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Dranaeva G.G., Burtseva T.E.

Regional action strategy for children's of Republic Sakha (Yakutia) health care for 2013-2017

Considering the problems in the field of child and adolescent health care, and pursuant to the Order of the Government of the Russian Federation dated October 15, 2012, Number 1916 - r the Government of the Republic of Sakha (Yakutia) has developed a strategy of action for children of the Republic of Sakha (Yakutia) in the 2012-2017.

The main goals of this strategy are:

Organization of the effective health care system to all categories of the children and disabled workers, developing health care system to teenagers and stimulation their active life, stimulation to eat healthy foods and organization of the healthy feeding in the hospitals.

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Pak M.V., Lekhanova S.N., Savvina N.V.

The study of life quality of Republic Sakha (Yakutia) adolescents with chronic gastroduodenal pathology

Summary

The paper presents the results of sociological, clinical and laboratory tests and instrumental surveys of adolescents with Helicobacter pylori-associated disorders of the upper digestive tract. At the study of psycho-emotional and social characteristics of these patients we found that they had significantly low scores on all parameters of emotional, social and physical functioning (emotional status and the possibility to do their daily social responsibilities significantly worsened, adolescents coped with high physical activity, passing over one quarter, carrying heavy things significantly worse) due to severe pain present at exacerbation of chronic gastroduodenal pathology. On a background of anti H. pylori and symptomatic treatment we found increase of quality of life indexes on all scales of functioning.

112 children out of 188 adolescents agreed to participate in this survey. Patients were divided into the following groups:

(1) by age: 8-12 years old (n = 41) and 13-18 years old (n = 71),
(2) by sex: boys (n = 57) and girls (n = 55),
(3) by Ethnos: indigenous (n = 131) and non-indigenous (n = 57).

The patients were examined and treated according to the standards for this disease. The incidence of HP-associated gastritis was 58.5%, with a higher frequency of contamination of the HP gastric mucosa among adolescents from indigenous population. Moreover, a moderate degree of contamination by HP was incorporated among adolescents of 10-14 years. Weak degree of colonization by HP was reported in the group of 15-18 year-olds. For the group of indigenous children weak degree of contamination occurred in 37, 4%, moderate - in 15.3%, severe degree - 9.9% of cases. For the group of non-indigenous children weak degree of contamination occurred in 19.3%, moderate - 17.5%, and severe degree - 12.3% of cases. We found that these patients had significantly lower scores on all parameters of emotional and social functioning (significantly worsened emotional status and to the possibility of their daily social responsibilities) in the study of psycho-emotional and social aspects of children with chronic gastroduodenal pathology. We found relatively low rates of adolescents in all parameters in the study of physical functioning. Teenagers, which were observed, perform worse with great physical effort, passing one quarter, carrying heavy things. It is due to severe pain present at exacerbation of chronic gastroduodenal pathology. On a background of H-pylori and symptomatic treatment we found increase of the quality of life for all scales of operation.

Keywords: quality of life, chronic gastroduodenal pathology, PedsQL™4.0, adolescents.

Introduction

The overall incidence of all ages increases by 6.5% every year in Russia over the past 5 years. The health of adolescent children is of particular concern. 70% of children have a chronic pathology, socially constructed and socially significant diseases [3]. The most common childhood diseases include diseases of the digestive system. They are second in frequency after respiratory diseases (including SARS). The incidence of children with chronic forms of gastrointestinal diseases increased over the last five years, almost 10% a year in Russia. Overall, in the five years it has grown by almost 40%. The frequency of digestive diseases was 212.2 to 1,000 children in 2010 year (in 1999 it was 120.0).

It is generally recognized now that H-pylori are the major cause of and a leading factor in the pathogenesis of chronic gastritis, gastric ulcer and duodenal ulcer [2, 3]. H-pylori infection associated gastritis 60-80% and 88-100% of duodenal ulcer disease in children, according to some authors. H-pylori infection rate among children in Russia is in the range of 60-70%. And it increases with age.

