breast milk, is a diet, but not ethnic attribute. The diagrams of the growing of children of the first year have not reliable differences in accordance with ethnic attribute though in the older age these differences are significant. We expect that differences in quality of breast milk can be a reason for delay of the growing of children of indigenous small in number peoples of the North in the following years. The fact requires the further more detailed research.

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OXIDATIVE SRARUS PECULIARITIES IN THE ADOLESCENTS WITH NON-DIFFERENTIATED CONNECTIVE TISSUE DYSPLASIA OF DIFFERENT SEVERITY STAGE

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Summary: Total number of 225 adolescents with clinical features of non-differentiated connective tissue dysplasia (NDCTD) at the different stages and 60 healthy adolescents were examined. The hemiluminiscent method was used for the estimation of biogenesis of free radicals in blood serum. In the group of NDCTD patients the indexes, reflecting the processes of free radical lipid oxidation reliably increased and antioxidant defense system activity decreased. Gender and age related differences in the processes of free radical oxidation were revealed in minimal and severe stages of NDCTD.

Key words: adolescents, connective tissue dysplasia, free radical oxidation.

The disorder in the system “active oxygen metabolites generation (AOM) – AOM detoxication” is the early pre-clinical non-specific chain in the pathogenesis of chronic and autoimmune diseases. This fact permits to use the investigation of AOM biogenesis as the preliminary diagnostic criteria for the complex health status estimation [7, 8, 9]. Far-Easterners redox-status is characterized by decreased buffer capacity of AOM detoxication system as the result of unfavorable regional biogeochemical influences [5]. AOM hyper production permits the development of mitochondrial insufficiency - the base for connective tissue dysplasia formation, with collagen and elastin synthesis defects, resulting in different somatic pathology [6]. Non-differentiated connective tissue dysplasia (NCTD) considerably defines clinical features of the major disorder, permitting atypical and prolonged illness, low therapy effectiveness and early invalidization [4, 6]. We have not found the literature data about interconnections of redox-status and NCTD.

The aim of investigation: to examine the peculiarities of blood serum oxidative status in adolescents with the different stages of NCTD.

Materials and methods: 255 adolescents, 116 girls (51%) and 109 boys (49%) aged 10-17 years with the markers of NCTD were examined in the Mother and Child Care Institute Clinical Department. The criteria for including in this group were the following: NCTD features segregation in family history, outside dysplasia markers presence, visceral-locomotor markers detection by ultrasound examination, X-ray examination and endoscope gastrointestinal tract examination. The estimation of NCTD severity was performed according to the scale of clinical symptoms [4] in 131 of adolescents – 38 with minimal stage, 67 with moderate stage and 26 with severe stage. Control group was represented by 60 adolescents of the same age. All the patients were divided for gender (boys, girls) and age (prepubertal, pubertal) groups.

For the integral estimation of the free radical biogenesis processes in blood serum the method of chemiluminescence (CML) was used. CML registration was made by “Perkin Elmer” LS 50B spectrometer. Spontaneous and induced Fe^{2+} CML was detected by Vladimirov and et., [2] method: S-sp light-sum for 1 minute of spontaneous lighting, this index correlates with the intensity of free radical generation; Sind-1 – light sum for 2 minutes Fe^{2+} induced CML, which reflects the intensity of peroxide radicals accumulation; h1 – the amplitude of quick flash Fe^{2+} induced CML, reflecting the lipid’s hydroperoxid concentration. The kinetics of CML, induced by H_2O_2 with the presence of luminal [1], was analyzed for the following parameters: h2 – maximal flash amplitude, which is reversibly proportional for the peroxides substrate resistance; Sind-2 – light sum for 2 minutes H_2O_2 - induced CML, which is reversibly to antioxidant antiradical defense system. The intensity of CML detecting in mill volts calculated for 1 ml of blood serum and represented in depending units. Statistical analyze was performed by Statistika.6. program.

Results and discussion: Blood serum CML analyze revealed reliable increased active oxygen metabolite processing in both groups (in comparison with control levels) (S sp) in 3,0 – 3,5 times. The concentration of the primary stage lipid’s peroxidation products – hydroperoxides (h 1) was increased 3,0 – 3,2 times. The speed of peroxides radicals formation exceeds the similar indexes in control group in 2,7 – 3,1 times. The enforcement of active oxygen metabolites processing is accompanied by antioxidant defense system oppression. This fact submitted by 1,4-1,5 times increase of similar indexes (Sind 2). At the same time, the decrease of peroxide resistance (h2) in the examined substrates was 1,8-1,9 times (table 1).

The analyze of CML obtained data did not reveal any differences in common groups of examined adolescents, including control group. In the separation for age groups in coordination with the stage of sexual development, age-dependent and gender periods (prepubertal, pubertal) differences, reliable specific features were definitely revealed in the majority of cases. In the control group of adolescents (Picture 1) gender differences in the system “active oxygen metabolites generation (AOM) – AOM detoxication” have no reliable features, but the age-dependent indexes were significant. With the grow-up process all the indexes increase. This fact shows the increase of free oxygen metabolites concentration and the decrease of antioxidative defense system in healthy persons. It seems so, that this is non-specific organism's reaction at the pressing stress situations in this age and the increasing technogenic effect for the adolescent.

In the all clinical groups of both gender adolescents in the examined age periods, NCTD permits reliable increase of all detecting indexes, pointing the activation of free radical oxidation, at the base of antioxidant and antiradical defense systems depression. In the groups of adolescents with NCTD of different severity, especially with minimal and severe stages, the mostly considerable gender differences of all the indexes were obtained in the early age group. (Picture 1).

In all cases of NCTD in girls all the indexes, reflecting the AOM production had no definite age-dependent differences in comparison with control group. Some exception is the speed decrease of peroxide radicals formation in the pubertal period (Sind 1). Among the examined boys, in comparison with healthy persons, reliable decrease of the all indexes at the pubertal period, except hydroperoxid concentration, was revealed (h1). In case of severe NCTD at pubertal period gender differences revealed in the speed of peroxide radicals formation, hydroperoxid concentration and activity of antioxidant and antiradical defense system, more significant in boys.

The average severity of NCTD by activating “active oxygen metabolites generation (AOM) – AOM detoxication” for all represented indexes takes intermediate position. Gender and age differences in the detecting indexes are representing in the low degree. But the expression of AOM formation processes is high.

As the result, in all stages of dysplasia processes among adolescents of both genders, considerably increased the indexes, reflecting the processes of lipid's free radical oxidation and in the same time antioxidant defense system decreased. Hence, the adolescents with NCTD have the development of system oxidative stress. This may be the base for including of the medications with antioxidative and antiradical effects in the treatment and prophylactic approaches.

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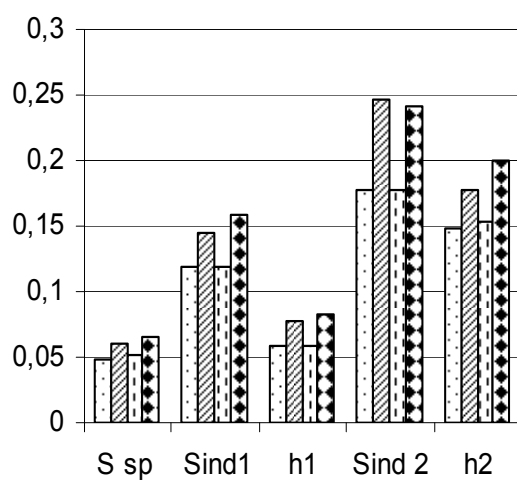
Table 1

The indexes of blood serum CML examination (relative units) in adolescents with NCTD of different severity (M±m)

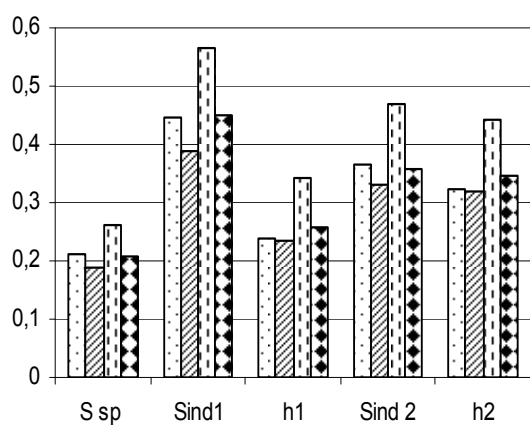
Group	S sp	Sind1	h1	Sind 2	h 2
Control	0.062±0.0028	0.146±0.0054	0.076±0.0034	0.225±0.006	0.178±0.0047
NCTD - minimal	0.212±0.001*	0.450±0.0019*	0.258±0.0012*	0.336±0.0018*	0.347±0.0016*
NCTD - average	0.214±0.0004** *	0.463±0.0008***	0.257±0.0006*	0.370±0.0008***	0.336±0.0007***
NCTD - high	0.197±0.001*** ***	0.431±0.0019***	0.264±0.0014*** ***	0.347±0.0018*** ***	0.327±0.0018*** ***

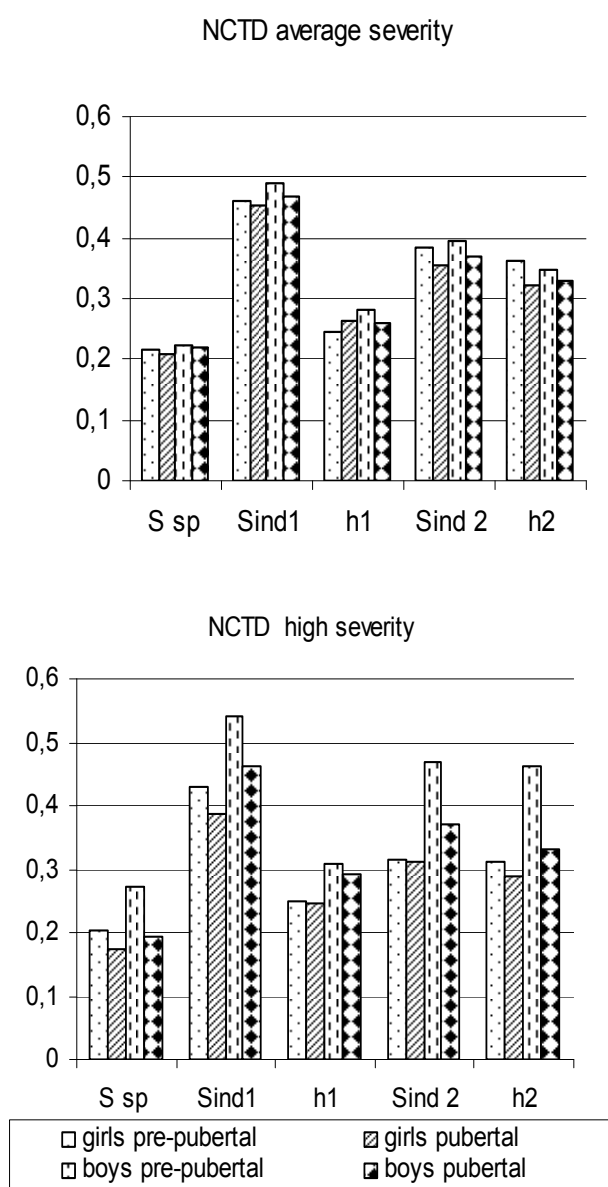
Annotation: * - $p < 0,05$ in comparison with control group; ** - $p < 0,05$ for the group of NCTD minimal severity; *** - $p < 0,05$ for the group of NCTD average severity

Healthy adolescents



NCTD of minimal severity





Picture 1. Adolescents with NCTD of different severity blood serum CML indexes

Alteration of the lung function in patients with acutely progressive forms of pulmonary tuberculosis under extreme northern conditions

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In 46 patients residents of Yakutia with destructive forms of pulmonary tuberculosis changes of respiratory function on the background of long-term treatment with an ACE inhibitor Enap 5mg were studied. It was found that Enap 5mg prolonged use (over 2 years) does not cause bronchial obstruction during the compensated tuberculosis, in the presence of initially moderate violations of pulmonary ventilation capacity against the background of chemotherapy in 50% of patients leads to improvement or partial improvement of ventilatory function.

Keywords: destructive forms of pulmonary tuberculosis, pulmonary ventilation.

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THE PECULIARITIES OF THE IMMUNE STATUS AND ACTIVITY OF BLOOD LYMPHOCYTE DEHYDROGENASES IN PATIENTS WITH AUTOIMMUNE THYROIDITIS

Shagarova S.G.

INTRODUCTION.

It is evident nowadays that pathogenesis of auto immune diseases of thyroid gland is closely associated with immune system disturbances [11, 13, 17, 18]. The emergence of auto antibodies to thyroiditis components is determined by the lowering of suppressing activity of lymphocytes. Inflammation is supported by hyper production of pro-inflammatory cytokins [11, 13]. Autoimmune thyroiditis (AIT) is accompanied by the decrease of thyroid gland function caused by the lower number of functioning thyrocytes. But the majority of the data on the participation of cellular and humoral factors of immune system in the emergency, formation and support of auto immune states is conflicting and incomplete.

The development of immune pathological state in an organism leads to the disturbances in homeostasis and therefore in interconnections between the main homeostasis systems. In the first place the restructuring is provided by biologically active substances, such as cytokins, hormones and other mediators. The presence of non-physiological doses of biologically active substances influences peripheral blood lymphocytes, which possess abundant receptor apparatus. This influence is resulted in the change of the level of lymphocyte functional abilities. At the same time the realization of regulatory influences and the formation of response happen on the level of cell metabolic system [5, 7, 8]. We propose to use lymphocyte metabolic indices [3, 11, 13] as one of the characteristics of immune system along with morphological data.

So, the aim of the research is to reveal the peculiarities of immune status indices and lymphocyte metabolism in AIT patients in accordance with functional state of thyroid gland.

MATERIALS AND METHODS

We examined 74 AIT females in clinical hypothyrosis (n=18), subclinical hypothyrosis (n=24) and euthyrosis (n=32); 98 practically healthy females as control, in the same ages. Diagnosis was based on clinical data, hormone analysis, antibodies to thyroid gland tissue and

thyroid gland ultrasonic tests. The content of thyrotropic hormone (TTG), triiodinethyronin (T_3), free thyroxin (fT_4) in blood serum was determined by radio immune chemical technique («Immunotex», Check Republic). The content of antibodies to thyroid peroxidase (AB-TPO) in blood serum was defined by immune enzyme technique («Multitest, Russia).

The activities of NAD(P)-dependent dehydrogenase in lymphocytes were determined by bioluminescent techniques [9]. Dehydrogenase activity was shown by enzymatic units per 10^4 cells ($1E = 1 \text{ mc mol/min [1]}$).

Population and subpopulation content of lymphocytes in peripheral blood was tested by fluorescent microscopy technique using monoclonal antibodies to surface receptors CD3, CD4, CD8, CD16, CD19, HLA-DR («Sorbent», Russia). We calculated differentiation index (DI, $CD4^+/CD8^+$ ratio), T-lymphocyte activation index ($HLA-DR^+/CD19^+$ ratio). Common immune globulins concentration (IgA, IgM, IgG) in blood serum was determined by radial immune diffusion technique according to G.Mancini (1965) using standard anti immune globulin serum («Med Bio Spectrum», Russia). Circulating immune complexes (CIC) in blood serum were evaluated by turbo dimetric technique.

Statistical processing of the results was carried out by «Statistica 6.0» (StatSoft, USA) programs. The normality of distribution was checked up by Kolmogorov-Smirnov test. The data was shown as median (Me), lower and upper quartiles ($Q1 - Q3$). Differences between the groups were estimated by Kruskal-Wallis (H) test for independent sampling and Mann-Whitney (U) test with Bonferroni adjustment. Differences were regarded as true under $p < 0.05$.

RESULTS AND DISCUSSIONS

The data on the content of thyroid and thyrotropic hormones in AIT blood serum are present in Table 1. AIT female group in euthyroid state showed higher TTG concentration as compared to control, but the meaning didn't exceed norm range. In subclinical hypothyrosis in blood serum the cT_4 level was lower than in control, but it was not lower, than norm range. TTG content in AIT in subclinical hypothyrosis was higher than in control, euthyroid state and norm indices. In blood in clinical hypothyrosis the concentration of free thyroxin was lower and TTG was higher as compared to control, experimental female groups and norm indices. Besides, T_3 content in blood serum in AIT in hypothyroid state was decreased in comparison with control. At the same time AIT females under different state of thyroid gland showed increased concentration of AB-TPO, which proves the presence of auto immune process even after therapy (Table 1). It should be marked that in AIT in subclinical and manifested hypothyrosis the content of AB-TPO in blood exceeds the same index for AIT female group in euthyroid state.

Table 1.

Concentration of thyroid gland hormones, TTG, AB-TPO in healthy females and in AIT with different function of thyroid gland (Me, Q1 – Q3).

Indices	Control N=38 1		AIT patients					
			Euthyrosis N=32 2		Subcl. hypothyrosis N=24 3		Hypothyrosis N=18 4	
	Me	Q1 – Q3	Me	Q1 – Q3	Me	Q1 – Q3	Me	Q1 – Q3
T ₃ , nmol/l	1 .80	1.50 – 2.20	1 .70	1.40 – 2.10	1.5 5	1.20 – 1.88	1 .16	0.84 – 1.50
	P _{4K-W} =0.0028							
							P ₁ <0,001	
cT ₄ , pmol/l	14. 95	13.80 – 15.60	12. 90	11.2 5-16.25	10. 65	9.0- 13.10	5 .80	4.10 – 6.50
	P _{4K-W} =0,001							
					P ₁ <0.001		P _{1,2,3} <0.001	
TTG, mcU/ml	1 .17	0.1 – 1.56	2 .40	1.35 – 3.10	6.7 0	5.95 – 8.0	13. 90	12.60 – 19.20
	P _{4K-W} =0.001							
			P ₁ <0.001		P _{1,2} <0.001		P _{1,2,3} <0.001	
AT to TPO, U	1 .0	0.0 – 3.0	11 8.1	68.8- 184.4	18 1.6	135.7- 307.7	31 2.0	235.5 – 410.1
	P _{4K-W} =0.001							
			P ₁ <0.001		P ₁ <0.001 P ₂ =0.0046		P _{1,2} <0.001	

Notes hereinafter: Statistically meaningful peculiarities while comparing the indices in independent groups: between control and AIT patients (P_{K-W}, Kruskal-Wallis test). Statistically meaningful differences between the indices (Mann-Whitney test) in control group and actual group of patients (P₁) in AIT between euthyrosis and actual group of patients (P₂), between AIT patients in subclinical hypothyrosis and actual group (P₃)

The peculiarities of immune status in AIT were estimated as per thyroid function (Table 2). We marked the lowering of absolute and relative levels of CD19⁺-lymphocytes and relative content of HLA-DR⁺-cells in AIT euthyrosis females as compared to control. Only AIT subclinical hypothyrosis group showed increased relative concentration of lymphocytes. Besides, we revealed lowered concentration of CD8⁺-, CD19⁺- and HLA-DR⁺-cells in AIT subclinical hypothyrosis females as compared to control. The group of AIT hypothyrosis showed the lowering of relative concentration of CD8⁺-lymphocytes, relative and absolute content of CD19⁺-cells as compared to control.

Table 2

Immune status indices in healthy females and in AIT with different functions of thyroid gland

(Me, Q1 – Q3)

Indices	Control		AIT patients					
			Euthyrosis		Subclinical Hypothyrosis		Hypothyrosis	
	N=93 1		N=32 2		N=24 3		N=16 4	
	M	Q1 – Q3	M	Q1 – Q3	M	Q1 – Q3	M	Q1 – Q3
Lymphocytes (%)	3 7.0	31.0- 41.0	3 7.5	34.0 – 46.0	4 5.5	37.5 – 51.0	4 3.5	32.0 – 50.0
	$P_{K-W}=0.0240$							
					$P_1=0.0030$			
CD8 ⁺ , (%)	3 0.0	21.0- 33.0	2 5.0	21.0 – 29.5	2 5.0	19.0 – 28.5	2 4.0	21.0 – 29.0
	$P_{K-W}=0.0388$							
					$P_1=0.0092$		$P_1=0.0124$	
CD19 ⁺ , (%)	1 2.0	9.0- 15.0	8 .0	6.0 – 10.0	8 .5	5.0 – 10.5	7 .5	6.0 – 11.0
	$P_{K-W}=0.0000$							
			$P_1<0.001$		$P_1=0.0004$		$P_1=0.0028$	
CD19 ⁺ , (10 ⁹ /l)	0 .25	0.18- 0.34	0 .16	0.12 – 0.25	0 .21	0.13 – 0.29	0 .17	0.10 – 0.25
	$P_{K-W}=0.0024$							
			$P_1=0.0004$				$P_1=0.0116$	
HLA-DR ⁺ , (%)	1 8.0	14.0- 21.0	1 5.0	11.0 – 16.0	1 4.5	12.5 – 16.0	1 4.0	11.0 – 18.0
	$P_{K-y}=0.0033$							
			$P_1=0.0022$		$P_1=0.0057$			
Leukocytes/ CD19 ⁺	2 2.5	17.1- 28.5	3 9.3	20.8- 45.67	2 9.3	19.46- 41.35	3 0.9	18.80 – 37.46
	$P_{K-y}=0.0021$							
			$P_1=0.0004$					
Ig M, (g/l)	1 .46	0.99 – 1.58	0 .96	0.80 – 1.10	1 .08	0.85 – 1.20	1 .02	0.75 – 1.25
	$P_{K-y}=0.0022$							
			$P_1=0.0006$		$P_1=0.0113$		$P_1=0.0102$	

So, the content of ripe B-lymphocytes is lowered in AIT female blood regardless the state of thyroid function. In AIT subclinical hypothyrosis the lowering of CD19⁺- lymphocyte level is so meaningful, that it leads to the decrease of leyco-B-cell coefficient. Besides, all three AIT groups showed lowered content IgG in serum regardless the state of thyroid gland.

The research of lymphocyte metabolism in peripheral blood showed the lowered activity of malate dehydrogenase (MDG) and NAD(P)-dependent isocitrate dehydrogenase (NAD(P)ICDHG) in the increase of NAD-dependent isocitrate dehydrogenase (NADICDH) in euthyroid AIT females (Table 3). We marked in subclinical hypothyroidism in AIT females lymphocytes the increase of the activity of glucose-6-phosphate dehydrogenase (G6PDHG). We found the lowering of MDG and NADPICDHG in hypothyroid AIT.

Table 3.

The activity of NAD(F)-dependent dehydrogenases and HR in blood lymphocytes in health and in AIT with different functions of thyroid gland in females (Me, Q1 – Q3)

Indices	Control N=98 1		AIT subjects					
			Euthyroidism N=32 2		Subclinical hypothyroidism N=24 3		Hypothyroidism N=18 4	
	Me	Q1 – Q3	Me	Q1 – Q3	Me	Q1 – Q3	Me	Q1 – Q3
G6PDH	3.84	0.47-16.2	6.58	3.77-9.54	20.77	4.23-42.77	5.42	2.4-12.99
	$P_{K-W}=0.0038$							
					$P_1=0.0007$ $P_2=0.0115$			
MDH	25.0	8.46-65.9	0.01	0.01-48.05	60.53	0.01-85.19	0.33	0.01-49.73
	$P_{K-W}=0.0028$							
			$P_1=0.0016$				$P_1=0.0078$	
NADICDH	5.36	0.09-44.22	59.13	3.22-135.8	31.10	0.01-52.12	1.18	0.01-31.09
	$P_{K-W}=0.0096$							
			$P_1=0.0033$				$P_2=0.0112$	
NAD(F)-ICDHG	18.22	4.40-75.96	1.39	0.83-11.89	43.92	0.65-94.70	1.43	0.51-25.72
	$P_{K-W}=0.0048$							
			$P_1=0.0010$				$P_1=0.0097$	

The metabolic changes differ from one another in between the groups of the examined females substantially. The reason is that the leading factor, which influences metabolism, is the concentration of thyroid hormones. It is appropriate to expect that in euthyroidism the lymphocyte metabolism reflects only the course of autoimmune aggression in thyroid gland. Lymphocyte metabolism in this group is characterized by suppression (key enzyme – MDG, auxiliary – NAD

(F) ICDH) and simultaneous activation (limiting enzyme is NAD (F) ICDH) in different stages of Krebs cycle. Apparently, in lymphocytes in AIT euthyroid females there is metabolism tension on the background of activation of initial Krebs cycle reactions and suppression of final ones.

High activity of initiating enzyme of pentose phosphate pathway of glucose oxidation G6PDG in blood lymphocytes in AIT subclinical hypothyrosis reflects initial increase of cell antioxidant ability under the activation of macromolecular synthesis reactions.

In hypothyrosis in blood lymphocytes in AIT there is evident suppression of aerobic oxidation processes on the account of the introduction of key and auxiliary reactions of Krebs cycle (MDG and NADP/ICDH correspondingly). This peculiarity can be explained, firstly by insufficient thyroid stimulation of cellular metabolism as a whole and energy production in particular. Secondly the lowering of MDG gene expression is possible, which results in the drop of the quantity and activity of the enzyme.

CONCLUSION.

So, the research for AIT females immune status showed common peculiarities for the group of AIT females in different hormone states, which reflect the community in pathogenesis: the lowering of B-lymphocytes concentration and IgM content in blood serum. At the same time in subclinical and manifest hypothyrosis in blood in AIT females there is a lowering of CD8⁺-lymphocytes, which obviously plays aggravating role in pathogenesis. AIT appearance and development is caused by both antithyroid bodies activity and insufficient functioning of T-suppressors, which suppress auto immune reaction of lymphocyte prohibited clones [6, 15, 17]. It appears that the inflammation is better expressed under the state of tension of thyroid function compensation under the conditions of sufficient thyroid regulation. At the same time in evident hypothyrosis, probably, the suppression of the main regulating system is developing. This concerns immune system and its reactions as well. In euthyrosis inflammation reaction is expressed not clearly. Lymphocyte metabolism in AIT has own peculiarities in accordance with thyroid gland function, which reflects the differences in thyroid regulation. So, there is tension in aerobic oxidation processes in lymphocytes in euthyroid females, but we marked the activation of macromolecular synthesis reactions in subclinical hypothyrosis. We also marked the suppression of aerobic oxidation processes in hypothyrosis under insufficient thyroid stimulation of metabolism.

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MINERAL WATER INTAKE SCHEDULE AND DOSAGE IN TREATMENT OF CHRONIC PANCREATITIS

UDC 616.33.2:

Introduction. Chronic pancreatitis makes from 5.1% to 9% in the incidence pattern of gastrointestinal tract diseases and from 0.2% to 0.6% in general clinical practice [1]. Over the past 30 years the acute and chronic pancreatitis incidence all over the world has doubled [5]. In developed countries chronic pancreatitis now occurs in considerably younger people, with the average age of diagnosing decreased from 50 to 39 and the number of women developing the disease increased by 30% [2].

According to statistic data from the Ministry of Healthcare of the Sakha Republic (Yakutia), occurrence of gastrointestinal tract diseases in the adult population of Yakutia has increased from 10.1 per thousand in 2002 to 10.9 per thousand in 2006. The same trend is typical for the teenage population, as well (1.7 per thousand in 2000 and 2.9 per thousand in 2004). In the children population the incidence of pancreas diseases also tends to increase from 1.4 per thousand in 2000 to 2.6 per thousand in 2004.

Chronic and often recurrent course of the disease and high percentage of complications in many cases result in partial or total disability.

The quite promising and more effective course in treatment of many gastrointestinal tract diseases is combination of medicines, plant-based preparations, natural medicinal factors, and rational and science-based prescription.

Since 1998 we have closely studied Abalakh mineral water at the state republic's Abalakh Centre for rehabilitation of patients with gastrointestinal tract diseases [3, 4].

Aim of the study – potency assignment of the Abalakh mineral water (AMW) intake schedule and dosage in treatment of chronic pancreatitis.

Materials and methods. 31 patients with chronic pancreatitis at clinical remission stage, including 8 men and 23 women at the age from 30 to 69, received 21-day course of treatment with AMW (Figure 1).

The research and treatment took place twice a year – in spring (March-April) and in autumn (November). The patients were examined prior and at the end of the treatment course. The intake schedule was determined by the pancreas functional status.

Most of the patients, male and female, suffer from frequent acute attacks of the disease over 2-3 times a year (Figure 2). Men tend to have more attacks due to alcohol abuse and unhealthy eating patterns. Attacks in women were provoked by fatty and fried food.

It has been established that during acute conditions the patients with chronic pancreatitis received both in-patient and out-patient treatment at their residence area clinics. Some patients, particularly men at the stage of clinical remission, complained of abdominal discomfort and frequent semi-liquid fatty feces 3-4 times a day.

We allowed three-four days while an organism got used to the mineral water.

For the first three days the mineral water was consumed three times a day, a single dose being 80 ml. From day 4 to day 7 the single dose increase to 180 ml. During days 8-21 the single dose reached 200 ml.

In Abalakh mineral water drinking use, the schedule and dosage were determined by the status of the pancreas exocrine function.

Patients with severe exocrine pancreatic insufficiency took warm mineral water (40-42°C) 15-20 minutes before a meal. The water was consumed slowly in small sips.

Patients with moderate exocrine pancreatic insufficiency took warm mineral water (40-42°C) 45-60 minutes before a meal in middle-size gulps and usual tempo.

Patients who maintained exocrinous function of the pancreas took the mineral water at 42-45°C, 60-90 minutes before a meal. The water was consumed quickly in big gulps, without leaving it long in the mouth (Table1).

Results. Comprehensive analysis of the clinical and paraclinic (biochemical studies, US scanning of pancreas and gallbladder, gastroduodenoscopy, and scatoscopy) data, received in dynamics before and after the treatment, proves the positive therapeutic effect of AMW in treatment of chronic pancreatitis combined with biliary tract pathology.

Protracted treatment with AMW resulted in:

- reduction and disappearance of major clinical symptoms (diarrhoea, pain) and increased weight;
- improved function of the pancreas exocrine function and a patient's general condition.

High therapeutic effect stems from two major factors: intake schedule and temperature of the consumed AMW. At the same time, the regulation of digestive apparatus malfunctions is triggered and corrected by low-mineralised sodium hydro carbonate alkalescent water.

Consumption of the mineral water reduces activity of inflammatory process in the gastroduodenal mucous membrane, improves digestion, and normalises gastrointestinal motility and the pancreas exocrine function.

We invited the patients for refresher course of treatment in one year time and they confirmed the treatment effect maintained for 6-8 month they lived without attacks.

Conclusion. Protracted treatment with AMW improves exocrine function of the pancreas, reduces major clinical symptoms of chronic pancreatitis, thus resulting in better life quality of patients.

Clinical and functional parameters of the pancreas show effect of the treatment maintaining for 6-8 months.

Positive therapeutic effect requires strict keeping to the intake schedule and dosage, along with allowing 3-day period for an organism adapting to the mineral water and the course continuing for at least 24-28 days. Refresher courses of water drinking treatment at 5-6 month intervals help to consolidate the treatment effect achieved.

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The element status and adaptation level of the Far North inhabitants

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Summary: Results of one-stage researches of Yamal unorganized inhabitants aged 20-59 are presented. Influence of chemical elements on adaptation level of northerners to severe conditions of the Far North was investigated. The chemical elements influencing decrease of adaptable processes were defined. Dynamics of concentration Fe, Mn, Zn, Co, Ca changes was studied taking into account adaptedness level.

Key words: chemical elements, unorganized population, the Far North, adaptation level.

Introduction. During the evolution period organisms adapted for a certain chemical compound of environment. The geochemical factors of environment play an important role in formation of ecological adaptedness of a human body in severe conditions of the North. Landscape-geochemical features of the Far North are characterized by the insufficient maintenance of macrocells in potable water, parity change between essential microcells that can become the reason of development of some pathologies at inhabitants of the Far North. Today ecologically dependent pathology of high latitude is considered to be microelements significantly

influencing the course of the northerners' adaptation processes causing the development of pathologic processes in a human organism [2, 11]. The chemical elements exchange between outside and inner environments is known to be systematically important factor of homeostasis [2, 4, 10-12]. Concerning this, one of the most important human ecological problems is the study of element status influence on adaptation of the Far North employable inhabitants.

Our goal was to study the chemical elements concentration influence on the adaptation of the unorganized inhabitants aged 20-59 in Yamalo-Nenetskiy Autonomous Region.

Materials and Methods. We did the one-stage populated research among unorganized inhabitants aged 20-59 of both sexes in Yamalo-Nenetskiy Autonomous Region (YNAR). Selection was random. 78% of inhabitants were involved in the research. The total number of the examined people was 1511. The average age of them was $40,7 \pm 12,9$. Job experience in the North of people from other regions was $- 23,3 \pm 14,2$ years.

Research protocol consisted of anthropometry, office measurement of systolic (SBP) and diastolic blood pressure (DBP) with the Korotkov's method, calculation of heart rate (HR), hair selection from occipital part of the head.

The estimation of the blood circulation system functioning level according to an index of functional changes (IFC) at its simplicity provides the system approach to the solution of quantitative measurement of adaptable possibilities of an organism. IFC calculation was made by the mathematical model:

$$IFC = 0,011 \cdot HR + 0,014 \cdot SBP + 0,008 \cdot DBP + 0,014 \cdot B + 0,009 \cdot MT - 0,009 \cdot P - 0,27 \quad (6),$$

where HR – pulse rate, systolic SBP and diastolic DBP blood pressure, B – age, MT – a body weight, P – height.

The estimation of adaptable possibilities was defined on following ranges: up to 2,59 points – satisfactory adaptation, from 2,6 to 3,09 points – pressure of adaptation mechanisms, from 3,10 to 3,49 points – unsatisfactory adaptation, above 3,5 – adaptation failure [1].

According to modern views, the hair element structure is better than other bio-indicator environments reflects the influence on a person, as complex of chemical elements, and physiological requirement for them. Chemical elements (Fe, Zn, Cu, Mn, Ni, Co, Cd, Pb and Ca) in hair were identified with use of the modern analytical equipment based on principles of nuclear absorption «Spectr AA-50F» of the company "Varian" (Australia) according to the methodical recommendations [9]. Results were compared with the regional standard indicators [7].

The statistical analysis was performed with the program "Statistica-6". As the distribution of random numbers in most cases differed from normal, the median was served as the measurement

of the central tendency, distributions – inter-quartile range. Comparisons of three independent groups were done with the Kruskal - Wallis method. Pair comparisons were performed by the Mann-Whitney method and χ^2 . The analysis of the features interrelation was calculated with the Spirmen rank correlation factor (r_s) and the tetrachoric correlation factor. The contribution of feature influence was defined on phi (ϕ). The values were considered statistically significant at $p < 0,05$ [11].

Results and discussion. In the adaptation structure of the surveyed population to environment conditions persons with satisfactory adaptation (39,2 %) and pressure of adaptation mechanisms (29,3 %) prevail, further there are persons with unsatisfactory adaptation (16,4 %) and adaptation failure (15,1 %).

The analysis of the chemical elements concentration taking into account adaptation level is presented in the Tabl.1. The element status at satisfactory and unsatisfactory adaptation is characterized by deficiency of calcium, cobalt, cadmium and lead. The element status at pressure of adaptation mechanisms and its failure is characterized by nickel excess, in combination with calcium, cobalt, cadmium and lead deficiencies.

Table 1

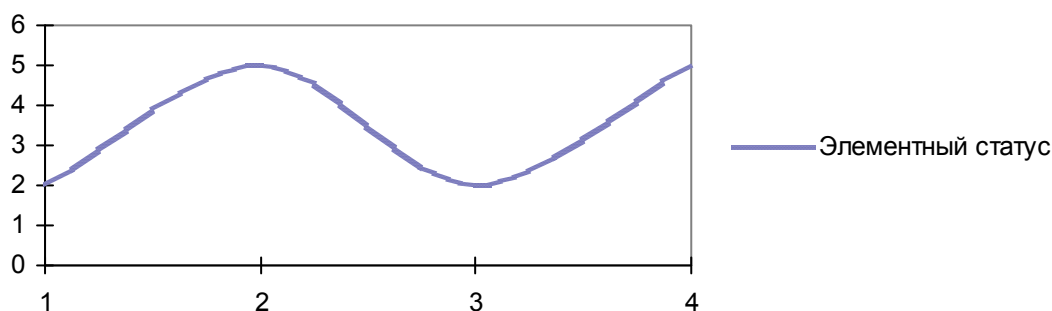
Chemical elements concentration at YNAR inhabitants
aged 20-59 years taking into account the adaptation level

hE, mkg/ g	C	Functional changes index												Kruskel- Wallis ANOVA	
		1, n=593			2, n=443			3, n=247			4, n=228				
	%	2	5	7	2	5	7	2	5	7	2	5	7	H	p
n	Z	8 4,18	11 9,00	14 1,00	8 0,00	10 8,30	14 0,00	7 8,46	9 6,00	12 8,00	7 1,00	9 8,15	12 5,00	3 4,55	0, 000
u	C	2, 70	4, 68	7, 70	2, 70	4, 00	7, 00	2, 80	4, 00	6, 00	2, 80	4, 00	6, 85	5, 67	0, 129
e	F	1 3,00	16 ,50	23 ,00	1 0,50	15 ,00	20 ,00	1 1,40	1 5,00	19 ,60	1 1,00	1 4,50	20 ,00	2 1,15	0, 000
n	M	0, 66	1, 00	1, 90	0, 60	0, 90	1, 50	0, 66	1, 00	1, 70	0, 60	0, 90	1, 48	7, 83	0, 049
i	N	0, 00	0, 10	0, 50	0, 00	0, 10	0, 55	0, 00	0, 00	0, 60	0, 00	0, 01	0, 68	0, 05	0, 990
o	C	0, 00	0, 01	0, 45	0, 00	0, 01	0, 23	0, 00	0, 01	0, 20	0, 00	0, 00	0, 18	1 1,16	0, 011
d	C	0, 00	0, 06	0, 11	0, 00	0, 05	0, 10	0, 00	0, 01	0, 14	0, 00	0, 00	0, 15	5, 76	0, 124
b	P	0, 00	0, 00	0, 01	0, 00	0, 00	0, 10	0, 00	0, 00	0, 10	0, 00	0, 00	0, 10	1 1,76	0, 008

a	C	7	81	97	7	77	88	7	7	78	7	7	77	4	0,
		6,90	,00	,00	5,00	,00	,00	2,00	6,90	,00	0,00	6,00	,00	2,19	000
C	Э	↓Co, Cd, Pb, Ca			↑Ni↓Co, Cd, Pb, Ca			↓Co, Cd, Pb, Ca			↑Ni↓Co, Cd, Pb, Ca				

Note: 1 – satisfactory adaptation, 2 - with pressure of adaptation mechanisms,
3 – unsatisfactory adaptation, 4 – adaptation failure.

It is necessary to consider that in the YNAR territory there is the high content of Fe (23MCL) and Mn (6 maximum concentration limits) in water [7,8]. Besides, the element structure of environment in area changes at the expense of technogenic influence of oil and gas industry. Oil is typically characterized by the presence of such elements as V and Ni in it. All components of oil can be contained in sheeted water and, accordingly, there is a probability of their receipt in fresh underground waters located above [9]. Proceeding from the aforesaid, the element status of the inhabitants from the specified chemical elements is influenced only by technogenic Ni. If to consider that first two groups on IFC belong to health according to nosological classification, and the other two - to illness, then "healthy" individuals have excessive concentration of Ni with the pressure of adaptation mechanisms, and "patients" - with decompensation of pathological process. As a whole, qualitative changes of the element status occur wavy (fig. 1).



Notes: 1 – satisfactory adaptation, 2 - with pressure of adaptation mechanisms,
3 – unsatisfactory adaptation, 4 – adaptation failure.

Fig.1. Dynamics of the element status qualitative changes at unorganized employable inhabitants of Yamalo-Nenetskiy Autonomous Region

However, despite the identical qualitative changes of the element status at various levels of adaptation, essential quantitative distinctions have been found.

Individuals with pressure of adaptation mechanisms have the concentration of Fe in 10,0 % (U=113168,0, z=3,81, p = 0,0001, Mann-Whitney), Co in 2 times (U=121297,5, z=2,11, p = 0,03, Mann-Whitney), Ca in 5,2 % (U=21587,5, z=2,55, p=0,01, Mann-Whitney) lower than

individuals with satisfactory adaptation. The correlation analysis revealed weak connections between prevalence of Fe, Co deficiency and prevalence of pressure of adaptation mechanisms ($r=0,15$, $\chi^2=7,07$, $p=0,007$ and $r=0,16$, $\chi^2=8,95$, $p=0,003$, accordingly). The contribution of Fe deficiency to formation of pressure of adaptation mechanisms made 9,0 % ($\phi =0,09$, $p=0,01$), and deficiency Co – 10,0 % ($\phi =0,10$, $p=0,003$). Hence, in unorganized population of Yamal Fe accumulation is lower within the limits of regional range combined with the increase of Co and Ca deficiencies in transition from satisfactory adaptation to the pressure of adaptation mechanisms.