Detection of gastritis and duodenitis increased almost twice among adolescents. The increased incidence among adolescents is associated with a critical period of intense growth and restructuring in neuroendocrine regulatory support systems. Puberty exhibits unique properties. It acts as a natural functional stress test. It is a powerful autonomic, endocrine and immune reconstruction against a growth of physiological shock, menarche and deviations in pubertal maturation, and manifested over serious violations of psychosocial adaptation [3, 5, 8 and 9]. Prolonged and recurrent gastroduodenal diseases affect the quality of life. As a result the process of adaptation to environmental conditions is violated. Psychological problems and social plan appear (emotional instability, lack of self-confidence, sensitivity and anxiety, high anxiety, conflict, increased sensitivity to stress factors). [7]

At the present stage of medicine development the quality of life is recognized as one of the key criteria that reflects the state of health and general well-being. Quality of life is an integral characteristic of the physical, psychological and social functioning for child. It is based on his subjective perception and / or the subjective perception of the parents or other people from his or her immediate environment [1, 4 and 9]. The study of children's lives is a new topical area of interdisciplinary research in the national healthcare. It extends the standardization of methods of treatment, provides individual monitoring of the patient to the assessment of early and late outcomes, development of predictive models of flow and outcome of the disease [1, 4, 5, 12 and 13]. Specially designed questionnaires are a basic research tool for the quality of life research that has certain psychometric properties such as reliability, sensitivity and validity.

The purpose of this study is to examine the objective and subjective indicators of health status of adolescents with HP-associated gastroduodenal diseases.

Materials and methods: epidemiological (clinical and epidemiological, statistical, analytical), medical and sociological (the methods of full-time and part-time survey), instrumental, laboratory.

Assessment of quality of life among adolescents carried out with use of international common questionnaire called “Pediatric Quality of Life Inventory - PedsQL™ 4.0”. The Russian version of the general questionnaire PedsQL was used for children of 8-18 years. It was successfully validated in Russia.

PedsQL questionnaire has been chosen by us as a simple and convenient tool to fill in statistical analysis and interpretation of results. It has separate forms to be filled in by children and parents. It can be also be used for studying the quality of life of healthy children as well as patients with

various diseases, including, over time or in the process of treatment and rehabilitation. [15] We chose two forms of the questionnaire to be filled in by children of 8-12 and children of 13-18 years. The tool consists of 23 questions which are united into the following scales: - "physical functioning" (FF) - 8 questions (to estimate mobility, walking, running and pain); - "emotional functioning" (EF) - 5 questions (to estimate sleep, anxiety, mood , fear and sadness); - "social functioning" (SF) - 5 questions (to estimate interaction with other children); - "role functioning in the school or kindergarten life "(RF) - 5 questions (to estimate the role functioning in children's groups, Frequency of skipping school lessons due to illness or the need to visit a doctor). In the process of re-encoding the data can be obtained from the following summary scores: physical component summary score of quality of life (including the scale of FF), psychosocial summary score (total range of emotional, social and role functioning), and estimated the total scale (total score on all scales of the questionnaire). The total number of points after the procedure of transcoding is calculated on a 100-point scale (transferring the raw data to score the quality of life). The higher the total value, the better quality of life is [6, 10, 11, 14, and 15].

During the period from 2009 to 2011 we have done 188 primary studies of the upper gastrointestinal tract in adolescents from 10 to 18 years, who were divided by ethnicity, gender and age. The study included only those children whose parents gave informed consent in writing form. Exclusion criteria were contraindications to endoscopic examination, the use of antibiotics, bismuth, H2-blockers or proton pump inhibitors within 30 days prior to the study or acetylsalicylic acid for three days before the procedure. Analysis of the structure for applied and examined adolescents showed no statistically significant differences in both ethnic and gender group with what was presented in a comparable structure of indigenous and non-indigenous children, boys and girls.

In the diagnosis of diseases of the stomach we used classification and grading of gastritis according to the modified Sydney system (October 1996). Endoscopic examination was performed with the help of video endoscopes EVIS CV 160.

112 children out of the 188 teens agreed to participate in this survey. Patients were divided into the following groups:

1. By age:
   8-12 years (n = 41) and from 13-18 years (n = 71);
2. By sex:
   boys (n = 57) and girls (n = 55).

Taken into account that children accessed from different ethnic groups, we carried out an analysis of the structure of children who applied by ethnicity. In this case, the children of indigenous nationalities are 131 people (Yakut, Evens and Evenks). Non-indigenous are 57 people (children of other nationalities who have arrived at different times from the regions of Russia and CIS countries).