At the overstrain of adaptation mechanisms the Fe concentration decreases in 10,0 % ($U=63073,00$ $z = -3,17$, $p = 0,001$, Mann-Whitney), Zn in 23,6 % ($U=58372,50$, $z = -4,63$, $p=0,000$, Mann-Whitney), Co in 2,3 times ($U=66515,50$, $z = -2,09$, $p=0,04$, Mann-Whitney) and Ca in 5,3 % ($U=9544,50$, $z = -3,79$, $p=0,0001$, Mann-Whitney) compared with indicators at satisfactory adaptation. The correlation analysis identified a number of interrelations: weak force between prevalence of Co deficiency and overstrain of adaptation mechanisms ($r=0,24$, $\chi^2=13,29$, $p=0,0003$), Zn excess and an overstrain of adaptation mechanisms ($r = -0,25$, $\chi^2=13,28$, $p=0,0003$). The contribution of Co deficiency to overstrain development of adaptation mechanisms made 14,0 % ($\phi =0,14$, $p=0,0003$). So, the overstrain of adaptation mechanisms is characterized by smaller Fe and Zn accumulation within the limits of regional range in comparison with satisfactory adaptation combined with deepening of Co and Ca deficiency.

Individuals with adaptation failure have lower concentrations: Zn in 21,4% ($U=53445,00$, $z=-4,65$, $p=0,000$, Mann-Whitney), Fe in 13,7% ($U=57892,00$, $z=-4,65$, $p=0,001$, Mann-Whitney), Mn in 11,1% ($U=60434,00$, $z=-2,35$, $p=0,02$, Mann-Whitney), Co in 2,5 times ($U=59421,50$, $z=-2,68$, $p=0,007$, Mann-Whitney), Ca in 6,6% ($U=9346,00$, $z=-5,89$, $p=0,000$, Mann-Whitney), comparing the individuals with satisfactory adaptation. Correlation analysis identified a number of interrelations: weak force between prevalence of Co deficiency and adaptation failure ($r=0,19$, $\chi^2=9,05$, $p=0,002$), moderate force between Ca deficiency and adaptation failure ($r=0,33$, $\chi^2=7,35$, $p=0,007$). Contribution of Co and Ca deficiencies to the adaptation failure development made 11,0% ($\phi=0,11$, $p=0,002$) and 13,% ($\phi=0,13$, $p=0,01$) accordingly. So, the overstrain of adaptation mechanisms is characterized by smaller Fe, Mn and Zn accumulations within the limits of regional range in comparison with satisfactory adaptation combined with deepening of Co and Ca deficiency.

Further analysis of chemical elements interaction was carried out taking into account adaptation level (Tabl. 2). Interaction force increases between concentration Zn and Co with decrease in adaptation level that, probably, is connected with the decrease in Zn accumulation.

As a whole, individuals with satisfactory adaptation have the maximum quantity of interrelations between chemical elements. It partially confirms R.M.Baevsky's hypothesis that health is "various", and illness is of "one-face"[1].

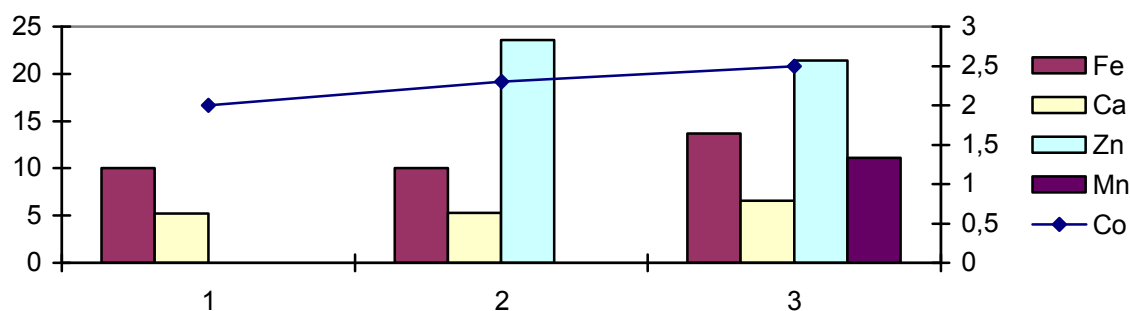
Table 2

Chemical elements interaction at inhabitants YNAR
aged 20-59 taking into account adaptation level

ChE mg/kg/g	Functional changes index											
	1, n=593			2, n=443			3, n=247			4, n=228		
	r _s	t	p	r _s	t	p	r _s	t	p	r _s	t	p
Zn & Cu	0,52	1,481	0,000	0,54	3,38	0,000	0,60	1,81	0,000	0,64	2,54	0,000
Cu & Zn	0,52	1,481	0,000	0,54	3,38	0,000	0,60	1,81	0,000	0,64	2,54	0,000
Mn & Ca	0,45	8,83	0,000	-	-	-	-	-	-	-	-	-
Ca & Mn	0,45	8,83	0,000	-	-	-	-	-	-	-	-	-

Notes: 1 – satisfactory adaptation, 2 - with pressure of adaptation mechanisms,
3 – unsatisfactory adaptation, 4 – adaptation failure.

The analysis of chemical elements concentration dynamics concerning indicators at individuals with satisfactory adaptation identified a number of laws (fig. 2). With reduction of adaptation level the depth of decrease in Fe concentration increases in organisms of northerners within the limits of regional range. Individuals with to satisfactory adaptation having initial Co and Ca deficiencies have deepening of the given chemical elements deficiencies when the adaptation level decreases. Decrease in Zn concentration was identified only at low adaptation levels within the limits of regional range. Decrease in Mn concentration within the limits of regional range was defined only at adaptation failure.



Notes: 1 – satisfactory adaptation, 2 - with pressure of adaptation mechanisms,
3 – unsatisfactory adaptation, 4 – adaptation failure.

Fig. 2. Quantitative changes dynamics of chemical elements concentration considering adaptation level of unorganized employable population YNAR.

Hence, the greatest quantitative changes in the element status of northerners were found at adaptation failure, then at pressure of adaptation mechanisms.

The research results allow to make the following conclusions:

- adaptation level of the Far North inhabitants is influenced by Fe, Co, Ca, Zn, Mn concentration;
- Ca deficiency has direct impact on the decrease of adaptation level;
- excessive Ni accumulation was identified at pressure of adaptation mechanisms and adaptation failure;
- the research results could be useful at planning of preventive actions concerning microelements in the Far North and in the territories equal to them.

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URSODEOXYCHOLIC ACID IN COMPLEX TREATMENT OF PATIENTS WITH METABOLIC SYNDROME

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Summary

The aim of the investigation. The estimation of the degree of ursodeoxycholic acid's influence on values of immunoreactive insulin, leptin, clinically-biochemical indices in metabolic syndrome.

Materials and methods. Patients with metabolic syndrome (66 persons) at the age of 38 to 67 years who got ursodeoxycholic acid in complex treatment were examined. 21 persons made up the control group. The indices of immunoreactive insulin, leptin were studied in dynamics with the use of immunoenzymatic method, the values of lipid spectrum, the data of ultrasound investigation of liver were determined.

The results of the investigation. The reliable dynamics on the part of indices of cholestatic and cytolytic syndromes was marked in patients with metabolic syndrome who got ursodeoxycholic acid against a background of conventional therapy during 8 weeks in daily dose 15 mg/kg of the weight. The use of ursodeoxycholic acid favors the decrease of hyperinsulinemia, the level of leptin, leads to a considerable decrease of indices of common cholecterol, triglycerides, the index of atherogenesis.

Conclusions. Inclusion of ursodeoxycholic acid into the complex treatment of patients with metabolic syndrome leads to the decrease of indices of immunoreactive insulin, leptin, atherogenic fractions of lipids playing a leading role in the development and progressing of metabolic syndrome.

Key words: metabolic syndrome, ursodeoxycholic acid, immunoreactive insulin, leptin, gamma-glutamyl transpeptidase, triglycerides.

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Abstract: There were presented the results of examination of patients with acute and chronic pathology of nose and perirhinal sinuses associated or not with chlamidia infection involving medical social characteristics. The authors marked that the main place in the structure of medical social types of both chlamidia infected and non-infected patients belonged to medical and social risk subjects. But we observed the decreased health level in respondents with confirmed chlamidia infection and comparatively higher range of negative social factors.

Keywords: Chlamidia infection, inflammatory diseases of nose and perirhinal sinuses, medical social state.

UDK 616.21- 036. 2 (571.513)

**POPULATION PECULIARITIES IN THE PREVALENCE OF
EAR, THROAT AND NOSE CHRONIC DISEASES
IN RURAL INHABITANTS OF KHAKASIA REPUBLIC.**

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Introduction

The population research was carried out for different groups, living under the same climatic geographical conditions and made it possible to evaluate the influence of genetic factors upon the peculiarities of functioning of physiological systems in an organism, to reveal predisposition to definite pathology [2, 11]. There are the following factors, which determine intra structure in the population in terms of predisposition to diseases: genotypic, provided by inherited characteristics of a subject, phenotypic, connected to their modulation in ontogenesis process, activities and the influence of environment [1].

At present some detailed research were executed for studying the prevalence of ear, throat and nose diseases in different ethnic groups, inhabiting central Russia, Far East, under moderate and cold conditions of Eastern Siberia [3, 6, 7, 10, 12]. The same research based on ethnic differentiation had not been held for the population of Khakasia Republic. Necessity of region and population approach to studying human health state and pathology is caused by the formation of morphofunctional, pscophysiological and metabolic peculiarities, which are specific for every population under the influence of environmental factors [2, 4].

Availability of true data on morbidity is important for determining the approach to the development of health protection system; evaluation of the efficiency of medical and social events aimed at health protection; planning different types of specialized assistance. Medical aid appealability statistics alone does not give actual pattern for studying the morbidity because such statistics greatly depends upon availability of medical assistance, medical knowledge and activity of population itself and other factors. The aim of the research was to study ethnic

peculiarities of chronic ENT pathology prevalence in Mongoloid and Europoid rural population of Khakasia Republic.

Materials and Methods.

The present research was carried out during 2004 – 2008 years. Subjects were adults in ages from 17 to 70 years. The analysis of chronic ENT pathology prevalence in rural native Khakas and alien Europoid population of Khakasia Republic was carried out after otorhino laryngological examination for 2 023 subjects. There were 1 376 Europoids of anthropologic type and 647 natives, representatives of Mongoloid anthropologic type.

Otorhinolaryngological examination included questionnaire, collecting complains and medical history, endoscopic examination. We collected information on medical hygienic situation in every residential place. While performing ENT examination we took into account all chronic diseases of ENT organs in accordance with statistical classification for diseases, traumas and death causes (MKB-10). Diagnosis for chronic diseases was carried out according to semiotics of the diseases generally accepted by otorhino laryngologists. We did audiologic examination to determine the state of hearing function in subjects having: complaints to ear pathology; anamnesis pointing to ear diseases in the past; true signs of middle ear chronic diseases.

The formation of population sample of rural alien Europoid and native inhabitants was carried out by “nest” method. We had chosen the most typical villages in terms of social economic features, medical aid, age/ gender structure. We performed randomized epidemiologic examination for the minimum quantity of subjects chosen by V.I.Paniotto method [5].

The analyzed qualitative variables are represented as comparative frequency with 95% tolerance interval (TI). The estimation of the meaningfulness of differences between relative values was carried out by z-criterion and Fischer criterion.

Research Results and Discussions.

Rural Europoid adults of Khakasia Republic showed higher level of the prevalence of ENT chronic diseases as compared to the inhabitants of other Russian regions with less extreme environmental factors and more favorable economics. In Russian central European part ENT chronic diseases were revealed in 188 - 230 subjects per 1 000 inhabitants [7, 8, 9, 10]. At the same time rural Russian inhabitants of Khakasia Republic ENT diseases were found in 385 subjects per 1 000 inhabitants (in 38.5 %, 95 % TI 35.5 – 38.3). Less frequently ($p=0.002$) ENT

chronic pathology was marked in native Mongoloids (the Khakas) showing the level of 31.5 % (95 % TI 28.0 - 35.1).

Taking into account the finding of two and more ENT chronic diseases in a number of the examined subjects, we can calculate the total of the revealed diseases in the Khakas and Europoids as 250 and 637 cases respectively. In 8 representatives of alien population rare ENT diseases were found such as different tumors, otosclerosis and ENT-organs anomaly. So without these cases we revealed in Europoids 629 subjects with chronic ENT diseases.

Analysis of ENT chronic diseases structure in rural Europoids and natives of Khakasia Republic showed that the disease of nose and paranasal sinuses are the most prevalent (Table 1). The share of pharynx diseases was only slightly less. Third position in both populations belonged to ear and mastoid diseases. Larynx diseases share was insignificantly low in both populations.

Having performed comparative analysis of the prevalence of chronic ENT-diseases in rural inhabitants of Khakasia in accordance with localization of pathology, we found pharynx diseases more frequently ($p=0.06$) in the Europoids, that is in 15.7 % cases (in 216 subjects, 95 % TI 13.8 - 17.7). In 9 of them we diagnosed 2 pharynx diseases in each. In the Khakas chronic pharynx pathology was revealed in 12.5 % of the examined subjects (in 77 patients, 95 % TI 10.1 - 15.2). In 3 representatives of mongoloid population we found 2 diseases of this localization in each.

The frequency of revealing the diseases in nose, paranasal sinuses, ear, mastoid and larynx didn't differ much in Mongoloids and Europoids ($p>0.1$) and approached 13.1 % (95 % TI 10.6 - 15.8) and 15.9 % (95 % TI 14.0 - 17.9), 8.8 % (95 % TI 6.8 - 11.1) and 9.2 % (95 % TI 7.7 - 10.7), 2.8 % (95 % TI 1.7 - 4.2) and 2.3 % (95 % TI 1.5 - 3.1) correspondingly.

In comparison with other chronic ENT diseases we diagnosed more frequently inflammatory pathology of middle ear, pharynx, nose and paranasal sinuses ($p=0.02$) in aliens: in 38.5 % (95 % TI 32.5 - 37.5) against 34 % (95 % TI 26.1 - 33.1) in the Khakas. The combination of several diseases of inflammatory genesis in one or several localizations was met practically with the same frequency ($p=0.9$) in both populations. In Mongoloids and Europoids 5.1 % (95 % TI 3.5 - 6.9) and 5.2 % (95 % TI 4.1 - 6.5) correspondingly.

In aliens the prevalence of pharynx inflammatory diseases differs statistically true ($p=0.05$) from this index in native Mongoloids and amounts to 15.6 % (95 % TI 13.7 - 17.5). In the Khakas we diagnosed pharynx, affected by inflammatory process in 12.4 % subjects (95 % TI 9.9 - 15.0).

Indices of prevalence of the mostly frequently diagnosed separate nosological forms of chronic diseases in ENT-organs are shown in Table 2. We revealed more frequently paranasal sinuses diseases ($p=0.04$), deflection of nasal septum ($p=0.05$) and chronic rhinitis ($p=0.05$)

among chronic pathology of nose in Europoids as compared to natives. Higher prevalence of chronic rhinitis in aliens was caused by increased frequency of catarrhal form, which was diagnosed in 3.0 % cases (95 % TI 2.1 - 3.9) against 1.2 % (95 % TI 0.5 - 2.2) in the Khakas ($p=0.01$).

Also we marked considerable differences in the prevalence of some chronic pharynx diseases, namely chronic tonsillitis. It was marked more often in aliens: in 5.3 % (95 % TI 4.2 - 6.6) against 3.4 % (95 % TI 2.1 - 4.9) in the Khakas.

Leading diseases in terms of prevalence in the examined population were chronic pharyngitis (stands 1-st), chronic sinusitis (stands 2-nd) and chronic rhinitis (stands 3-rd), regardless ethnic belonging.

Conclusion.

So, the prevalence of chronic ENT diseases in rural adult inhabitants of Khakasia Republic regardless their ethnos is higher than the level of chronic ENT morbidity in population of European (central) part of Russia.

The results of the research showed the presence of qualitative and quantitative ethnic factors in the prevalence of chronic ENT pathology in adult inhabitants of Khakasia rural districts. Peculiarities of epidemiology of chronic ENT diseases in the Europoids, sharing ecologic conditions in the same places of residence with native Khakas population are determined by more frequent chronic ENT pathology, including inflammatory, such as rhinitis, sinusitis, deflection of nasal septum and tonsillitis. The same trends were found after comparative analysis of prevalence indices for chronic ENT diseases in the Khakas and the Europoids, urban inhabitants of Khakasia.

The existence of ethnic factors in the prevalence of chronic ENT-pathology is explained by ecological conditions, which affect biological basis in a human and provide different influence upon groups of subjects with different gene sets. Genetic structure determines the peculiarities of the response to the influence of the same environmental factors and causes specific morphofunctional characteristics, including particular features of morbidity.

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Abstract

The article shows the indices of prevalence and structure in chronic otorhinolaryngologic pathology in rural native and alien people of Khakasia Republic. The authors examined 2030. subjects by random. The results of cross-section research revealed high prevalence of the pathology in Ear-Nose-Throat-organs in rural population of the republic irrespective of ethnic belonging. Comparative analysis of prevalence indices corresponding to the Europoids and the Khakass determined the range of ethnic peculiarities in epidemiology of chronic diseases of ear, nose and throat.

Key words: the prevalence, chronic diseases of ear, nose and throat, ethnic peculiarities, the Khakass, the Europoids.

Table 1.

Structure of Chronic Diseases of Ear, Troat and Nose in Rural Inhabitantsof Khakasia Republic.

Group of Diseases	Natives of Khakasia (the Khakas)		Aliens of Khakasia (the Europoids)	
	n	%	n	%
Ear and mastoid diseases	57	22.8	128	20.3
Nose and paranasal sinuses diseases	91	36.4	245	39.0
Pharynx diseases	84	33.6	225	35.8
Larynx diseases	18	7.2	31	4.9
ENT-diseases totally	250	100.0	629	100.0

Table 2.

The prevalence of some nosological forms of chronic ENT pathology in rural inhabitants of Khakasia.

Nosological forms	The Khakas (n=647)		The Europoids (n=1376)		Statistical significancy of the differences
	N	% (95% TI)	n	% (95% TI)	
Ear and mastoid diseases					
Chronic purulent middle otitis	27	4.2 (2.8-5.8)	48	3.5 (2.6-4.5)	0.5
Adhesive middle otitis	12	1.9 (1.0-3.0)	29	2.1 (1.4-2.9)	0.7
Sensorineural hearing loss	14	2.2 (1.2-3.4)	31	2.3 (1.5-3.1)	0.9
Nose and paranasal sinuses diseases					
Chronic rhinitis	40	6.2 (4.5-8.2)	97	7.1 (5.8-8.5)	0.05
Chronic sinusitis	42	6.5 (4.7-8.5)	125	9.1 (7.6-10.7)	0.04
Deflection of nasal septum	7	1.1 (0.4-2.0)	31	2.3 (1.5-3.1)	0.05
Pharynx and larynx diseases					
Chronic tonsillitis	22	3.4 (2.1-4.9)	73	5.3 (4.2-6.6)	0.05
Chronic pharyngitis	61	9.4 (7.3-11.8)	150	10.9 (9.3-12.6)	0.3
Chronic laryngitis	18	2.8 (1.7-4.2)	31	2.3 (1.5-3.1)	0.5

Notes: statistical significancy of the differences was determined by the Fischer's exact criterion.

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The article shows the indices of prevalence and structure in chronic otorhinolaryngologic pathology in rural native and alien people of Khakasia Republic. The authors examined 2030. subjects by random. The results of cross-section research revealed high prevalence of the pathology in Ear-Nose-Throat-organs in rural population of the republic irrespective of ethnic belonging. Comparative analysis of prevalence indices corresponding to the Europoids and the Khakass determined the range of ethnic peculiarities in epidemiology of chronic diseases of ear, nose and throat.

Key words: the prevalence, chronic diseases of ear, nose and throat, ethnic peculiarities, the Khakass, the Europoids.