The patients were examined and treated according to the standards for this disease. Diagnosis was based on a comprehensive survey including complaints, medical history (family history of H-pylori infection, the errors in the diet), and clinical examination (dyspepsia, pain on palpation in the epigastria, heartburn) as well as laboratory and instrumental methods (test - system Helik® with a digital camera, FEGDS and common analyzes).

Results

Our studies showed that the overall structure of the surveyed adolescents aged 10-18 years the incidence of the HP-associated gastritis was 58.5%. Frequency of contamination of the HP gastric mucosa dominates among adolescent of indigenous population. Moreover, a moderate degree of contamination of the HP was reported among adolescents of 10-14 years of age and a weak degree of HP dissemination for the group of 15-18 year-olds.

We obtained the following data in the analysis of the structure of various degrees of contamination

of the HP considering ethnicity and gender. For the group of indigenous children: weak degree of contamination occurred in 37, 4% of cases; moderate degree in 15.3% and severe in 9.9%. . For the group of non-indigenous children: weak degree of contamination occurred in 19.3% of cases, moderate in 17.5%, and severe degree - 12.3%. Thus, statistically the infection was detected more frequently among indigenous children according to HP study.

We have found hyperemic gastropathy among 131 adolescents with macroscopic evaluation of the mucous membrane of the upper digestive tract (for the studied pediatric population, accounting for 69.7%). Papules in the antrum of the stomach were found in 20 people (10.6%). It is interpreted as papular gastropathy. Hypertrophic gastropathy was found for 2 patients (1.1%). Our study showed that the tested children isolated lesion of the stomach occurred in 76 cases (40.4%). Involvement in inflammatory mucosa hyperemic duodenopatiya WPC was detected within 112 children (59.6%). Combined lesions of the mucous membrane of the esophagus, stomach and duodenum were observed among 11 children (5.9%). Erosive and ulcerative lesions of the mucous membrane of the stomach and duodenum were detected in 35 cases (18.6%). Erosion of gastroduodenal mucosa was observed in 17% and canker in 1.6% of cases. One teenager was diagnosed post peptic strain pylorus and the duodenal bulb. The study found that the age had an effect on the prevalence of erosive and ulcerative lesions of the mucous membranes of the upper digestive tract. Thus, this figure was 11.2% in the age group of 15-18 years, and in the age group of 10-14 years it was 7.5%. The presence of foam content or olive green in the lumen of the stomach was seen as duodenogastric reflux. It was diagnosed among 30 children (15.6%).

Analysis of the quality of the data presented in Table 1 and Table 2 shows that when filling in the forms in the Russian version of the questionnaire have been involved all the answers to every question. We have found fairly significant differences in the parameters of the quality of life among children of 8-12 and 13-18 years with HP-associated pathology of the upper gastrointestinal tract before treatment on all scales of operation. It is indicated to reduce the parameters of quality of life on all scales for girls of 13-18 years, compared to girls of 8-12 years. For boys on the contrary, in the group of 13-18 years, there is an increase quality of life parameters compared with 8-12 years.

Physical functioning among adolescents with chronic gastroduodenal pathology is an important indicator of life as for any other patient. We have detected low levels of all the parameters in the study of physical functioning among adolescents. Teenagers, whose we observed, significantly worse cope with high physical activity, the passage of one quarter, carrying heavy objects. This is due to severe pain present at exacerbation of chronic gastroduodenal pathology. We have found an increase in quality of life for all scales of functioning on a background of H-pylori and symptomatic treatment. Thus, adolescents reported that they felt better to run and participate in active games, to exercise and to take a bath after full treatment. Probably reduced physical functioning is associated with clinical conditions of diseases that were aggravated by physical activity.

We have found that the patients had significantly lower scores on all parameters of emotional and social functioning in the study of psycho-emotional and social aspects among adolescent children with chronic gastroduodenal pathology. (Emotional status and possibility of fulfillment of their daily social responsibilities seriously degrades). They often been sad and felt scary. There was a sleep disorder. It was hard for them to play with other children. They had difficulty in communicating. In analyzing the data it was found that patients were less likely to experience feelings of fear, anger and depression after the treatment. Social exclusion is also decreased, and the role-playing activity in school has increased.