Ivanova F.G., Ivanov P. M., Zharnikova T.N., Gorbunova V. A.

Chemotherapy of colorectal cancer

A comparative analysis of efficacy and toxicity of standard chemotherapy scheme irinotecan + fluorouracil + leucovorin in patients with colon cancer in the Blochin's Oncological Centre and chemotherapy department of Oncologic dispensary was held. Particular attention was paid to tolerability and toxicity of the given chemotherapy scheme. The findings suggest that the standard chemotherapy regimen irinotecan + fluorouracil + leucovorin is an effective and well tolerated treatment for colon cancer.

Keywords: colon cancer, chemotherapy, efficacy, toxicity, irinotecan, fluorouracil, calcium folinate (leucovorin).

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**ENDOGENOUS RISK FACTORS OF BREAST CANCER IN WOMEN IN
YAKUTIA**

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Questioning among the patients with diffuse dishormonal diseases of mammary glands, living in terrain of Republic Sakha (Yakutia) and consulted by the oncologist-mammologist, is made and the data of out-patient cards of patients for the purpose of studying of the endogen factors, characterizing function of reproductive system of organism, and the endocrine-metabolic infringements caused by concomitant and previous diseases is analyzed. It is revealed that women with fibrocystic disease of the breast have all known risk factors of breast cancer.

Keywords: mammary gland, risk factors of breast cancer, fibrocystic disease of the breast, the individual reproductive anamnesis.

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Chernjaev A.L., Argunov V. A., Egorova N.E., Pominalnaja V. M., Argunova A.N., Samsonova M.V.

Pathological anatomy of flu in Yakutia in 2009

Results of the analysis of the clinical picture and pathologic anatomy of 4 cases of severe influenza during the period autumn-winter 2009 in the Republic Sakha (Yakutia) are presented. The predominance of the different phases of diffuse alveolar lesion with blocking of vascular walls of the alveoli with massive hyaline membranes, which indicates that purely viral pneumonias with development of early acute respiratory failure, infectious-toxic shock with the affection of several organs is noted. Adherence of bacterial flora does not always happen. Analysis of observations of the dead in the Republic of Sakha (Yakutia) suggests that regardless of the version of the influenza virus, pathological changes are stereotypic. It should also be noted that pulmonary ventilation was not carried out in any observation, and patients did not receive adequate antiviral therapy.

Keywords: influenza, viral pneumonia, pathological anatomy

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TECHNIQUE OF EARLY DIAGNOSTICS OF THE OSTEOPOROSIS

Petrova M.

The osteoporosis is a widespread medical problem and covers all population, irrespective of a sex, develops without symptoms throughout decades, demonstrating fractures after an insignificant trauma. Preventive maintenance osteoporotic fractures which are the main reason of disease, physical inabilities and death rates, is possible and necessary. For today a densitometry – a unique authentic way of diagnostics of an osteoporosis at an early stage when disease gives in to treatment.

Keywords: an osteoporosis, fractures, disability, early diagnostics of an osteoporosis, a densitometry, rheumatologic center, diagnostics, treatment and prophylaxis consulting-room.

Introduction. The first decade of the XXI-st century proclaimed World Health Organization (WHO) on the International Decade of Bones and Joints (The Bone and Joint Decade 2000-2010), starting in January, 2000 in Geneva comes to the end. Attraction of attention of the wide public worldwide to the patients, suffering rheumatic diseases, for improvement of quality of life and saving of health of these persons was the purpose of Decade.

In 1994 the WHO officially recognized and has defined an osteoporosis (OP) as system disease of a skeleton from group of metabolic osteopathy which is characterized by reduction of bone weight and disorders of a bone tissue microarchitectonics that leads to decrease in durability and increase of risk of occurrence of fractures. In the International classification of illnesses OP it is carried in XIII statistical class of illnesses of osteo-muscular system and a connective tissue [1].

The initiative of carrying out of Decade has supported more than 750 professional medical organizations and societies of patients, the WHO and the United Nations. The secretary general of the United Nations mister Kofi Annan in the message to opening of Decade has underlined that already now there are effective ways of preventive maintenance and treatment of disabling conditions, including from the osteo-muscular device, therefore has ripened necessity actively to realize them.

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The idea of Bones and Joints Decade was based 2000-2010 on success of Decade of the Brain 1990-2000 which has drawn attention of the public and has raised support of researches, especially at Alzheimer's disease, as well as on success the last decade Declarations the Sant-Vinsent which has appeared effective concerning increase of standards of the help to diabetics.

Following problems of Decade have been defined: comprehension by a society of sufferings and the price of joint-skeletal infringements; possibility for patients to participate in the decision-making, concerning their health; comprehension by a society of necessity of improvement of

preventive maintenance and treatment by carrying out of scientific researches. The basic illnesses in which relation within the limits of a Decade work has been spent: illnesses of joints, OP, a pathology in the field of a backbone, a serious trauma of extremities, children's muscular-skeletal infringements

Decade was based on the multidisciplinary initiative involving in the activity any who is ready to help with perfection of methods of preventive maintenance and treatment, including workers of public health services, scientists, patients and, especially, politicians. So, known women-politicians and public persons – the Queen Sofia, Queen Raniya, Valentina Matvienko became patronesses of National societies on preventive maintenance OP, etc.

In 2006 at the initiative of the Russian association on OP one-stage multicenter inter-regional research with participation of doctors of a practical link of public health services within the limits of the program «Northern star» in which doctors from 30 cities of Russia have taken part has been conducted. During this period schools for patients OP have started to work, seminars for doctors of various specialties were held, hospitals began to be equipped with densitometers [2]. Thanks to the actions spent within the limits of Decade, and inhabitants PC () had a possibility to pass early diagnostics OP.

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Prevalence of an osteoporosis and its consequence

By data the CART, among noninfectious diseases OP takes the fourth place after illnesses of cardiovascular system, an oncological pathology and diabetes. OP is a principal cause of crises of a neck of the hip, often meeting at women is more senior 65 years. OII, causing the considerable sufferings, leading to physical inability, became extremely important social and economic problem.

According to WHO's criteria, from 13 to 18 % of women at the age from 50 years also is more senior have OII and from 37 to 50 % low bone weight. Prevalence of this disease in the world increases constantly and estimated on the scales as global epidemic. 40 % of women and 12 % of men have real risk of development of this disease. Growth of number of patients with OP is promoted by modern style of life (intensive diets for fast weight reduction, an inactive way of life), life expectancy increase.

Among persons everyone is more senior 50 years 10th has the crisis of a vertebra everyone 200th – fractures of distal part of a forearm, everyone 1000 – fractures of a hip's neck. Researches show that in 10-15 years after approach of a menopause at 30-40 % of women develops OP, and at persons it is more senior 70 years is defined more than in 70 % of cases. It means that every second woman and every eighth man will have OP. Therefore, if today not to accept preventive maintenance effective measures, through some tens years frequency osteoporotic fractures can reach epidemic scales. After fracture of a neck of a hip of 30 % of patients become invalids of 1 and 2 groups, loading on the country budget is available.

In the USA death rate at hip fractures makes 4-11,5 %. At patients with hip crisis in houses on leaving death rate for 3 months reached 23 %, in comparison with 10,5 % at the persons who did not have crises. In Belarus almost 130 thousand persons annually suffer from the fractures connected with OP. More often such patients need special leaving and expensive medicines. Complications of OP – a serious problem from the economic point of view [8].

First of all, at women in a postmenopausal vertebrae, femoral and beam bones are surprised. In these bones also arise osteoporotic fractures. As examples serve: fractures of a beam bone in a typical place; compressive fractures of bodies of vertebrae therefore at women in a postmenopause (sometimes growth decreases for 7-8 sm.) and fractures of a neck of a hip which represents the greatest health hazard. So, the lethality within the first year after such crisis in various cities of Russia fluctuated from 30,8 % to 35,1 %, and from the survived 78 %, after a year, and 65,5 % after two years need a permanent care. It is established that at postmenopausal OP similar changes occur and in the top and bottom jaw, result of that is occurrence of various diseases of an oral cavity and, as consequence, loss of teeth [4].

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Frequency of OP last decades constantly increases. At densitometry of persons the WHO is more senior 50 years, according to criteria, the osteoporosis in Russia is revealed at 30,5-33,1 % of women and 22,8-24,1 % of men. One of three women and one of five men of this age group have OP.

It is considered that risk to be ill OP at men approximately three times more low, than at women. Risk factors of development of an osteoporosis at men: a low index of weight of a body, smoking, hereditary predisposition to OP, alcoholism, absence of physical activity, a lack of calcium of an organism. The probability of crises of bones of a coxofemoral joint at men in the countries of Europe makes from 13 to 25 %, and prevalence of crises of bodies of vertebrae is identical at men and at women. In Great Britain, for example, it makes 12 % at men and 10 % – at women. Epidemiology of OP among men in Asia the urban saturation in the state differs from the country to the country, and, than above, is especially extended in it «man's» OP. For example, frequency of crises of bones of a coxofemoral joint at the men-Chinese living in Hong Kong, on 70 % above, than at inhabitants of Thailand. At Chinese of Hong Kong frequency of fractures of bones of coxofemoral structure made approximately 5 cases on 1000 elderly men and 8 cases on 1000 elderly women, and prevalence of crises of bodies of vertebrae made 17 % at men and 30 % at women [6].

Unfortunately, for today there is no statistical data about prevalence OP in Republic Sakha (Yakutia). Crises without instructions of the reason which have led to loss of mineral density of a bone tissue (BMD) are considered only, frequently OP is diagnosed casually – in X-ray pictures crises of vertebrae or wrist bones are found out.

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Diagnostics of OP

- X-Ray. Roengenologically to diagnose osteopenia and initial displays of an osteoporosis it is impossible, as loss less than 25-30 % of bone weight on roentgenograms isn't visible. This method matters for diagnostics of fractures.

- Quantitative definitions of BMD. The X-ray densitometers, allowing to make the objective diagnosis of an osteoporosis, to define to osteopenia, are presented by two types of devices:

- ~ Two-power x-ray densitometers (DXA) the axial.

- ~ The peripheral scanners of system DHA estimating BMD of beam bones;

- DXL densitometers work on technology which has applied for the first time three-componental model of fabrics.

- the Quantitative computer tomography. The estimation of a macrostructure of a bone is spent.

- Ultrasonic diagnostics (density densitometry). Devices at which help probably only to allocate group of the raised risk on the first screening stages of research [3].

The technique of a bone density densitometry is based on a principle of absorption (absorption) by a bone fabric of the photons radiated by a X-ray tube, in the quantity proportional to the maintenance of calcium in a bone. Numerical value of this indicator turns out by calculation of a difference of quantity of the photons entering into the investigated part of a bone fabric and leaving it. Soft fabrics also absorb a quantity of photons in this connection each of listed above technologies uses various methods for calculation of number of the photons absorbed by soft fabrics.

At carrying out two-power x-ray absorptiometry (DXA) use two bunches of X-rays of high and low energy. The known difference in degree of absorption of these X-rays between a bone fabric and soft fabrics allows to calculate BMD (after the amendment made taking into account absorption of photons by soft fabrics). This technology allows to receive indicators BMD very much split-hair accuracy. To exclude from results of research influence of soft fabrics allows to use possibilities of this technology DXA at measurement of BMD in the central sites of a skeleton: in lumbar department of a backbone and in a femur (including a neck of a hip and the

big spit). These sites represent the greatest interest for clinical physicians since in them there are the heaviest crises more often.

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Besides, many of these devices are supplied by the program «all body», allowing to define the maintenance of minerals in all skeleton, and also muscular weight and a fatty fabric. Now systems DXA are most widely used in clinical practice and are the most studied and popular systems in the world. In new updatings of devices DXA there is a possibility of lateral scanning and morphometry measurements of vertebrae that considerably raises информативность this method. The patient during research lays down on the special table, as a rule dressed, and the special device ("hand") moves around its bodies.

Peripheral two-power x-ray absorptiometry (pDXA). Rather recently technology DXA has been adapted for an estimation of condition МИКТ in the field of peripheral sites of a skeleton, in particular, in the field of a forearm, and also a forearm and a calcaneal bone. This technology allows to create the image proximal and distal sites of beam and elbow bones of the same type and quality, as well as the images created by means of DXA, and also higher throughput, in comparison with DXA.

Densitometers are subdivided on stationary, allowing to scan an axial skeleton, and portable with which help it is possible to receive representation about BMD extremities. Both models have the advantages as can be used in various premises. Portable win, of course, in cost and in possibility of inspection of patients with the limited possibilities, and also for screening BMD of inhabitants in villages (fig. 1).

Beam loading at densitometry research so low that the device doesn't demand a special premise. The density densitometry allows to define BMD and to predict risk of development of crises. This research plays an important role in revealing OP an early stage when crises still aren't present. For today a density densitometry – a unique, authentic way of diagnostics OP at an early stage when disease gives in to treatment. This technology is successfully used in Europe, the North America, China and Japan [7].

The density densitometry is shown following groups of patients: to women at the age of 65 years also is more senior; to women in a postmenopause 65 years in the presence of risk factors are younger; to men at the age of 70 years also is more senior; to adult persons with osteoporotic fractures; in the presence of diseases or the conditions accompanied by decrease of bone weight; to all persons accepting therapy, iatrogenic concerning loss of weight of a bone; to all patients accepting antiosteoporotic treatment for an estimation of its efficiency; to all persons who yet weren't accepting treatments but by whom it can be demanded at decrease BMD.

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Skeleton sites to which measurements are spent:

- a backbone in a back-forward projection and proximal departments of a femur (for stationary densitometers);
- a forearm in following cases: impossibility of a density densitometry of a hip and-or a backbone or interpretation of its results; presence hyperparathyroidism; the expressed surplus of weight of a body.

As a result of inspection the patient receives the digital image of the high permission and the conclusion containing quantitative characteristics, confirming or denying diagnosis OP, and also evident color listing with the schedule of age changes BMD (fig. 2 and,).

In modern clinical practice individual BMD it is compared with reference a database. Because of various methods of measurement, depending on the various equipment, the most comprehensible way of estimation BMD – an estimation with use T - and Z - criteria [4] (tab. 1, 2).

The mass researches directed on diagnostics OP and control of efficiency of applied treatment are conducted. Early diagnostics OP is a guarantee of its successful treatment. Bone densitometers in Russia are used since 1991.

Materials and research methods. The summer of 2009 (from May till September) in Yakutsk for the first time spends the unique action. Pharmaceutical company Nycomed had been gave x-ray densitometer DTX-200, the USA. All interested persons could define BMD free of charge.

In total 3784 townsmen and villages are surveyed. Prevailing age surveyed – 50-60 years (fig. 3.). Patients for whom the T-criterion (basically has been defined, surveyed is more senior 50 years) there were 2649 people. At 1457 (55 %) is defined normal BMD, at 662 (25 %) – osteopenia, at 530 (20 %) - OP. At analysis BMD on age groups the following data (fig. 4) is obtained.

Results and discussion. Regretfully it is necessary to ascertain that already at the age of 40-50 years it is marked OII, according to a density densitometry (6 %). At inquiry these surveyed didn't show complaints, didn't feel discomfort. Certainly, in more senior age groups the natural tendency to decrease BMD is marked.

Similar screening of the population on OP has been spent in Omsk (all 1726 people), in Surgut (650), in Krasnoyarsk (1760), in Nefteyugansk (3852), in Berezniki (2296) are surveyed, to Ulan-Ude (3807) (fig. 5). The Fig. 6 displays share OII among the population of the surveyed cities. It is interesting to notice that in Yakutsk, Ulan-Ude and Nefteyugansk the comparable number of inhabitants is surveyed, and among yakutian OP came to light more often. In the subsequent it is necessary to analyze carefully cases OP, especially at persons of young age. To conduct corresponding researches for careful diagnostics of a cause of illness, to reveal risk factors, to correct a diet and physical activity at the given category of patients.

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On April, 13th, 2010 has occurred significant for rheumatologic services of Republic of Sakha event on the basis of municipal rheumatology center (MRC) the Consulting-room of diagnostics, treatment and osteoporosis preventive maintenance (fig. 7, 8, 9) has opened. The equipment was given by pharmaceutical company Novartis. All interested persons can pass a densitometry in this Consulting-room, receive consultation of the rheumatologist. And for the patients passing hospitalization in Yakut state hospital this procedure is free. Methodical maintenance of work of an office is carried out with support of companies Novartis and Nycomed. In MRC «Osteoporosis Schools» where doctors tell to patients about various aspects of such multilateral problem, as OP are regularly spent.

The conclusion. OP is a widespread medical problem not only at women, but also at men, that is covers all population, irrespective of a sex. In this connection especially important constantly to raise level and diagnostics possibilities, to care of decrease in risk factors, and also to develop new effective preparations. Though osteoporotic fractures are the main reason of disease, physical inability and death rate, their preventive maintenance is possible and necessary.

For today a x-ray density densitometry – a unique authentic way of diagnostics OII at an early stage when disease gives in to treatment. Now Yakutian have unique possibility to pass densitometry inspection in Yakutsk. Introduction of this technique in hospitals of Yakutsk corresponds to modern requirements for diagnostics and control of therapy OP.

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Tab. 1.

Interpretation of results at an estimation of indicators BMD at women in a postmenopause, perimenopause and at men at the age of 50 years also is more senior

BMD (T-criterion)	the Diagnosis	Risk of crises
+2 to -1 SD	Norm	Low
1 to - - 2.5 SD	Osteopenia	Moderated
>-2.5 SD	the Osteoporosis	High
>-2.5 SD + crises	the Heavy osteoporosis	very high

The T-criterion represents quantity of standard deviations above or below an average index of peak of bone weight of young women. The T-criterion decreases in parallel with gradual decrease in bone weight at increase in age of surveyed persons.

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Tab. 2

Interpretation of results at an estimation of indicators of mineral density of a bone fabric at women before a menopause and at men is younger than 50 years

BMD (Z-criterion)	the Diagnosis	Risk of crises
+2 to -2 SD	Norm	Low
> - 2.0 SD	Osteopenia Moderated	
>-2.0 SD (presence of crises, risk factors)	the Osteoporosis	High

Z - The criterion represents quantity of standard deviations above or below an average index for persons of similar age. If this indicator is unusually high or low, it can specify in necessity of carrying out of the further analyses

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Fig. 1. X-ray absorptiometry (DXA). A density densitometry of bones of a forearm.

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Fig. 2. And. Densitogramm of women of 57 years (age more than 50 years, a menopause from 44 years look at T-criterion). The conclusion: bone weight at the given patient in norm (T-0,2).

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Fig. 2. Densitogramm of young men of 18 years (we look at Z-criterion). The conclusion: decrease in bone weight, in comparison with age norm (Z-criterion-2,2). It is known that last year, having jumped off from a horizontal bar, the young man has received clavicle crisis. It is recommended to spend additional examination.

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Fig. 3. Age surveyed on a densitometer in 2009.

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Fig. 4. Mineral density of a bone fabric in different age groups (Yakutsk, 2009).

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Fig. 5. Mineral density of a bone tissue of the patients who have passed a density densitometry in different cities.

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Fig. 6. OP among surveyed according to a density densitometry in different regions.

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Fig. 7. Solemn opening of an office of diagnostics, treatment and preventive maintenance of an osteoporosis on the basis of MRC of Yakut State Hospital on April, 13th, 2010. Head of MRC Markova O. G, and honored guests from Irkutsk (on the right – the senior medical representative of pharmaceutical company Novartis of Eugenia Miller).

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Fig. 8. A salutatory speech of main traumatologist of Far East Federal Region, Ph.D., Professor Palshin G. A.

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Fig. 9. At densitometry carrying out it is necessary to know growth and weight of the patient. Scales – gifts from company Nycomed – are handed over by medical representative Zabela T.D.

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A.V. Noskov, V.V. Yanovoy, K.A. Cepelev
THE NEW ENDOSCOPIC VARIANT OF NEFROPEXY.

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Surgical treatment of nephroptosis remains one of the most pressing problems in modern urology. This is due to the prevalence of disease which has 6,2% in the population of the patients with urological diseases and nearly 18,4% in the population of the patients with pathology of kidneys, as well as with high social importance of the disease. The basic treatment mode of nephroptosis and its complications is an operative intervention.

At present more than 300 variants of surgical treatment of nephroptosis are known and a search of new modifications of operations lasts, it depends on the dissatisfaction with the late fate of the existent treatment methods of the surgery treatment, a rather high percent of relapses of the disease and the existence of the postoperative complications. Some of the operations widely used previously, became unpopular among the clinicians because they are not physiologic and ineffective. Widespread methods of nephropexy both open and endosurgical have little in common with gentle attitude toward perirenal space. They are performed with the wide dissection of the fascial-fatty renal capsule, that in turn injures and destroys suspensor structures providing normal anatomic structure of the kidney and physiologic mobility of the organ.

With introduction of the endovideosurgery operations in the clinical practice an important gentle type of the operative intervention was reached. The next point was to study the main blood flow in the vessels of the kidney and the degree of normalization after nephropexy as one of the leading units, which requires correction at nephroptosis.

Major existing requirements to nephropexy are the following: anatomical orthotopic with a simultaneous preservation of normal physiological mobility of the kidney, technical simplicity of realization, atraumatic. On the assumption of these requirements, we have developed and introduced into clinical practice a method of endoscopic nephropexy with a T-shaped polypropylene flap (patent for an invention №2311151 from 2007). Developing this method we relied on the results of the known experimental researches of the peritoneum mechanical properties.

Materials and methods:

In the urological department of the Amur Regional Children's Clinical Hospital there were 15 patients with the diagnosis: nephroptosis of II-III degree on the right by. Patients were in the age from 16 to 35. All the patients were operated by the classical indications existing in this pathology. The patients were operated with the method of endoscopic nephropexy with a T-shaped polypropylene flap. The introduced endovideosurgery method includes dissection of the parietal peritoneum on the level of the middle third of a nephroptosis kidney on the area of 2.0x1.0sm. Then separation of the renal capsule from paranephric fat takes place. After that the parietal peritoneum is dissected 2.0sm above the upper pole of the kidney on the area of 2.0x1.0sm and preperitoneal canal between two incisions is forming with the help of dissector. A T-shaped polypropylene net size of 2.0x1.0sm is threaded through the generated preperitoneal canal. Then its lower edge is fixed to the renal capsule in its middle third with a gerniostepler, the kidney is lifted up to its normal disposition and the T-shaped upper edge of the polypropylene net is fixed to the parietal peritoneum with the gerniostepler. The operation is over with a restoration of integrity of the parietal peritoneum. The aim of the use of the T-shaped transplant is the increase in the touch area to the peritoneum and setup stiffness of the kidney. The operation period averaged 25 minutes. The patients could stand up and walk wearing a surgical corset on the second day. The patients were discharged from the hospital on the seventh day after the operation.

All the operated patients had dopplergraphic examination of the abdominal blood flow in the lying and standing positions both between and in 6 months after the operation.

Results and discussion:

According to the control of ultrasound and X-ray examination in 6 months after the operation every of the 15 patients had his operated kidney within normal physiological limits both in the lying and standing positions. Its excursion was of 2-4sm relatively to the diaphragm. There were no both signs of urodynamics abnormality and attacks of pyelonephritis.

However 3 patients suffering from nephroptosis of the third degree still had pain syndrome, but it became apparent only in case of physical activity though the kidney was in the physiological limit. This group of patients didn't have the complete normalization of the renal blood flow, meanwhile its velocity characteristics improved in comparison with initial ones. It can be explained by the disease duration and the appearance of the organic changes in the renal vessels.

The rest of the patients had the restoration of the renal blood flow in the great vessels practically to the standard what is demonstrated by the dopplergraphic research of the renal blood flow.

Resume:

1. The developed method of the endoscopic nephropexy with a T-shaped polypropylene flap obeys the methods of the surgical treatment of the pathologically movable kidney: anatomical orthotopic with a simultaneous preservation of normal physiological mobility of the kidney, technical simplicity of realization, atraumatic and good functional results. All above-listed gives the foundation to include this method to the list of nephroptosis operations.

2. Implementation of the dopplergraphic methods of testing in the daily clinical urological practice allows to assess objectively the degree of impairment and recovery of the heterodynamics in the pathologically movable kidney between and after a surgery correction.

3. An earlier correction of the kidney is reasonable because the subsequent organic changes in the parenchyma of the kidney may lead to the irreversible changes.

Grebennik A.G.

Research of regional ventilating function of lungs in patients with bronchial asthma by means of computer tomography with inspiratory-expiratory test

Computed tomography study with inspiratory-expiratory test was performed in 84 patients with bronchial asthma. It is revealed that regional ventilation changes are correlated with severity and duration of the disease.

Keywords: bronchial asthma, regional ventilation lung function, computed tomography.

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Kiprijanova N.S., Ivanov P. M., Naumova A.I., Makarova N.N.

Criosurgical method of treatment of gynecologic pathology in out-patient conditions, as prevention of cervical cancer

Based on analysis of treatment of 1673 women of reproductive age the efficiency of the cryogenic method in treatment of genitals benign diseases in outpatient conditions is highly appreciated. Epithelialization of the cryodestruction locus was 6-9 weeks, patients preserved work capacity.

Keywords: cryogenic treatment method, cervical cancer, cryodestruction.

DEVELOPMENT OF FAMILY MEDICINE IN THE REPUBLIC SAKHA (YAKUTIA)

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Formation stages of general medical practice (family medicine) in Yakutia as the basic component of primary medical aid have been presented in this article. Regulating documents concerning to family doctor's duties are noted. The experience of inculcating the structure of general medical practice (family medicine) on the regional level as well as the role of the Medical Institute of the North-Eastern Federal university in training specialists are shown; unsolved issues are considered.

Key words: general medical practice, primary medical-sanitary aid, prophylaxis of diseases, Yakutia.

The development of general medical (family) practice in the northern conditions is to be of great importance. Low density of the population in the republic, remote location of local ambulance stations and in-patient hospitals, lack of all-the-year-round transportation cause the medical help service to be transferred into the general medical practice for availability of primary medical aid. In this connection, an institute of general medical practice in the republic is assumed to be founded.

The primary medical sanitary aid by the principle of general medical practice (family medicine) in our republic have started reforming since 1997 when for the first time five doctors were directed to clinical internship on family medicine of the Far East State Medical university.

A model of organizing the general medical practice (GMP) in a city polyclinic has been realized on the example of Polyclinic № 4 of Yakutsk since 1999. In 2004 the department of general medical practice was founded in the Polyclinic №1 of Yakutsk city. Since 2000 in the village Oktemtsy the local hospital has started working by the principle of general medical practice, it having been supported actively by the Medical Institute of the Yakutsk state university and granted by Soros fund on 14,000 USD concerning the project «Organization of general medical practice in rural conditions». Since 2001 on the basis of the medical institution Oktemsky the courses concerning to general medical practice have been conducted by clinical interns of the Department of Post-Diploma Education of medical general practice of the Yakut state university.

In 2005 the Republican purpose-oriented program «Inculcation of general medical (family) practice in the Republic Sakha (Yakutia) for 2005-2010» has been adopted according to such regulating documents as the decree of Ministry of Health of the Russian Federation from August, 26th, 1992 №237 “Stage-by-stage transition of organization of the primary medical aid by the principle of general medical’s activity (family doctor)”, the decree of the Ministry of Health of the Russian Federation from December, 30th, 1999 №463 “The branch program “General medical (family) practice”, the governmental decree of the Russian Federation from November, 5th, 1997 №1387 “The concept of development of public health services and medical science in the Russian Federation”, the governmental decree of the Republics Sakha (Yakutia) from February, 12th, 2000 №78 “The concept of improvement of public health services in the Republic of Sakha (Yakutia)”, the concept of development of public health services and medical science in the Russian Federation for 2001-2005 and for the period till 2010, the decision of board of the Ministry of Health RF from 1/15/2002 “Inculcation of the branch program “General medical (family) practice”, the decree of the Ministry of Health of the Russian Federation №350 from 11/20/2002 “Improvement of out-patient-polyclinic help to the population of the Russian Federation”, the decree of Ministry of Health of the Russian Federation №112 from 3/21/2003 “Regular specifications of the Center (branch) of general medical practice” and the decree of the Ministry of Health of the Russian Federation №229 from 6/3/2003 “Common nomenclature of state and public health services municipal authorities”. This Program has preventive orientation, contains basic novelty regarding rendering of primary medical aid to the population and answers the basic directions “Concepts of improvement of public health services of the Republics Sakha (Yakutia)”.

From 2002 for 2006 the purpose-oriented program «Inculcation of general medical practice in the Republic Sakha (Yakutia)» was inculcated due to which doctors of primary link of public

health services and general practitioners were trained and 22 local hospitals supplied with medical equipment as well. Within the limits of the given program the Department of General Medical Practice (family medicine) was founded on the basis of the Medical institute of the Yakut state university named after M.K.Ammosov in 2002 . In 2005 the Medical Institute YSU obtained a license for clinical internship on the speciality «General medical practice». The candidate of medical sciences, senior lecturer Andrey Viktorovich Podkolzin being the first head, made great contribution to the organizing work of the department. Since 2006 the doctor of medical sciences Tatyana Matveevna Tyaptirgyanova managed the Department. The Department was engaged in under-diploma education on the cycle "Polyclinic" on the sixth course of the Therapeutic faculty MI YSU and post-diploma education – clinical internship and professional re-educating of doctors on the speciality «General medical practice (family medicine)». Since 2009 the Department of General Medical Practice (family medicine) has joined the Department of Hospital Therapy of the Medical Institute YSU.

Now in the republic the development of general medical (family) practice is considered to be on the second stage. The state purpose-oriented program «Public health care of RS(Y)» has been elaborated and inculcated by the staff of the Medical institute of Northeast Federal University and experts of Ministry of Health RS(Y), where the development GMP is recognized as a priority direction.

Now the retraining of general practitioners is conducted on the basis of the Department of Internal Diseases and General Medical Practice of the Institute of Post-Diploma Education of Doctors of the Medical Institute of our university, and also outside of the republic (Khabarovsk, St.-Petersburg, Irkutsk, Blagoveshchensk, Moscow). The Institute of Post-Diploma Education of Doctors of the Medical Institute was founded in 2007 on the basis of the existing Faculty of Post-Diploma Education of Doctors. The senior lecturer A.V.Podkolzin was the first dean of this faculty, now the director of the Institute the Candidate of medical sciences, senior lecturer is L.A.Aprosimov. The Institute prepares doctors through clinical internship on 21 specialities, clinical internship having 23 specialities, including GMP.

From 2002 to 2010 within the limits of executing the purpose-oriented program «Inculcation of General Medical Practice in RS(Y) 167 doctors have been educated. To sum up, 34 persons have been trained through clinical internship since 2007 and 43 persons had professional retraining, 27 persons passed a certified cycle. Now 10 persons are studying in clinical internship on speciality «General Medical Practice» (GMP). In order to organize the primary medical-sanitary aid of the republic by the principle of general medical practice it is necessary to prepare over 200 general practitioners in addition.

Medical institute NEFU closely cooperates with the department GMP of the Far East state medical university, conducts joint teleconferences, exit thematic improvements for general practitioners of the republic. Annually in the republic the increase of certified general practitioners is marked.

According to data in January 1st, 2010 61 doctors of general (family) practice work in the republic, it being only 36,6 % of specialized general practitioners, including 41 doctors from the countryside. Thus, 13 doctors with certificates GMP work as local therapists. Coverage of general practitioners is 0.85 per 10 thousand inhabitants.

General practitioners serve 71418 persons, including 17068 children and 29599 women.

Within the professional training the improvement and supply of equipments for general practitioners are being taken into account. In polyclinics of the city offices have been equipped for effective organization of general medical practice, where diagnostic and medical procedures are carried out, including electrocardiography (electrocardiogram), taking intraocular pressure, sight and hearing research, processing of wounds and etc. In the city suburb there are four micropolyclinics working on the model group of general practice. All working doctors are equipped by sets of general practitioners. The preparation of staff and improvement of special equipments have allowed to organize the primary medical-sanitary aid at a high level by the principle of general medical practice.

Frequency of emergency call has been 7.2 per 1000 attached population, this rate being 1,5 cases lower than in 2008. Of 1000 population 287 people were hospitalized by general practitioners in 2009, while 302 cases per 1000 population were noted in 2008.

The frequency of appeal to narrow specializations has amounted: ophthalmologic – 2,5 % (3,9 % in 2008), otolaryngologic - 2,1 % (3,4 % in 2008), surgical – 5,7 % (5,3 % in 2008) and neurologic 12,5 %. These indices are considered unsatisfactory due to insufficient equipment of general medical practice.

The preventive orientation of a general practitioner is apparent according to the index of relative density of the people addressed with preventive purpose. This index in 2009 was 35 % with probable tendency, so in 2007 it rated 16,4 %, in 2008 - 22,4 %..

The dispensary survey has included 97% of the attached population. The loading of polyclinic reception has amounted 4.1 patients per one reception hour.

One of the indices characterizing final results refers to the amount of population undergone the roentgen investigation, it being estimated in 94 %.

The relative density of disabled persons firstly registered in the able age has been noted in 18.1 per 10 000 population, it being 3.5% less than compared with 2008.

General practitioners (family doctors) are successfully engaged in realization of the priority national project "Health". Percentage of hepatitis vaccination for 2009 has amounted 90,5 % and flu vaccination 100 %. The rate of preventive supervision of infants has been 97 %: 100% in 1 month, 100% in 3 months, 94% in 6 months, 93% in 9 months and 96% in 12 months (in 2008 - 93 %, 92 %, 92 %, 90 %, 92 % accordingly). National calendar inoculations of children for 2009 has been 99 % (an index of efficiency is not less than 95 %).

The relative density of infants in arms for the given year has been 78 % to 3 months, 50 % to 6 months and 29% to 9 months.

The relative density of children under dispensary supervision has been 26,4 %, it being 10 % higher than in 2007. The dispensary surveys have covered 99 % as a whole. Thus the relative density of children recovered in 2009 has achieved 15,2 %, it is 5 % higher when compared with 2008.

It is to be noted that the number of the population addressed with preventive purpose has increased, while addressing to narrow specialists and emergency calls of the first aid have decreased. It has been caused by improvement of quality, availability and versatility of the general medical (family) practice to the attached population.

Now on each site there are medical passports of service territory in which not only passport data, social status, monthly account of disease are noted, but also data of preventive work: dates of last preventive inoculation, roentgen inspection, man's and female examination. Basing on these data, the general practitioner has possibility to plan adequately preventive work and rational use of working hours. The patients, who have not addressed for medical aid for 2 years and more, are immediately invited to the reception where they undergo their screening inspection. Basically general practitioners surpass local therapists in all estimated criteria, so their direction of work is proved to be urgent and effective.

Nowadays 47 medical institutions (20% of all) have the license for general medical practice, only 30 of them work as establishments of general medical practice, including 19 hospitals with special equipments for GMP. 22 general practitioners work on poorly completed sites with the population of less than 1000 persons. In accordance with norms of MH RF and RS(Y) the general practitioner / family doctor should serve 1200 persons of the population (800 adult populations and 400 children) or 1500 only adult population. The given medical institutions can't be licensed as the general medical practice.

Foundation of typical local hospitals is considered to be expensive enough, so MH RS (Y) jointly with the Ministry of Building and the Service of State Demand has developed the project of modular local hospitals. In 2010 the construction of the building has started in the village

Bulgunyakhnaakh of Khangalassky region. The given project to be realized will go on by constructing large-scale offices of GMP in the whole territory RS (Y).

General practitioners work in the city polyclinics and rural ambulance stations. Together with the first experience accumulated some difficulties have occurred concerning to short supply of methodical literature and equipment as well as discrepancy of Russian norms to North conditions. So, the family doctor in rural conditions of the North serves two or more villages located far apart, as the amount of the population can not correspond to specifications of the attached population.

One of the topical problems is short supply of trained medical specialists in remote northern areas of the republic where small nationalities live. By the end of this year three offices GMP should have been introduced. These offices will be equipped stage-by-stage by modern telemedicine technologies to improve efficiency of medical aid to the population.

For the further development of general medical practice in our republic it is necessary to solve following tasks:

1. In accordance with the plan of optimization of medical institutions in the republic to found offices GMP on the basis of local hospitals, physician ambulatory stations, where a number of physicians and nurses will be engaged in. This task will be solved if necessary equipments are set up and supplied to medical establishments by the decree MH RS(Y) № 753 from 1 December, 2005. Side-by-side with the GMP office construction in rural settlements, negotiations have already been conducted with Heads of local municipal education regarding major repairs and building reconstruction.

1. The appropriate equipment should be supplied by the Ministry of Health.
2. Construction of offices for GMP with application of the modular system.
3. Inculcation of GMP in arctic regions, remote settlements of the Republic of Sakha (Yakutia)
4. Inculcation of GMP monitoring and estimation.
5. Elaboration of GMP program maintenance (automatic working place of the general practitioner).
6. Giving social support to young specialists, who have decided to work in primary link of health care services, particularly in rural settlements, including provision or constructing houses for doctors of general practice, salary increase.
7. Further inculcation and support of continuous educational program for doctors of general practice on the basis of the Department of Inner Diseases and General Medical Practice (Family

Medicine) in the Institute of Post-Diploma Education of Doctors NEFU named after M.K. Ammosov.

Among unsolved issues of MGP concerning to the organization of medical aid to patients some are to be of great importance such as non-systematic operative application of up-dated technologies in investigation, dispensary and stationary treatment of patients; slow and unsatisfactory development of informative and education trend. Economic mechanisms reinforce the information process of medical aid, improvement of preventive and dispensary work, application of daily and home stationary despite stationary technologies. The doctor of general practice as a resource holder should be concerned with organizing less wasteful and efficient ways of medical aid.

Thus, the key to high-qualified medical and social aid to patients in the conditions of general medical practice is considered to be the high level of training medical and nursing staff, the presence of necessary equipment, the computer supply of workplaces, the inculcation of modern information technologies and innovations. For the past of 8 years at the Institute of Doctor's Post-Diploma Education within the Medical Institute NEFU named after M.K. Ammosov the educational and scientific base has been founded for developing and perfecting the general medical practice (family medicine), for solving the state commitment of priority development of primary medical and sanitary aid to the population as well as increasing its quality and availability.

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To the question of metrological maintenance of public health care establishments of Republic Sakha (Yakutia)

Problems of the metrological provision of the means of the measurements in the health care institutions of the Sakha Republic are highlighted in the article, analysis of the financing, amount and medical equipment's roll call results are implemented. The necessity of the metrological roll call taking is shown.

Keywords: quality of the medical assistance, medical equipment, means of the measurements, metrological roll call, health care.

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**Analysis of temporary disablement allowance payment in the Republic of Sakha (Yakutia)
in the period of 2005 - 2009**

The article presents analysis of temporary disablement allowance paid in the Republic of Sakha (Yakutia) in 2005-2009. Average daily allowance amount, payment days, average duration of the first case of temporary disablement are presented in the paper.

Keywords: morbidity with temporary disablement, temporary disablement, allowance for temporary disablement.

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THE INFLUENCE OF THE BIOLOGICALLY ACTIVE ADDITIVE (BAA) “THE REINDEER MOSS” UPON THE BIOCHEMICAL INDICES OF BLOOD

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Resume

We investigated the influence of the BAA “The Reindeer Moss” upon the biochemical indices of blood among the volunteers (n=28) of the indigenous nationality with the initially high level of glucose and cholesterol. It was established that after 3 weeks intake of the medicine among the volunteers the level of glucose, cholesterol and atherogenic coefficient ($K\alpha$) and aspartate aminotransferase (AsAT) significantly decreases, and the quantity of the correlative bonds increases.

Key words: Glucose, cholesterol, “the reindeer moss”, biochemical indices.

Climatic and geographic factors of the high latitudes stipulate the increased loads upon the human organism. The long historic inhabitation under the extreme climatic conditions of the Far North develops the “polar metabolic type” with the complex change of harmonic and metabolic profile of the organism [5,8]. Historically made up protein and lipid character of nutrition of the aboriginals of the North during the last decades switches to the so-called “European” carbohydrate type [9], that leads to the change of metabolism. The consequence of such processes is the increase of frequency of occurrence of dislipidemia among the indigenous people, acclimated to the severe climatic and geographic conditions of Yakutia [4,10]. The inclination from the traditional nutrition is one of the reasons of the growth of pathology, connected with the abnormalities of metabolism, including diabetes mellitus, atherosclerosis of vases among the indigenous population of Yakutia [1,6]. From the whole complex of interconnected pathological factors, which accelerate the development of the coronary heart disease (CHD), according to the data of the literature, one can distinguish compensatory hyperinsulinemia, insulin-resistance, atherogenic dislipidemia, abdominal type of obesity and others. People with the increased fasting glycemia and/or with the disorders of glucose tolerance have the highest risk of the development of not only diabetes mellitus, but also cardiovascular diseases [11].