We observed a significant decrease in quality of life for all scales of operation despite the localization of the process during exacerbation of chronic gastroduodenal pathology. Such a significant decrease is due to the fact that regulatory peptides are synthesized in the duodenum. These peptides provide processes not only in the digestive tract, but they also take part in neuroregulation. Therefore it is called the "pituitary" gastro-intestinal tract. The results show the system-level changes in the local host's gastroduodenal lesions.

Conclusion

Thus, there is a high Helicobacter Pylori infection among adolescents in the Republic of Sakha (Yakutia) and it is mainly among middle-school children. The frequency of contamination of the HP was significantly higher among indigenous children than non-indigenous. Moreover, mild contamination prevailed among the non-indigenous children. A combined lesion of the mucous membrane of the stomach and duodenum is a characteristic feature.

The HP-associated gastroduodenal pathology has a significant negative impact on quality of life during an exacerbation (data questionnaire Pediatric Quality of Life Inventory - PedsQLTM 4.0). We noticed the improvement in quality of life for all scales functioning on a background therapy. Thus, quality of life can be used as an integral measurement for health status, based on a subjective assessment of the physical, psychological and social well-being. It can be widely used to assess the effectiveness of the treatment.

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TABLE 1

Life quality parameters of children with chronic gastroduodenal pathology before treatment according to sex and age (n = 112)

Life quality parameters	8-12 years old		13-18 years old		p<
	Boys n=24	Girls n=17	Boys n=33	Girls n=38	
FF	57,31±4,0	71,0±18,7	62,41±9,6	62, ±320,4	0,000
EF	62,5±24,8	73,82±1,9	62,02±0,3	64,62±2,7	0,000
SF	80,8±22,5	92,01±3,0	86,61±8,7	85,5±17,7	0,000
RF	55,4±17,6	65,91±5,4	59,11±8,9	59,31±9,5	0,000
PSF	66,3±18,1	77,21±3,7	68,41±6,7	68,7±18,1	0,000
O. mark	63,4±14,9	75,71±3,7	67,5±14,4	67,91±5,4	0,000

$p \leq 0,05$ statistically significant difference between groups.

TABLE 2

Life quality parameters of children with chronic gastroduodenal pathology after treatment according to sex and age (n = 112)

Life quality parameters	8-12		13-18		p<
	Boys n=24	Girls n=17	Boys n=33	Girls n=38	
FF	81,9±11,7	88,8±11,6	86,0±11,7	84,9±13,8	0,000
EF	91,0±11,8	93,5±9,9	90,1±15,3	84,5±18,7	0,000
SF	94,6±12,9	96,2±10,5	96,2±9,3	93,3±11,5	0,000
RF	76,9±14,4	82, 1±12,6	80,5±14,8	78,91±6,1	0,000
PSF	87,5±9,9	90,6±9,5	88,9±11,2	85,6±12,7	0,000
O. mark	86,1±9,3	67,5±9,6	88,2±10,7	85,4±12,1	0,000

$p \leq 0,05$ statistically significant difference between groups.

Credits

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Ishutina N.A.

Structure of phospatidilcholine and lisophosphatidilcholine fat acids of the erythrocytes membranes in the pregnant with the aggravation of the herpes - virus infection in the III trimester

The paper presents the study of the composition of erythrocytes membranes lipids of saturated fatty acids of the umbilical cord of newborns from mothers who have had gestational exacerbation of herpes viral infection. It was revealed that the studied composition of those born from mothers who have had acute herpes virus infection with antibody titer IgG to herpes simplex virus type 1 as 1:12800, was characterized by an increase in the concentration of myristic, pentadecanoic, palmitic, margaric and stearic fatty acids.

Keywords: herpes virus infection, umbilical cord blood, saturated fatty acids.

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Ivanova O. N., DjachkovskyaV. E., Sleptsova A.A., Petrova P.G.

The poisoning structure in children of the Republic Sakha (Yakutia)

The article is devoted to an actual problem of pediatrics - acute poisonings in children. Authors carry out the analysis of reports of the Admitting-diagnostic department from 2006 for 2010. The increase in number of cases of acute poisonings in children of all age is revealed, in the teenagers increase of figures of statistics of alcoholic poisonings, by narcotic substances and cases of suicide attempts is noted. All reception wards of hospitals should be provided by sets of antipillboxes for rendering of the urgent help to children with the most frequent kinds of poisonings.