The search and development of measures, aimed at the prevention of the advance of the metabolic disorders are one of the primary targets of medicine. It is well known, that the use of the preparations from the local raw materials increases the persistence and adaptive potential of an organism, due to the common character of the main physiological and biochemical mechanisms of the adaptation to the action of different stress factors. It was established that the northern biological raw materials differs by the increased content of biologically active substances, which have three-five times high activity in comparison with the analogous kinds from the middle zone of Russia. In literature there is an information that with the increase of the extremeness of the conditions of growing of plants, in the certain interval of intensity of the climatic stress factors the common content in their tissues increases 1,8-2,5 times as much, and above all, the structural diversity of the biologically active substances of the regulatory and protective effects increases more than 3 times as much.

In connection with this, the investigation of the influence of the local biological raw materials upon the biochemical indices of the inhabitants of Yakutia is urgent, as the results of the investigation could develop the measures aimed to prevent the advance of the disorders of carbohydrate and lipid metabolism at early stages already.

The aim of this investigation is the assessment of the influence of the BAA "The Reindeer Moss" upon the blood indices, which reflect the state of the protein, carbohydrate and lipid metabolism among the people of the indigenous nationality with the increased level of glucose and/or cholesterol.

Materials and methods.

The subject of our investigation became 28 volunteers of the indigenous nationality at the age of 31-60 years old, the middle age of whom was $50,2 \pm 2,03$). The main criterion of the inclusion into the examined group was the high level of glucose ($\geq 5,5$ mmole/l) and/or cholesterol ($\geq 6,5$ mmol/l) in serum and their written consent. From the examined group people with oncological diseases, verified diabetes mellitus, exacerbations of the chronic forms of diseases were excluded. In the process of the investigation undesirable phenomena and side effects were not noticed.

Volunteers took the BAA "The Reindeer Moss" by 20-25 drops before meals (in the morning and in the afternoon) every day during three weeks. Venous blood was sampled from the ulnar vein in the morning in the fasting condition before taking the BAA "Reindeer Moss" and on the 21st day of taking the BAA.

The BAA "Reindeer Moss", confirmed by Rospotrebnadzor (The Consumers' Inspectors of the RF) as a biologically active detoxicant, which was presented by the Institute of the Biological Problems of Cryolite-zone of the Siberian Division of the Russian Academy of Science, Yakutsk. (Patent of the RF №2006100978 dated 01.08.2007, priority dated 10.01.2006; Certificate of the State Registration by Rospotrebnadzor of the RF № 77.99.23.3. Y.3522.5.08 dated 04.05.2008; Sanitary-Epidemiological Conclusion № 77.99.03. 003.T.000928.05.08 dated 04.05.2008; TY 9219-002-36971185-08).

The laboratory investigations were carried out at the base of the laboratory of the biochemical mechanisms of adaptation of the Yakutsk Scientific Centre of the Complex Medical Problems of the SD of the RAMS. In the serum the following parameters were considered: AsAt (aspartate aminotransferase), AlAT (alanine aminotransferase), AP (alkaline phosphatase), γ -GT (gamma-glutamyl transferase), LDH (lactate dehydrogenase), creatine kinase, glucose, whole protein, albumins, urea, uric acid, creatinine, whole cholesterol, triglycerides, high density lipoproteins. All biochemical indices were determined at the automatic biochemical analyzer "Cobas mira plus". Low density lipoproteins and middle density lipoproteins and atherogenic coefficient were determined by the common methods.

The statistic processing of the received results was carried out with the help of the programs SPSS 11,5 for Windows. In the tables the blood indices are given as a middle arithmetical value (M) and its mistakes (m). The assessment of the significance of the differences

between the compared groups was carried out by and parametric criterion of t Student. For the determination of the narrowness of the connection between the investigated qualitative signs the correlation analysis of the data was carried out together with computation of the coefficients and rank correlation of Spirman [3].

The results and the discussion.

According to the received data, among the 28 people, which were under our supervision, the middle values of 13 from 18 considered blood indices, reflecting the basal metabolism, were within the limits of the common norms (table 1). The analysis of the received data showed that 30,0% of the observed people had high activity of AlAT, 42,8% had high activity of glucose and 52,3% had high level of cholesterol.

The increase of the activity of AlAT, entailed with the increase of glucose level in blood, can be considered as a sign of dysadaptation. As far as the maintenance of the normal glucose level and whole protein under any critical situation is a sign of absolute adaptation of an organism to the changing external conditions. It is known that one of the functions of AlAt is transformation of proteins into carbohydrates through the glucose-alanin shunt. The normal level of glucose in blood is maintained by the balanced work of three important flows: combustion of substrates with the participation of AsAT, maintenance of the glucose level with the participation of AlAT and increase of transport of amino acids with the participation of γ -GT. It should be noticed that the activity of AsAT exceeded over the normal values among 18%, the activity of γ -GT among 28% of the observed people. De Ritis coefficient (correlation of AsAT/AlAT) of the observed people before taking the "The Reindeer Moss" didn't correspond to the normal values, that is also a sign of dysadaptation of an organism (Table).

The increased level of cholesterol (up to 7,8 mmol/l) in serum among 52,3% of volunteers, taking part in the investigation, stipulated the high middle value of this index and the high middle value of atherogenic coefficient.

Table

Middle values of the biochemical indices in serum of the indigenous inhabitants ($M \pm m$) before and after taking the BAA "The Reindeer Moss"

Biochemical indices	Referent values	Before taking	After taking	$p = \dots$
AlAT, un/l	Before 40	40,6 $\pm$ 8,0	25,5 $\pm$ 5,5	0,003 ^{1,2}
AsAT, un/l	Before 30	34,7 $\pm$ 6,3	33,6 $\pm$ 6,1	
De Ritis coefficient	1,3 -1,5	0,94 $\pm$ 0,08	1,42 $\pm$ 0,42	0,049 ^{1,2}
Gamma-GT, un/l	f. 7-32	39,05 $\pm$ 5,87	35,89 $\pm$ 5,42	
Alkaline phosphatase un/l	Before 258	252,2 $\pm$ 30,6	238,7 $\pm$ 29,5	
Lactate dehydrogenase, un/l	225-450	358,3 $\pm$ 14,1	381,6 $\pm$ 13,9	
Creatine kinase (whole), un/l	<190	156,4 $\pm$ 55,1	129,4 $\pm$ 12,0	
Glucose. Mmol/l	3,3-5,5	5,53 $\pm$	4,72 $\pm$	0,000 ^{1,2}

		0,07	0,10	
Whole protein, g/l	65-85	78,08 ± 0,62	74,69 ± 0,85	0,002 ^{1,2}
Albumin, g/l	34-48	46,5 ± 0,4	46,4 ± 0,76	
Urea, Mmol/l	1,7-8,3	4,61 ± 0,24	5,53 ± 0,35	0,036 ^{1,2}
Uric acid, Mmol/l	f.155- 357; m.268- 488	239,4 ± 18,6	249,4 ± 18,4	
Creatinine, Mmol/l	f.44-80; m.53-97	80,90 ± 2,62	80,2 ± 2,9	
Whole cholesterol, Mmol/l	3,6-6,5	6,62 ± 0,16	6,09 ± 0,19	0,04 ^{1,2}
Triglycerides, Mmol/l	0,5-1,7	1,24 ± 0,16	1,25 ± 0,12	
High density lipoproteins, Mmol/l	0,78-2,2	1,56 ± 0,09	1,71 ± 0,11	
Low density lipoproteins, Mmol/l	1,68-4,53	3,57 ± 0,41	3,73 ± 0,16	
Middle density lipoproteins, Mmol/l	0,8-1,5	0,56 ± 0,07	0,56 ± 0,06	
Atherogenic coefficient	<3	3,48 ± 0,25	2,7 ± 0,27	0,005 ^{1,2}

The relative increase of such indices, as the level of cholesterol and glucose in blood, is, probably, stipulated by the metabolic disorders, characteristic for the age of the observed people, the middle age was $50,2 \pm 9,6$ years old. The portion of people with the combinative rise of glucose and cholesterol made up 23,8%. And the portion of people with the increased atherogenic coefficient made up 61,9% ($K\alpha > 3$).

The correlative analysis of the indices revealed the presence of the large amount of connections between the qualitative signs, such as sex, age, weight, height, body build index, smoking and quantitative signs, such as systolic and diastolic blood pressure, pulse and biochemical blood indices. The content of the whole cholesterol had a direct connection with low density lipoproteins ($r=0,631$; $p=0,002$), high density lipoproteins ($r=0,044$; $p=0,044$) and alanine aminotransferase ($r=0,435$; $p=0,049$). $K\alpha$ (before taking) occurred to be higher among the smokers ($r=0,545$; $p=0,011$) and men ($r=0,518$; $p=0,016$) and people with high weight values ($r=0,53$; $p=0,013$) and high body build indices ($r=0,444$; $p=0,044$). Direct correlative bonds of $K\alpha$ were established with creatine kinase ($r=0,615$; $p=0,003$), triglycerides ($r=0,485$; $p=0,025$), middle density lipoproteins ($r=0,476$; $p=0,029$), uric acid, and the reverse bond with high density lipoproteins ($r=-0,93$; $p=0,000$). It should be noticed that the level of glucose is directly correlated with the body build index (BBI) ($r=0,453$; $p=0,039$).

The everyday intake of the BAA "The Reindeer Moss" during three weeks according to the instruction normalized the indices of the basal metabolism; one could notice the statistically significant decrease of the activity of AlAT ($p=0,003$), the level of glucose ($p=0,000$), whole

cholesterol ($p=0,04$), the value of deRitis coefficients increased up till the norm ($p=0,05$) and the value of $K\alpha$ decreased ($p=0,005$) (table). It should be emphasized, that due to taking the BAA the portion of people with hyperglycemia and hypercholesterolemia (in%) decreased. Thus, after taking "The Reindeer Moss" the portion of people with high content of glucose decreased 2,99 times as less (14,3%), cholesterol – 1,57 times as less (33,3%), $K\alpha$ – 2,6 times as less, and the combinative rise of glucose and cholesterol is 5,06 times rare in comparison with the analogous indices before taking the remedy (picture 1).

The received results (lowering of the level of glucose and cholesterol) are, perhaps, connected with the activity of AlAT, i.e. dysadaptative changes among the observed people were connected with the disorders of the carbohydrate metabolism.

The correlative analysis of the indices after taking "The Reindeer Moss" showed the increase of the amount of bonds between the considered indices. For example, before taking "The Reindeer Moss" the level of glucose was interconnected only with BBI, and after taking "The Reindeer Moss" there appeared the direct correlative bonds with triglycerides ($r=0,568$; $p=0,009$), middle density lipoproteins ($r=0,520$; $p=0,019$), $K\alpha$ ($r=0,540$; $p=0,014$), age ($r=0,452$; $p=0,039$), weight ($r=0,466$; $p=0,033$). It can be proposed that the increase of the amount of the correlative bonds is connected with the transition of metabolism among the observed people to the qualitatively different level, promoted by the chemical content of the BAA [2], its antioxidant and antibacterial action [7], as well as the detoxication of the inner media of an organism (blood, lymphs, intercellular structures).

The raw materials of the BAA "The Reindeer Moss" were the layers of the lichens of *Cladina* genus. The tincture is produced according to the technology of the extraction of carbon dioxide in overcritical condition ($t=32^{\circ}\text{C}$, pressure 75 atmospheres). By the detoxication effect the BAA "The Reindeer Moss" has no analogs due to the original technology of the manufacture. Detoxication effect of the biological additive is reached due to the content of amino- β -oligosaccharide complexions and the antioxidant substances and natural antibiotics. The action of the biological supplement is based on the ability of amino- β -oligosaccharides to firmly bind the cations of heavy metals, toxic aldehydes and ketons, carcinogens, inflammation factors, cinders, excesses of cholesterol, glucose and to exteriorize them from a human organism [2] (picture 2).

Picture 2. The scheme of the structure of the complexes of the lichen amino- β -oligosaccharides with the toxic carbonyl compounds (in the form of Schiff bases) and the cations of heavy metals bound by them.

Thanks to its small sizes and biofile structure, amino- β -oligosaccharides are well absorbed from the intestine into the blood, penetrate through the cellular membranes with the help of its amino-, hydroxyl and other functional groups and bind different endo- and exotoxic compounds. As far as the amino- β -oligosaccharides contain stable β -glycoside bonds, they don't decompose in an organism, and in the way of complexes with the bound toxicants are exteriorized from an organism: when binding the lipid toxicants – through the intestine; when binding water-dissolved toxicants – through kidneys with urine [2,7].

Thus, detoxication and antioxidant properties of the reindeer moss, stipulated by the presence of the biologically active substances, lead to the decrease of the level of glucose and atherogenic fractions of the lipid spectrum of blood. The results received by us testify the fact, that the three weeks intake of the BAA "The Reindeer Moss" promotes the normalization of metabolism: decreases the risen level of glucose, lowering the concentration of the whole protein and increasing the content of high density lipoproteins, normalizes the atherogenic coefficient $K\alpha$ among the investigated volunteers. The rise of de Ritis coefficient up to the norm testifies

about the fact, that the BAA “The Reindeer Moss” has adaptogenic properties. The carried out researches make it possible to make a conclusion that the BAA “The Reindeer Moss” can be recommended for the prophylaxis of the development of cardiovascular diseases and metabolic disorders, connected with hyperglycemia.

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УДК - 616.9 - 022

Etiology of pus sepsis instigators of surgical infections

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It was conducted a microbiological monitoring of microbe scenery of nosocomial infections instigators during the period of 1999 till 2008. We've got 178 strains of Gram-negative bacterium, 233 Gram-positive ones and 30 strains of other Gram-negative microorganisms. Gram-positive bacterium are represented by coagula-negative and coagula-positive *Staphylococcus*, *Streptococcus* and *Enterococcus* but Gram-negative ones by fermented bacterium (FGNB): *Escherichia coli*, *Klebsiella* spp and other unfermented bacterium (UGNB): *Ps.aeruginosa* etc.

Keywords: nosocomial infection, purulent surgical infection, Gram-positive bacterium, Gram-negative bacterium.

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Non-departmental control over medical help quality is a mechanism of the citizen rights and legitimate interests protection in the compulsory medical insurance system. A role of an external medical expert in the management of medical help quality

An activity of all the participants in the compulsory medical insurance system, when concerning the rights protection of the insured, is inextricably linked to the organization of an expert work on the treatment control. The important feature of the medical help quality control in the compulsory medical insurance system is its non-departmental character. It provides the rights of the insured patients for medical help in the full extent and good quality on the terms, corresponding to the territorial program of the compulsory medical insurance. Besides, this control also helps to use the means of the compulsory medical insurance rationally.

Non-departmental control over medical help quality is regulated by the law of Russian Federation “The medical insurance of citizens in Russian Federation”, orders of the Russian Federation Federal Fund of Compulsory Medical Insurance, joint orders of the Territorial Fund of Compulsory Medical Insurance and Health Department of the Sakha-Yakutia Republic.

So far the quantity of taken out insurances in “Sakhamedstrakh” medical insurance company has numbered 13 348 and covers about 90 percent of the republic population, that is, 850 586 citizens. From 1997 till 2009 the level of the insured population in the Sakha-Yakutia republic quadrupled.

One of company’s primary objectives is providing the insured population with qualitative medical help. Fulfilling it, the insurance company cooperates with more than 500 medical and preventive institutions of the Sakha-Yakutia, in accordance with the territorial program and on the basis of taken out insurances. Medical experts of the company have carried out 675 601 expert evaluations of medical help quality, including 171 107 expert evaluations during the last period under review.

If we analyse the data, concerning the insured events, we will see that lately their indicator has significantly increased and made up 4,0 % of all the insured events during the last period under review.

The share of expert activity (medical and economic expert evaluations plus medical help quality expert evaluations) for 10 thousand of the insured made up 2221. In 1997 it was 28,9.

As the expert evaluation of medical help quality shows, breaches of conditions and low quality of medical help made up 41,9 % in 2007, 37,3% in 2008, 12,2 % in 2009 of the total number of all expert evaluations carried out. Thus, a decrease in the number of breaches of conditions and medical help quality improvement makes us believe that expert evaluations are effective and necessary.

The number of highly-qualified medical experts, carrying out expert evaluations, increases every year as well as the number of expert evaluations. More and more mobile teams are sent to carry out expert evaluations of medical help quality. The aim of it is to evaluate the insured events as many as possible.

Table 1

Dynamics of expert evaluations of medical help quality carried out by permanent and external medical experts in 2007- 2009

Expert evaluations of medical help quality	2007г.		2008г		2009г.	
	Abs.	%	Abs.	%	Abs.	%
Total number of expert evaluations	112 400	100%	106 234	100%	19 409	100%
Permanent medical experts	73 991	66%	43 849	41 %	3 363	17%
External medical experts	38 409	34%	62 385	59%	16 046	83%

As Table 1 shows, the number of expert evaluations of medical help quality decreased in 2009 by 5,8 as compared to 2007. It was caused by bringing changes and additions into departmental statistic reporting form called «The citizen rights and legal interests protection in the compulsory medical insurance system» according to order № 175 of Compulsory Medical Insurance Federal Fund d.d. 14.08.2008г. In accordance with this order, from the 4th quarter of 2008 expert evaluations are divided into medical and economic expert evaluations (MEEE) and medical help quality expert evaluations (MHQEE). According to annual returns, 59 387 and 151 698 medical help quality expert evaluations were carried out in 2008 and 2009 respectively.

Within the last three years the share of medical help quality expert evaluations, carried out by external medical experts increased from 34% till 83%. as the result of the improvement of expert activity management.

As the expert evaluation of medical help quality shows, breaches of conditions and low quality of medical help made up 41,9 % in 2007, 55% in 2008, 35% in 2009 of the total number of all expert evaluations carried out.

There is a positive difference in a share of found breaches in 2009.

Table 2

The structure of the main breaches, found in the course of the expert evaluation of the medical help quality in 2007- 2009

Main breaches	2007		2008		2009	
	Abs.	%	Abs.	%	Abs.	%
The total number of conditions breaches and low quality of medical help, including	47 070	41,9%	58 508	55%	6 851	35%
Medical help of low quality	785	2%	12 363	21%	4 778	70%
Misguided admission	143	0,3%	673	1,2%	471	6,9%
Misguided restriction of medical help availability	12 118	26%	8 067	13,8%	131	1,9%
Repeated reasonable demand of a patient	17	0,03%	85	0,1%	19	0,3%
Disruption of continuity between the stages of medical help	3 846	8,2%	2 670	4,6%	90	1,3%
Misplaced admission	15	0,03%	52	0,09%	20	0,3%
Other breaches	28 313	60%	26 759	45,7%	653	9,5%

Within the last three years the share of medical help of low quality, found in the course of expert evaluation increased in the structure of the main breaches from 2% till 70%. Mainly, it is the result of the division of expert evaluations into medical and economic expert evaluations and medical help quality expert evaluations in statistic reporting form since the first quarter of 2008. Besides, the indicator of treatment quality level was changed. Treatment quality level less than 0,9 is considered to be inappropriate.

At the same time the share of misguided admission increased as well, from 0,3% до 6,9%. It is connected with scheduled and unscheduled inspections of how effectively the compulsory medical insurance funds are used in the republican medical and preventive institutions, when speaking about valid admission of the patients into day and night clinic and valid prescriptions.

The share of continuity disruption between the stages of medical help decreased from 8,2% till 1,3%. The share of misguided restriction of medical help availability decreased from 26% till 1,9%. The share of other breaches decreased from 60% till 9,5%. This includes extension of an invoice for medical service, failed to be given, absence of original medical records without reasonable excuses,

the unjustified increase of volume services and price, defective execution of medical records, irrational use of medication. All these breaches were found in the course of the medical help quality expert evaluation.

As a result of non-departmental control over medical help quality, the average level of treatment quality in the republican medical and preventive institutions, working in the compulsory medical insurance system, made up 0,8 in 2007, 0,87 in 2008, 0,83 in 2009. The decrease of the treatment quality level coefficient in 2009 is explained by the decrease of the treatment quality level in consequence of the medical help quality evaluation in some central regional and district hospitals.

As far as the insurance company is concerned, the average treatment quality level from 2007 till 2009 is the following:

in the republican medical and preventive institutions - 0,9, in Yakutsk – 0,9, in the industrial regions - 0,84, in the south-eastern regions – 0,8, the central regions – 0,82, the north-western regions - 0,78, the northern regions – 0,8.

As a result of medical help quality expert evaluations, the amount withheld from the medical and preventive institutions due to partial or incomplete failure to pay medical service made up 55774 thousand roubles for the last report year.

To find out if the population is satisfied with the quality and availability of the medical service, provided by the insurance medical company, a survey was carried out in medical and preventive institutions.

**Patient satisfaction with the medical help quality
according to survey of 2009**

Survey results	Quantity		Satisfied with medical help quality		Dissatisfied with medical help quality		Undecided	
	Abs .	%	Abs.	%	Abs.	%	Abs.	%
Number of the surveyed	7 252	100%	4 653	64%	767	11%	1 832	25%
In hospitals	2 425	33%	1 584	65%	173	7%	668	27%
In day patient facilities	2 351	32%	1 411	60%	222	9%	718	31%
In outpatient departments	2 476	34%	1 658	67%	372	15%	446	18%

7 252 people were surveyed in 2009. 33% of those were surveyed in hospitals, 32% in day patient facilities, 34% in outpatient departments. This survey found 64% of the patients satisfied with the quality of the medical help, 11% dissatisfied and 25% undecided.

Medical experts face a lot of various tasks, while evaluating the quality of medical help. It makes necessary to have external medical experts in insurance organizations and compulsory medical insurance funds, responsible for expert evaluations of medical help quality in medical institutions in accordance with their specializations.

The regulations of external and regular medical experts and their order of work were established by orders of Sakha-Yakutia Republican Health Department and Territorial Fund of Compulsory Medical Insurance d.d. 16.01.09 № 9.

The order "About medical secrecy" was made in Open Joint Stock Company State Insurance Medical Company on the 8th of September, 2003. It was made in accordance with Article 61 of fundamental principles of legislation in the Russian Federation, concerning health protection and medical secrecy.

In their work, external medical experts are governed by the current legislation of the Russian Federation, orders and guidelines of the Russian Health Department as well as Funds and Territorial Funds of Compulsory Medical Insurance.

External medical experts make their examination according to their main specializations, within the scope of their competence, determined by their diploma

It is the expert activity external medical experts are involved in and their professional knowledge in a certain field of medicine as well as thorough competence, modern culture and erudition play the main role.

In accordance with the requirements, external medical experts as well as the regular ones are supposed to possess detailed knowledge of the discipline "Public Health and Health Protection".

Special attention should be paid to the rights and duties of external medical experts.

It is hard to find another sphere of human activity in which professional ethics would have more significant meaning. Medical experts are always in a hard psychological situation. Objectively, being arbiters, they should support neither patients nor doctors. Moreover, medical experts always have to underline their neutrality, setting the main goal of examination as the necessity to find out defects and avoid the same mistakes in the future.

Unfortunately, for the period since the Compulsory Medical Insurance started on the federal level a unified concept of medical aids standards has not been made yet. Neither standards of observation most illnesses and their treatment nor the comparable criteria, evaluating the activity of medical experts, have been developed. To a certain extent the indicators of medical experts' activities can be the following: amount of revealed breaches on codes, dynamics of making examinations in the institutions, a comparative evaluation of medical examinations evidence, in medical institutions with equal facilities for the same period.

Therefore the following conclusions have been made:

Here are the reasons which cramp the effectiveness of the work on the continuous improvement of medical help quality:

- Insufficient material and technical equipment of medical institutions both in day patient facilities and medical and preventive institutions, working in the system of Compulsory Medical Insurance.

- Insufficient quantity of doctors

- Poor rights of patients bring to the increase of population's expenses on medicine, including medications.

- At the regional level there is not enough realization of plans. Besides, there is a token approach to quality system installation. At the territorial level the least attention is being paid to management decision.

- The analysis of the results of medical help quality control does not have systematical integrated versatile character; in general superficial generalization is noted when working with citizens'

claims. The results of examinations and citizens' appeal are needed just for quarterly, semiannual and annual year accounts.

Suggestions:

1. Helping doctors continue studying in the sphere of medical aids quality;
2. Constant introduction of necessary change in medical aids quality management;
3. Carrying out the legislative and economic analysis of examinations which have been taken. Arranging organizational and methodological accompanying of examination activities;
4. Working on continuity and effectiveness improvement;
5. Exercising systematical quality monitoring of medical aid on all the levels: certain doctor, structural department, institution on the whole;
6. It is necessary to create conditions for the constant interaction of subjects, involved in the system of medical aid quality: insurer, the insured, establishments of health care management, doctors and patients.

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DYNAMICS OF RELATIONSHIPS AND ANTIOXIDANT PROOXIDANT PROCESSES IN THE BLOOD ON THE POSTOPERATIVE PHASE OF DENTAL IMPLANTATION USING BAD "ROKSIRIN"

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Dental implantation at the present stage of development of dentistry is promising to restore the function of dental system at the expense of rational correction of dental arch defects [6, 9]. High prevalence of dental caries and periodontal diseases, often leading to tooth loss, determine the need for replacement of missing teeth by various prosthetic designs, including the artificial supports [1, 5, 10]. The efficient functioning of dentures based on the implants depends on osseointegration in a rational surgical stage dental implant [7]. To stimulate the process of osseointegration used different methods and tools aimed at reducing the inflammatory process [2, 3, 8]. Despite this, remain challenges stimulate tissue regeneration in the area of implantation.

Research aimed at optimizing the process of osseointegration in dental implants are inserted using a dietary supplement based on reindeer antlers have not previously been conducted. In this regard, the study of the efficacy of dietary supplements in dental implant is an important problem in dentistry.

The aim of the study was to determine the clinical efficacy of dietary supplements based on reindeer antlers "Roksirin and its impact on the level of antioxidant protection of organism on the surgical phase of dental implantation.

To perform the tasks we have evaluated the dynamics of clinical and laboratory parameters in 37 patients aged from 27 to 39 years, which were divided into two groups: a clinical comparison - the 21 people who took "Roksirin, clinical control - 16 people. BAA "Roksirin" was applied to 15 drops 2 times a day as an additive to water, tea, coffee and other beverages for 14 days. For the analysis of laboratory data in pre-and postoperative periods was a standard clinical trial (orthopantomography, complete blood count, urinalysis, etc.). To determine the activity of antioxidant protection were investigated indicators SOD (superoxide dismutase), peroxidase, MDA (malondialdehyde), LMAO (low molecular weight antioxidants) [4]. Analysis of changes in indices of antioxidant system and lipid peroxidation in the organism was performed before surgery and 14 days after implantation.

All the indicators to the surgical phase were taken as 1, and to them the corresponding figures were normalized 14 days after implantation. Coefficient of antioxidant protection (RAOZ) was calculated as $RAOZ = (RSOD/N1 + Rperoksidaza/N1 + RNMOA/N3) / 3$. Value for antioxidant and prooxidant reactions was calculated as $RAOZ / (RMDA/N4)$. To restore the dental arch defects in 29.0% of implants were used «Bicon» (U.S.A.), 71.0% used implants «MIS» (Israel). In the examined groups implantation was performed in the absence of one to three teeth on the upper and lower jaws. In addition to laboratory studies, we conducted the clinical evaluation of surgical stage of dental implants, which takes into account both objective and subjective data of patients were treated with (control group) and without (control group) of the drug "Roksirin.

Biologically active supplement "Roksirin" based on a water-alcohol extract from reindeer antlers with the addition of biological agents from four plant sources (Rhodiola rosea, rhododendron, Ural Licorice, Yakut wormwood) has been developed at the Institute of Biological Problems of the permafrost zone of SB RAS (state registration certificate Rospotrebnadzor RF № 77.99.23.3. U.462.1.08 from 28.01.2008; Russian patent № 2112524 from 06.10.1998).

The choice of BAA "Roksirin" associated with its pronounced biostimulation and antioxidant effect on the organism and the absence of contraindications in hypertension. It is a golden-brown liquid. In its composition includes phospholipids 0.2 g / l (at least 15 fractions), 20 free amino acids (0,75 g / l), macro-and micronutrients 0,8 g / l (Fe, Mn, Mg, Co, Zn, Cu, Ca, F, I), water-and fat-soluble vitamins (vitamins A, D, E, K, B, H, C), esters of organic two-and

tribasic acids (0.2 g / l), a set of prostaglandin (5,0 mg / l), peptides and biologically active derivatives of cholesterol (9 mg / l).

Comparative analysis of antioxidant activity of blood in the clinical comparison groups and to control the operation of dental implantation showed no significant differences (Table 1). Thus, the enzyme activity of SOD and peroxidase in both groups on average were within 0.19 and 1.64 micromol / (min • ml), respectively. LMAO content in the groups ranged from $0,80 \pm 0,11$ to $0,83 \pm 0,15$ mkg-ekvkverts/ml ($p > 0,05$). Lipid peroxidation (LPO) is important in the process of osseointegration. Thus, the average level of MDA (LPO) in blood of patients in both groups ranged from 0,14-0,15 mmol / ml ($p > 0,05$).

Table 1

**Characteristic parameters of antioxidant protection groups
to the surgical phase of dental implant**

Group	Activity of enzymes umol / (min • ml)				Concentration LMAO (Mkg-ekvkverts./ml)		Concentration of MDA (mmol / ml)	
	SOD	Coeffi cient	Peroxidase	Coeffi cient		Coefficie nt		Coefficien t
Clinical comparison	$0,19 \pm 0,02$	1	$1,66 \pm 0,08$	1	$0,80 \pm 0,11$	1	$0,15 \pm 0,01$	1
Clinical control	$0,18 \pm 0,03$	1	$1,62 \pm 0,09$	1	$0,83 \pm 0,15$	1	$0,14 \pm 0,01$	1
Reliability, (p)	$>0,05$	$>0,05$	$>0,05$	$>0,05$	$>0,05$	$>0,05$	$>0,05$	$>0,05$

Changes in SOD activity in the clinical comparison groups and clinical controls were unreliable, the activity grew in the clinical comparison group of 15 - 16% ($p < 0,05$) (Table 2). But most importantly, in the postoperative period in 14 days after taking the drug "Roksirin" in a clinical comparison group observed a significant (at 81.0%) increase in an indicator of antioxidant activity as the concentration LMAO, if that activity processes (LPO) has not increased. However, a clinical control group there was a reduction of the resource LMAO at 9,0%, while the level of prooxidant reactions (POL) rose by more than 4,5 times. Apparently it happened as a result of surgical intervention, which always intensifies prooxidant processes. Overall, therefore, the ratio of antioxidant / prooxidant processes in the clinical control group decreased by 5 times while in the clinical comparison group increased by 31.0%. This is clinically characterized by a significant decrease in inflammation and pain symptoms in the area of implantation compared with the control group. It should be noted that the use of a dietary

supplement topically begins to appear on the second and third day after surgery as a reduction in tissue edema.

Table 2

Characteristic parameters of antioxidant protection groups 14 days after implantation

Group	Activity of enzymes umol / (min • ml)				Conc-n LMAO (Mkg- ekvkverts./m l) (R4)	Coeff icient. R4 / N	Coefficient (Cf. HPA)	Conc-n MDA (mmol / ml) (R3)	Coeffici ent R3 / N	Coefficient (AOP / LP)
	SOD (R1)	Coeff icient. R1/ N	Peroxi de- oxidase (R2)	Coeff icient. R2/ N						
Clinical comparison	0,16+ 0,02	0,84+ 0,12	1,70+ 0,08	1,02+0 ,07	1,45+0,11	1,81+ 0,44	1,22+0, 13	0,14+0,01	0,93+ 0,05	1,31+0,20
Clinical control	0,17+ 0,02	0,94+ 0,03	1,46+ 0,10	0,90+ 0,02	0,76+0,14	0,92+ 0,04	0,92+0, 03	0,64+0,13	4,57+ 0,45	0,20+0,04
Reliability (p)	>0,05	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05

14 days after dental implantation in patients in the clinical control group around the surgical field has identified areas with signs of edema, hyperemia of tissues and a small level of pain of the alveolar bone of the upper and lower jaws. These phenomena were not observed in the clinical comparison group.

Thus, the data analysis of BAA "Roksirin" in the treatment of surgical stage of dental implants suggests its positive effect on the antioxidant defense system of the body. In a clinical comparison group there is a pronounced increase in the content LMAO, significant compared with a group of clinical control, in which LP activity undergoes significant changes were the opposite. These processes in the clinical group comparisons allow you to completely arrest the formation of oxidative stress, which is characteristic for any surgical intervention. These changes in clinically defined marked reduction of edema and hyperemia of tissues and reduction of pain symptoms in the early period after the operational phase in the comparison group. The data indicate the need for further research aimed at optimizing the treatment of surgical stage of dental implantation with BAA "Roksirin".

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The dynamic analysis of a parity antioxidant and proantioxidant indicators in an organism at 37 patients after dental implantations at use of biologically active additive "Roksirin" is carried out.

Results of research: in the postoperative period for 14 days after reception of a preparation "Roksirin" were observed considerable (on 81,0 %) increase in indicators antioxidant activity as concentration of components peroxide oxidations carbohydrates has not increased. Also for the second and third day after operation it was observed hypostasis reduction, redness and morbidities.

Keywords: dental implantation, "Roksirin", dynamics

Thrombolytic therapy of acute myocardial infarction in the city of Yakutsk

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The resume

The analysis of results of application thrombolytic therapies at 143 patients with acute myocardial infarction in Yakutsk is carried out. At 110 (76,9%) patients it was applied alteplase, at 33 (23,1 %) patients - tenecteplase. It is shown that their application, since a pre-hospital stage, reduces time of reperfusion and reduces a mortality at acute myocardial infarction on 12,4%.

Key words: Acute myocardial infarction, thrombolytic therapy, alteplase, tenecteplase.

Introduction. Cardiovascular diseases rank first in the world population's incidence and mortality rate, and acute myocardial infarction (AMI) in particular [4, 5]. The recent decades in the Sakha Republic (Yakutia) show the same trend: cardiovascular diseases, having increased by 2.5 times, account for the largest share in the incidence and mortality rate, and lethality from AMI makes 40.4% [1]. First occurrence of cardiovascular diseases in the population has increased by 1.9 times. Clinical presentations of coronary atherosclerosis in the indigenous people of the Sakha Republic (Yakutia), contrasted with the nonindigenous population, have a number of peculiarities. They develop myocardial infarction under lower-grade coronary atherosclerosis. Indigenous patients with verified coronary atherosclerosis more often develop myocardial infarction without pre-infarct stenocardia, painless myocardial ischemia, arterial hypertension, auricular fibrillation, and left auricular thrombus [3]. The world clinical practice recognizes that the key factor of increased efficiency and lower mortality from AMI is effective anatomic restoration of blood flow in the coronary arterial occlusion area. Success then depends directly on timely initiation of well-directed treatment. Out of known methods of recanalization, the only one to meet this requirement is systemic thrombolysis as it can be started as early as possible, before inpatient treatment. A great number of the international multi-centre randomized studies prove high efficiency and the dominant role of the early systemic thrombolytic therapy (TLT) in AMI treatment (GISSI I, 1986; ISIS 2, 1988; AIMS, 1990; GUSTO I-III, 1993–1997) [7,8]. According to the European Society of Cardiology data (ESC, 2003), effect of the early thrombolytic treatment at pre-admission stage is as great as of direct angioplasty and surpasses results of inpatient treatment [10].

The purpose of the study – to evaluate efficiency of thrombolytic treatment of acute coronary syndrome in the city of Yakutsk.

Materials and methods of research. We analyzed TLT data of 143 patients with AMI, provided by the Yakutsk Emergency Station and Cardiovascular resuscitation and intensive care ward, Yakutsk city clinical hospital No. 1 for the 2007-2009 period. Over the periods studied, Q-positive myocardial infarction was found in 204 patients and 143 of them (70.1%) received TLT; 61 patients (29.9%) had some contraindications. The patients' age ranged from 46 to 70 years, making the average age 58 ± 1.5 years; men accounted for 64%, women – 36%. AMI was diagnosed at pre-admission stage basing on anamnesis, clinical presentation, and ST segment elevation on ECG; later it was confirmed in hospital (ECS in dynamics, positive specific ferment tests). As a thrombolytic preparation, 110 patients (76.9%) received Alteplase (Actilyse), the II-generation recombinant plasminogen activator; 33 patients (23.1%) received Tenectaplast (Metalyse), the III-generation preparation. The preparations were used as prescribed in the medical information leaflet. Indications for TLT included the following: cases within 12 hours after an anginous outset; ECG showing elevation of ST segment $ST \geq 0.1$ mV at least in two adjacent chest leads or in two abductions of extremities.

As the All-Russian Scientific Society of Cardiologists recommends, introduction of clot-busting drugs proves effective within the same period with ECG indicating genuine posterior myocardial infarction (high R waves in the right precordial leads and ST segment depression in leads $V_1 - V_4$ with positive T wave) [6].

Study results and their discussion. Analysis of the AMI incidence in the city of Yakutsk for the period 2004-2009 shows that the number of patients with first AMI amounts to 302 to 363 each year (Figure 1). Thus, the AMI intensive morbidity rate per one thousand people registered in 2004 makes – 0.99; 2005 – 0.87; 2006 – 1.4; 2007 r. – 1.5; 2008 – 1.4; and in 2009 – 1.75. It is established that though Q-positive (large-focal) AMI accounts for 63% of all the cases, less that third of the patients only receive clot-busting drugs (Table 1). The reason is that TLT, enabling quick lysis, results in a number of expected complications (reperfusion arrhythmia, hemorrhagic complications, bradycardia, and hypotonia), which requires a thoughtful selection of patients, taking into account all absolute and relative contraindications. However, we witness more emergency teams using TLT. Whilst in 2007 systemic thrombolysis for pre-admission AMI treatment was used in 48.8% of cases, the figure went up to 66.7% in 2008 and reached 90% in 2009. In average, an emergency team would arrive within 10 ± 2.3 minutes after a call [2]. In 81% of the cases TLT was introduced within three hours from the outset (Table 2). In 2009, in 33 cases of pre-admission treatment out of 61 they used

Tenectaplast (Metalyse), which is more convenient for usage at pre-admission stage due to the possibility of a single bolus dosing. In 19 cases (31.1%) TLT was introduced to AMI patients with rhythm and conduction disturbance, in 4 cases (6.6%) – to patients with clinical presentation of cardiogenic shock. Three patients with severe condition died (c.f. 4 people in 2007 and 1 patient in 2008). According to the data from Cardiovascular resuscitation and intensive care ward, Yakutsk city clinical hospital No. 1, men at the age from 46 to 60 dominate among patients with verified large-focal AMI. Women suffer from AMI generally at the age of 51-60 and over 70 years. First AMI account for 83% of the cases, recurrent – 17%. As for infarction focus location, anterior AMI was registered in 45% of the clinical cases, interior – 19%, and interior-posterior – 13% (Figure 2). The indicators of effective coronary blood flow restoration are as follows: lower ST segment elevation; relieved anginous pain; increased ferment activity, especially of creatine phosphokinase; development of reperfusion arrhythmias; absence of Q-wave on ECG; and lethality indicators. It is worth mentioning that Metalyse bolus dosing introduced to the emergency teams practice has considerably reduced the time of calling service, so results of the pre-admission TLT were examined later, during in-patient treatment. The beginning of ST segment shift towards the isoline within 30 minutes from introduction of TLT was registered in 30.8% of the cases, within 30-60 minutes – in 32.7% (Table 3).

In 2009 recanalization after effective TLT was successful in 52 cases, which makes 85.2% (with 73.1% in 2008). In 5 cases (8.2%) out of 61, ECG showed that systemic thrombolysis actually resulted in “interrupted infarction”, in other words prevented forming of necrosis. At Cardiovascular resuscitation and intensive care ward expected complications after pre-admission thrombolysis occurred in 28 cases (45.9%) (with 14/1% of complications in 2007-2008). Reperfusion arrhythmias accounted for 20 cases (32.8%), gingival haemorrhage – 6 (9.8%) and hematuria – in 4 cases (6.6%) of all TLT introductions. Development of reperfusion arrhythmias indirectly indicates effective restoration of coronary blood flow, but in certain cases, for example, under ventricular fibrillation, there is a potential threat to a patient’s life. Out of 20 cases of reperfusion arrhythmia, AV-blocade was registered in 3 patients (15%), supraventricular tachycardia – in 4 (20%), stable ventricular tachycardia – in 3 (15%), ventricular fibrillation – in 2 (10%), and ventricular premature beats – in 8 (40%) patients. All the arrhythmia cases were successfully arrested (stable ventricular tachycardia – by cardioversion, ventricular fibrillation – by electric defibrillation). Lethality of AMI patients within 24 hours amounted to 18% in patients not receiving TLT and 5.5% in patients having received thrombolysis, thus decreasing by 12.4% with introduction of TLT.