Keywords: poisonings, children, teenagers, statistics, pediatrics, the urgent help.

The urgency. By the CART data, quantity of sharp and chronic poisonings at children in economically developed countries increases from year to year. In our country for the last 5 years the quantity of poisonings at children has doubled (an annual gain of 3-15 %) and in 1988 has made nearby 80 000, i.e. 1 case on 1000 children. [1,2,3,4]

For a countryside these data decrease to 0,3-0,4 for 1000 children, this indicator is equal in Moscow 2,5-3 on 1000. Children till 3 years are Most subject to a poisoning, on this age it is necessary more than 50 % of all ezogenic intoxications; more than 26 % children of school age make, is mainly more senior 13 years. [1,2,3,4]

Among nosological forms more than 80 % make poisonings with substances, the basic among which are cardiovascular preparations, mainly clonidine, tranquilizers and nevroleptie, se-dativnye and soporific, including derivative barbiturati acids. Further there are poisonings with agricultural, industrial and vegetative poisons, household chemical goods preparations, alcohol, mineral oil, salts of heavy metals.

Among children of advanced age the considerable place is occupied with deliberate poisonings, including alcohol and drugs, glue sniffing, imitation reaction. One of the reasons of a poisoning at schoolboys are suicide and parasuicide installations [1,2,3,4].

The sharp poisoning always demands emergency medical aid from children.

The outcome of disease and efficiency of treatment of toxicological patients in many respects

depend on in due time begun therapy, its volume and strict continuity at various stages of application detoxic and symptomatic therapy.

The work purpose is to study structure of poisonings in the Republic Sakha (Yakutia) children, application of possible antipillboxes in emergency therapy of poisonings.

Materials and methods: the analysis of reports of the Admitting-diagnostic branch RH №1 – NCM PC for the last 3 years is carried out.

Results of research: growth of number of poisonings at children in the Republic Sakha (Yakutia) for the last five years is marked. So, indicators of 2006 have made 231 child, for 2010 321 sick children have addressed with a poisoning (fig.1). Among the addressed children who demand medical aid and supervision are hospitalized, cases of refusal of parents from hospitalization are marked.

In 2010 are hospitalized into the Hospital - 186 patients (57.9 %), in 9 cases (2.8 %) cases - there are no indications, refusal of hospitalization - 30 children (9.3 %), recommendations are given to 80 children (25 %), the help is rendered in 83 cases. In 2010 170 (53 %) children are hospitalized into the gastroenterological branch, into the Pulmonological - 10 (3.1 %), in other hospitals are directed - 20 (6.2 %) as were easy cases with an accompanying sharp infectious disease.

In age structure of children who have addressed with various kinds of poisonings in accident ward RH№1PC- NCM children at the age from 2 till 3 years prevail; more often it is connected with expansion of contacts of the child and oversight of parents. The second age peak is noted at the age of 14-15 years, at this age the poisonings connected with alcohol, narcotic substances prevail.

At the analysis of substances in which result there was a poisoning it is necessary to note high level of medicamentous means and household chemical goods preparations (fig.3). Both these of a kind of poisonings first of all are connected with storage of medical products and household chemical goods in places accessible to children and to absence of the control of parents for children. Among household chemical goods preparations means for cleaning of pipes, washing-up liquids with the maintenance of alkalis, chloric bleaches are noted acetic acid. The given means cause a burn of a mucous membrane and a muscular layer of the top departments of a gastroenteric path, with the subsequent formation cicatricial strictures and invalidization of the child.

In structure of medicamentous poisonings, preparations-vitamins, hypotensive means, warm preparations prevail. Thus, medical products are used by all members of a family and the reason of poisonings - their storage in places accessible to children.

Frequency of alcoholic poisonings and narcotic preparations at children who have addressed into the Hospital accident ward the period with 2006 for 2010.

From 2006 for 2010 growth of number of alcoholic poisonings is marked: 25 cases for accounting 2010, 23 cases for 2009, in 2008 - cases of alcoholic poisonings - 20, in 2007 - 14, in 2006-8, in 2005 - 6 are registered. The first cases of the use of drugs by teenagers in 2009 1 case (0,4 %), in 2010 - 2 (0.62 %) are registered. What drugs have used are not known, according to teenagers «drank unknown tablets and smoked a grass», complicates diagnostics absence of toxicological examination in the RS (Y). Unfortunately, the toxicology at children in the Republic Sakha (Yakutia) is poorly studied direction of a medical science. Further carrying out of preventive actions work with parents, the psychological help to teenagers), maintenance of receptions of children's hospitals with necessary packings with antipillboxes and carrying out of seminars for practising doctors of accident wards and first aid stations on rendering of the urgent help is necessary for children with different kinds of poisonings.

Conclusions:

1. For the last 5 years the quantity of cases of poisonings at children in the RS (Y) grows.

2. Most often poisonings are noticed at the 2-3 years that is connected with absence of vigilance of parents.

3. Poisonings in 14-15 years are connected with reception of alcohol and narcotic substances, and also suicide attempts (reception of medicines).

4. All receptions of hospitals should be provided by sets of antipillboxes for rendering of the urgent help to children with different kinds of poisonings..

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Vegetative dysfunction syndrome in adolescents as an integral factor of the high risk for cardiovascular and endocrine diseases in young people: a pathogenetic substantiation of prevention programs

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Summary: Survey of 1200 young people with vegetative nervous system dysfunction revealed the presence of pathogenetically significant changes in the major regulatory systems of adolescents: high frequency of mental health problems, complex sub-clinical abnormalities in the immune, endocrine, reproductive systems involving a high level of endogenous intoxication at the cellular and organism level. The project of the program of health monitoring of the mentioned group is developed.

Keywords: health, adolescents, vegetative dysfunction syndrome, risk factors, micro-elements, hormonal regulation, oxidative stress, prophylaxis.

The state of adolescent health is a barometer of social welfare and medical care, a harbinger of public health changes in later years. Nationwide forum "Children's Health - the basis of the nation's health," noted the suspension of the negative trends in the children health status at the national level, but underlined the permanence of high level of adolescents' morbidity (60%), high level of socially important diseases, the presence of psychosomatic and reproductive health disorders of adolescents [1]. The first place among noninfectious disease take cardiovascular disease which are inflicting irreparable economic damage around the world and are the major cause of the population mortality [12]. In Russian Federation, every 5th inhabitant has a typical form of

ischemic heart disease, myocardial infarction "rejuvenated" by an average of 15 years, death rates increased by 20%, reaching 40,8 among men and 5,5 among women under 45 in the group older than 50 these indicators increased by 2,5 times [7,10,11.].

The study of predictors of hypertension and other cardiovascular and metabolic disorders formation in the youth is important [12, 13]. One of the most common abnormalities in adolescent health is vegetative nervous system dysfunction, which frequency reaches 30% in different regions of Russia [2,3]. Over the past 10 years the number of young people in the Far Eastern Federal District decreased by 141,5 thousand people, in the Khabarovsk region – 41,9 people. Consistently high incidence of disease classes, in which formation the determining role plays a hidden flowed autonomic dysfunction, are remaining- endocrine (7,3%), nervous system (7,2%), circulatory diseases (4,4%). Last two indicators' level has increased by 2 times for the last 10 years.

Only since 2010 the number of autonomic nervous system disorders among children of the region increased by 1,5 times (from 669,7 to 977,1 per 100,000 population from 0 to 14 years), among adolescents 15 - 17 years increased by 3,3 times (from 1626,8 to 5413,3 per 100000 population). Identification frequency of disease accompanied by arterial hypertension among adolescents in 2012 amounted 413,3 per 100000 [6]. There are no statistical data for these nosological forms in the Far East Federal District, which presents the underestimation of the significance of autonomic nervous system dysfunction in the formation of children and adolescent pathology. In this case, according to Mother and child care institute research, vegetative dysfunction syndrome (VDS) takes second place in the structure of non-communicable diseases, which served as the cause of hospitalization of adolescents due to a significant health deterioration (72%). This requires a serious revision of the relation of pediatricians to the assessment and treatment of this contingent. In order to optimize treatment and diagnostic measures, a scientific analysis of the factors, influencing the processes of Physiology of adolescents with SVD is conducted.