Conclusions: 1. Over the period 2004-2009 Yakutsk witnessed increased number of AMI patients appealability from 0.99 to 1.75 per thousand.

2. In the AMI pattern, 65% fall on macrofocal damage, which is an electrocargiographic indication for thrombolytic therapy.

3. There is a growing number of pre-admission TLT of AMI: emergency teams used thrombolysis in 48.8% of the cases in 2007; 66.7% in 2008; and in 90% of the AMI cases in 2009. In 81% of the cases TLT was introduced within first three hours from the attack outset.

4. Introduction of contemporary clot-busting drugs, like Alteplase and Tenectaplaste, at the pre-admission stage considerably decrease time from the ischemic attack outbreak to restoration of the coronary blood flow, as well as reduce the AMI lethality in the city of Yakutsk by 12.4%.

Figure 1

Acute myocardial infarction incidence in 2004-2009

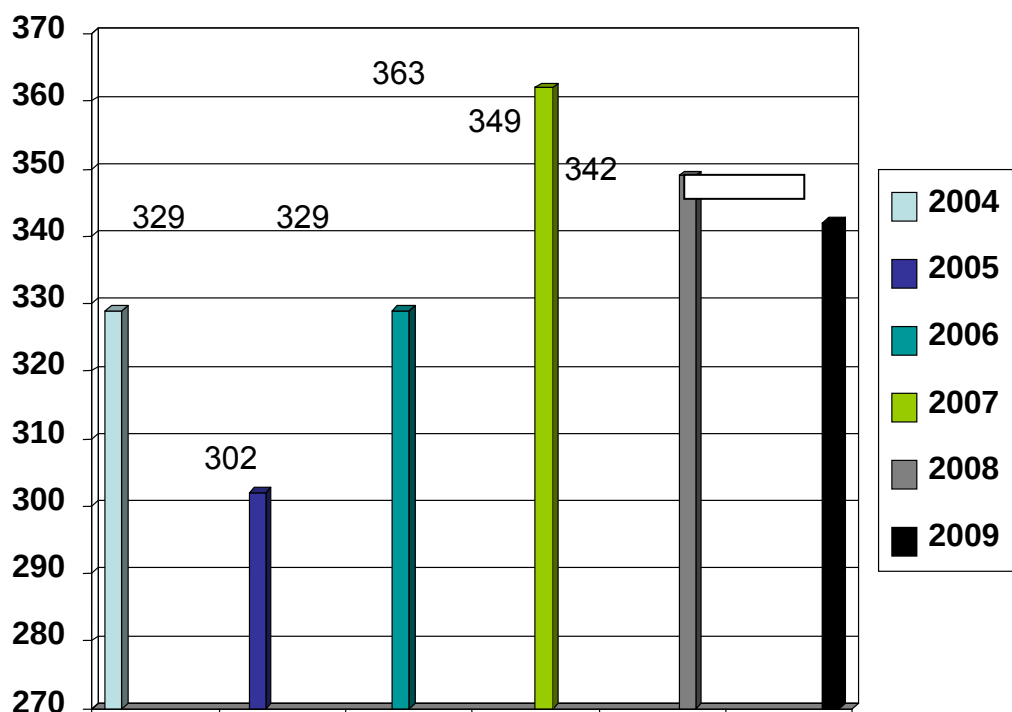


Table 1. Patients with Q-positive MI having received thrombolytic therapy

Period	Total AMI patients	Patients with Q-positive myocardial infarction		Patients having received thrombolytic therapy	
		Absolute number	Share	Absolute number	Share
2007	363	255	70.2	43	16.9
2008	349	209	59.9	39	18.7
2009	342	204	59.6	61	29.9
Total	1054	668		143	

Table 2. Duration of ischemic attack before thrombolytic therapy

Duration of ischemic attack before TLT	Share (%)
Within three hours	81.0
From 3 to 9 hours	17.0

Figure 2. AMI pathology location breakdown

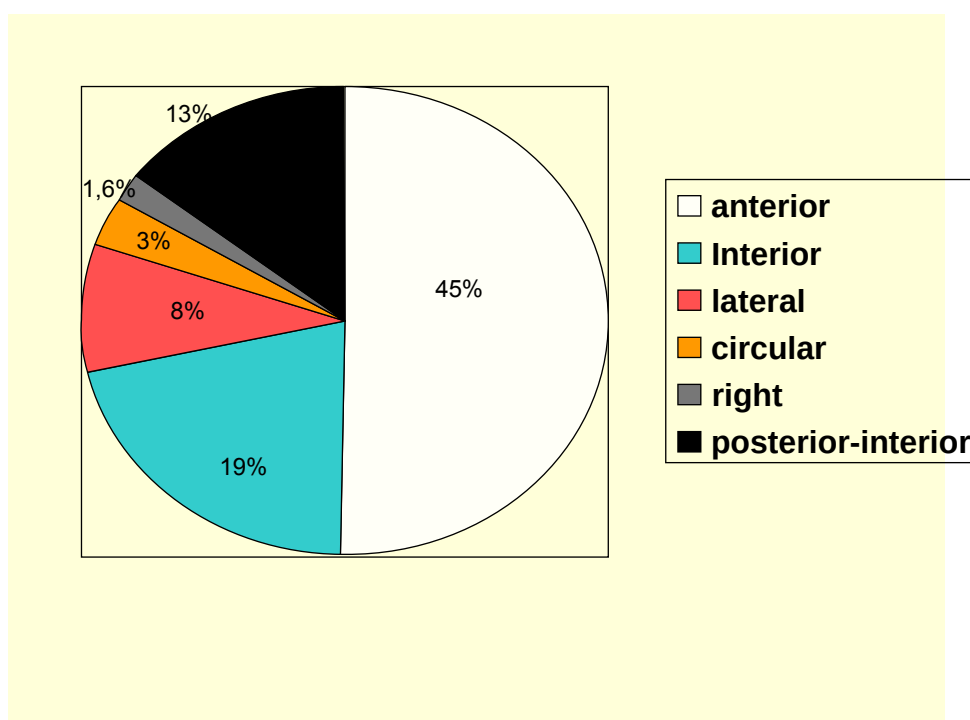


Table 3. Time between introduction of clot-busting drug and beginning of ST segment shift toward the isoline

Time of ST segment shift	Number of TLT	
	Absolute number	%
Under 30 minutes	16	30.8
Within 30-60 minutes	17	32.7
Within 1-2 hours	7	13.5
Within 2-6 hours	6	11.5
Within 6-24 hours	6	11.5

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Vdovina O.B.

Course and community-acquired pneumonia features during A/H1N1 2009 flu

The 2009 year was signalized with pandemic flu A(H1N1) – so called “swine” or “mexican” flu. This flu was caused by a new strain of virus and was appeared in March-April of the 2009 and was immediately spread to many countries of the world. Since the October of the 2009 the sickness rate of A(H1N1) had increased sharply. Outbreak of disease was connected with pandemic flu A(H1swN1). We did a retrospective analysis of 79 medical histories of patients with diagnosis “community-acquired pneumonia”. Clinical features, disease severity, localization of the process, presence of complications, treatment and outcome of the disease have been examined.

Keywords: community-acquired pneumonia, virus, epidemic.

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Nesterov A.V.

State of a question of car salon trauma at road accident

In article data on existing and perspective directions of studying of a question on the mechanism of formation of damages at persons in salon of cars are resulted. Absence in accessible sources of a proper attention to research of questions of biomechanics of formation of damages depending on a way of landing and a pose of drivers and passengers of a forward seat in salons of cars of foreign manufacture with various types is noted. Their role for an establishment of a place and position of persons in car salon at road accident.

Keywords: forensic medicine, an automobile trauma, a trauma in car salon.

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Analysis of the assortment cholagogue.

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According to statistics the diseases of the digestive tract take fifth place in the Russian Federation population death [5]. Among the digestive tract diseases the biliary pathology comprises about 20-25 %. In the biliary pathology the paramount aim is the restoration of bile formation and discharge normal processes. Due to insufficient bile formation by the liver or the disturbance of its entering into the intestine resulting in the biliary insufficient thorough and sometimes long medicamentous therapy is required [3]. Nowadays there is the vast arsenal of cholagogue drugs including species on the basis of vegetative raw material.

The aim of the given studies was the structural analysis of the assortment of cholagogue drugs used in Russian Federation, the estimation of elaboration prospects of new cholagogue drugs and

the improvement of the present ones. The specific group of cholagogue drugs has been studied namely « A05A Drugs for treatment of the gallbladder diseases» (« A05AA Bile acid preparations»; « A05AB Drugs for treatment of bilifeous tract diseases»; « A05AX Other preparations for treatment of bilifeous tract diseases»), with the exception A05B group- «preparations for treatment of hepatic diseases», presented mainly by hepatoprotectors and « A05C- the combination of preparations for treatment of hepatic and bilifeous tract diseases» presented mainly by the combined phospholipids.

The situational analysis has been carried out on the basis of official sources of the information about Medical products: «The State register of medical products 2006-2009 r» [1], «The directory of synonyms JIC 2009 r» [6], Data from an electronic site « The Circulation of medical products » <http://www.regmed.ru> [4]. The period from 2006 to 2009 and then following groups of parameters have been chosen: 1) juridical (registration in the Russian Federation), 2) economic (industrial: country, suppliers); 3) pharmaceutical (medicinal forms, structure of operating substances) [2]; The general assortment of cholagogue drugs on the pharmaceutical market the Russian Federation, during the analyzed period, has comprised 37 INN, forming the group of 50 trading names (table 1).

The main portion of preparations 40 (62 %), has been registered in the Russian Federation till 1991. 11 (18 %) medicinal preparations having been registered during the period from 2001 to 2009 are relatively new pharmaceutical preparations for the Russian market. However only two polycomponental vegetative preparations (Travochol, Artecholin) may be consider really new as 9 others, having been registered under new trading names, have been known before. The most extensive group of 72 % includes herbal drugs (27 % of which are polycomponental), synthetic drugs represent 6 %. Bile- preparations i.e. biopreparations form 11 %, the given group having not been changed from 1990 s. Bile acid preparations and their salts from 11 % of the total number and their assortment renovation as it has been noted above results from registration of new trading names existing on the market INN (table 2).

The assortment structure analysis of the realization forms has revealed the absolute prevalence of solid medicinal forms 80 % (table 3). Liquid medicinal preparations form 20 % of the total assortment among which one preparation is in the form of a solution for intramuscular and intravenous injections (Chophytol). The great part (31 %) of solid medicinal preparations is presented by tablets. Liquid medicinal form is most typical for preparations of vegetative raw material and is presented in such forms as syrups, drops, liquid extracts and elixirs.

The assortment analysis concerning the industrial sign has shown that native medicinal preparations represent a greater part of medicinal products having been registered on the Russian market (69 %), 79, 5 % being herbal drugs. The imported preparations form 31%, including 55% of herbal drugs. The main part of the imported products have been registered in the forms of tablets and capsules-20 %. The prevalence of species, briquettes, filter-packets, vegetative raw material and powders - 32 % (import-0 %) in the group of native medicinal preparations is due to both high popularity of such traditional medicinal forms and absence of more modern and innovative medicinal forms of this preparations group in the industrial portfolios of Russian enterprises .

The assortment analysis concerning the geographical sign has shown the fact that 9 countries (figure 1) have registered their supplies. In accordance with the number of medical products Germany takes first place (9 %), France second place (5 %), Czechia third place (3 %).

The absence of registered products of some preparations causes some kind of worry: according to the data on 15.05.2009 (table 4) only 32 analyzed preparations (50 %) have their registered

producers, 23 medicinal preparations (leaf of sumag flowers arnica) don't have their producers, the registration of 9 preparations (14 %) has been abolished (registration time is out). [4]

Thus thanks to the analysis (figure 2) results the macrocontour of a target segment of the market shows the assortment structure of cholagogue drugs used in Russian Federation. The presented data may be of interest for the prospects of development of new native medicinal products and improvement of their forms.

Table 1

Structure of assortment cholagogue drugs,
resolved to application in the Russian Federation (2006-2009)

Group	Assortment					
	MHH		Trading names		Preparations	Share
	Quantity	%	Quantity	%	Quantity	%
1. Biliious acids and their salts	3	8	6	12	7	11
2. Bile preparations	3	8	3	6	7	11
3. Preparations of a phytogenesis Monocomponental	12	32	20	40	29	45
Polycomponental	15	41	17	34	17	27
4. Synthetic preparations	4	11	4	8	4	6
	37	100	50	100	64	100

Table 2

Dynamics of registration cholagogue drugs in the Russian Federation from 1967 to 2009

Group	1967-1991		1992-2000		2001-2006		2007-2009		TOTAL	
	Unit	%	Unit	%	Unit	%	Unit	%	Unit	%
Biliious acids and their salts	1	2	3	5	1	2	2	3	7	11
Bile preparations (From organs of animals)	6	9	1	2	0	0	0	0	7	11
Monocomponental a phytogenesis	24	37	2	3	2	3	1	2	29	45
Polycomponental a phytogenesis	5	8	7	10	5	8	0	0	17	27
Synthetic	4	6	0	0	0	0	0	0	4	6
In total	40	62	13	20	8	13	3	5	64	100

Table 3

Structure of assortment cholagogue drugs by kinds of medicinal forms

Medicinal forms	Quantity					
	Total	%	Import	%	Russia	%
Solid						
Tablets	20	31	7	11	13	20
Species (vegetative raw material)	15	23	0	0	15	23
Capsules	8	13	6	9	2	3
Granules	2	3	0	0	2	3
Briquettes (vegetative raw material)	2	3	0	0	2	3
Dragee	1	2	1	2	0	0
Powders	1	2	0	0	1	2
Extracts dry	1	2	0	0	1	2
Filter-packets	1	2	0	0	1	2
Total	51	80	14	22	37	58
Liquid						
Syrups	4	6	0	0	4	6
Drops	2	3	2	3	0	0
Elixirs	2	3	0	0	2	3
Extracts liquid	2	3	1	2	1	2
Solutions for intake	1	2	1	2	0	0
Suspensions	1	2	1	2	0	0
Solutions for injections	1	2	1	2	0	0
Total	13	20	6	9	7	11

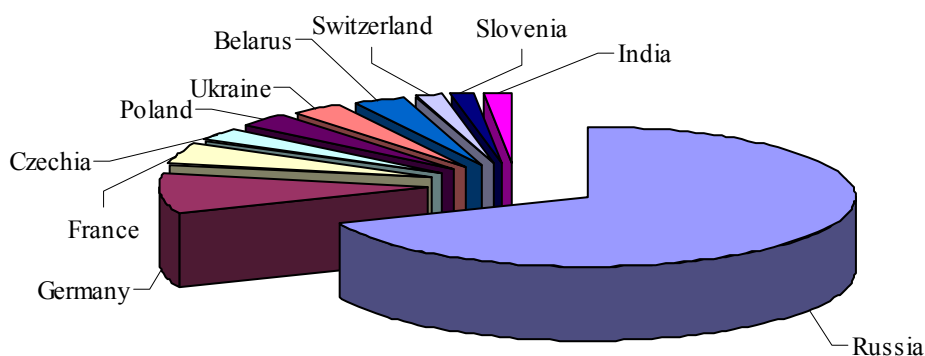


Figure 1. The assortment analysis concerning the geographical sign.

Table 4

Structure of assortment cholagogue drugs on the basis of
registration of suppliers

	Group	Suppliers are registered	Share of %	Suppliers are absent	Share of %	Registration is cancelled	Share of %	Total
1	Bilious acids and their salts	4	6	0	0	3	5	7
2	Bile preparations	5	8	2	3	0	0	7
3	Preparations of a phytogenesis							
3.1.	Monocomponental	14	22	14	22	1	2	29
3.2.	Polycomponental	8	13	4	6	5	8	17
4	Synthetic preparations	1	2	3	5	0	0	4
		32	50	23	36	9	14	64

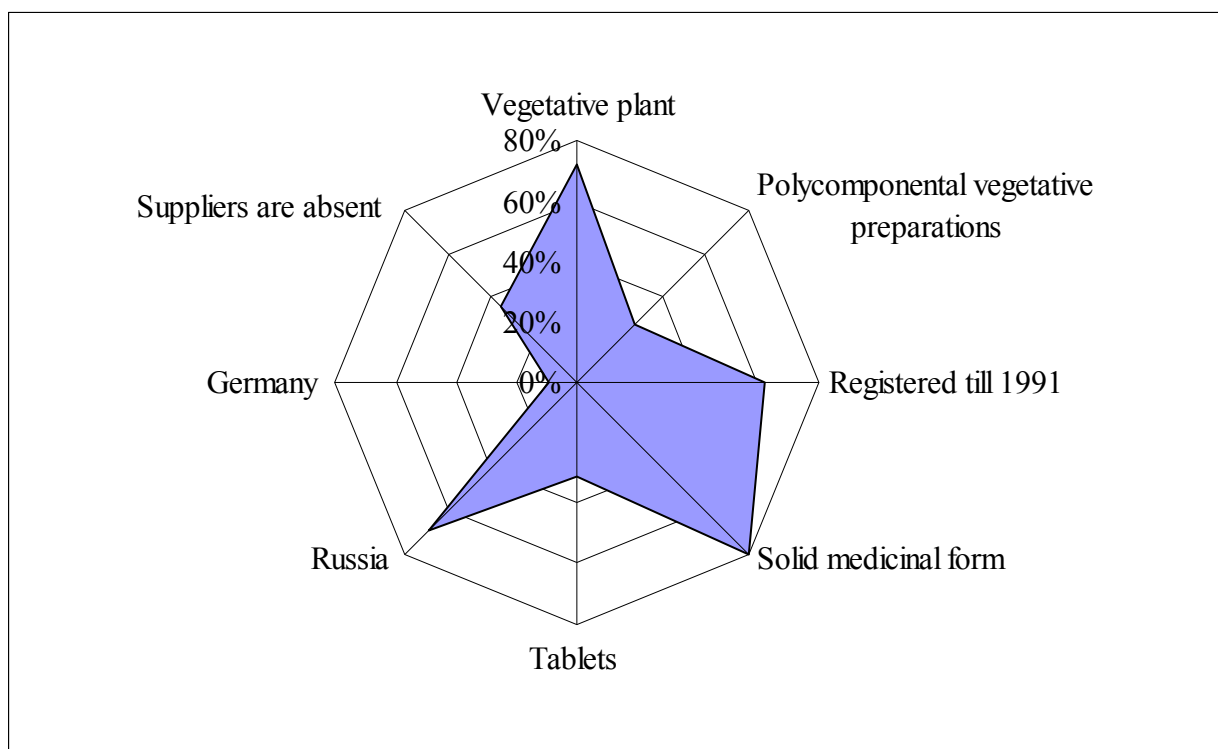


Figure 2. The macrocontour of a target segment of the market of cholagogue drugs used in Russian Federation.

Kotljarov I.D.

Problem of regulation of retail prices for medical products

The present paper is dedicated to a model of price regulation for medicines within distribution channel. It is proposed to divide medicines into three groups on a basis of price. It is recommended to introduce a guaranteed distribution and pharmacy margin for medicines from lower and upper groups, and a maximum margin rate for medicines from medium group.

Keywords: medicine, pricing, price regulation, distribution channel.

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Modern problems of long-term criopreserving of biological objects (tissues, cells, organs) with conservation of their properties and functions on the basis of use of crioprotecting substances

One of the approaches to dissolve the problem of the toxicity of artificial cryoprotectors that have been applied in the cryopreservation of biospecimens can be using it together with natural cryoprotectors, produced by cold hardy organisms, such as insects. The positive results were received in the studies on using of extract of overwintering caterpillars *Aporia crataegi* L. in the cryopreservation of human lymphocytes. The extract seems to be an efficient stabilizer at multiply cycles of freezing – thawing.

Keywords: cryopreservation, cryoprotector, toxicity, lymphocytes, cold hardy insects, *Aporia crataegi*.

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