Methods and materials. A survey of 1200 adolescents with SVD in comparable gender groups has been conducted, the control group consisted of 260 healthy children.. While determining the SVD clinical variants and syndromes, classification by NA Belokon (1987) in modification by EV Neudahin and co-authors (2003) has been used. Clinical data included the study of genealogical, social, obstetric and biological anamnesis and somatic status of a child. Diagnostics of undifferentiated connective tissue dysplasia was carried out based on the presence of visceral-locomotor and phenotypic markers [8]. Evaluation of psychosomatic health and psychological characteristics was conducted by analyzing of data, obtained by questioning of the surveyed

adolescents. Paraclinical tests included general and biochemical blood analysis. Evaluation of immune status included the determination of parameters of cellular immunity (rosette method using monoclonal antibodies: CD3 +, CD19 +; CD4 +, CD8 +; CD16 +, CD25 +; HLA-DR +. Humoral immunity indicators are estimated by the enzyme-linked immunosorbent analysis technique. Neutrophils functional activity indicators (FAN: spontaneous and stimulated) were studied in phagocytic activity tests defining the phagocytic index and phagocytic number (FCH - spontaneous and stimulated). Hormonal status included determination of pituitary- thyroid, adrenal-titeotropina (TSH), triiodothyronine (T3), thyroxine (T4, free thyroxine (FT4), prolactin (PRL), follicle-stimulating hormone (FSH), luteinizing hormone (LH), testosterone (T), estradiol (E2), degidroepiandrotrona-sulfate (DHEA-S), cortisol (C) levels, using enzyme immunoassay (ELISA) method. To evaluate the microelement status, the examination of microelement content has been done: copper (Cu), cobalt (Co), manganese (Mn), selenium (Se), nickel (Ni), lithium (Li) and lead (Pb). Microelement definition was carried out in serum and blood cells by atomic absorption method on spectrophotometer «Hitachi-9000" (Japan). The content of iodide in whole blood was studied by direct potentiometry using ion-selective electrodes ("Kritur", the Czech Republic).

For an integrated assessment of free radical oxidation, chemiluminescent method (CML) has been used. Registration was performed on fluorescent spectrometer LS 50B «PERKIN ELMER». The study of spontaneous and induced Fe 2+ chemiluminescention was determined by U. A.Vladimirov method and co-authors [4]: S-sp – amount of light per 1 minute of spontaneous lightening, which correlates with the intensity of free radicals generation; Sind-1- amount of light per 2 minutes Fe2+ induced hemiluminescention, which reflects the intensity of peroxide radicals accumulation, h 1- fast flash amplitude Fe 2+ - induced hemiluminescention, which shows the lipid hydroperoxides concentration. Hemiluminescention kinetics, which was initiated by H2O2 with luminal, was analyzed according to the following characteristics: h2- max flash amplitude, which magnitude is inversely proportional to substrat peroxide resistance; Sind-2 - amount of light per 2 minutes H2O2 - induced hemiluminescention, which is inversely proportional to antiacid antiradical protection system. The hemiluminescention intensity was measured in millivolts per 1 blood serum and was expressed in relative units. In the statistical analysis of the results, standard techniques of variant statistica such as Statistica for Windows Release 7.0. have been used.

Survey results and discussion. Particular qualities complex of the functioning of the main body regulatory systems, contributing to the formation of somatic, endocrine diseases, reproductive disorders among adolescents with the VDS has been identified. The following factors are identified as pathogenetically significant risk factors of SVD: environmental and school psycho-emotional

strain, contributing to the formation of a high level of neuroticism (56%), emotional instability (42%), tendency to depression among 16% of patients. These factors significantly reduce the quality of life of adolescents with SVD (SF-36 ped) (62,7%), determine low levels of emotional (57,5%) and social functioning (58,5%) during the period of exacerbation. The presence of psychosomatic disorders increases the overall risk of cardiovascular disease by 3 times, arterial hypertension by 1.7 times. The high frequency of concomitant functional disorders of the gastrointestinal tract (75%), musculoskeletal (51%), endocrine (37%) and cardiovascular system (31%) is identified. Among 82% of adolescents with SVD the undifferentiated connective tissue dysplasia is diagnosed (Fig. 1), which presence prove the difference in frequencies of gene polymorphisms of detoxification xenobiotics system, suggesting a low efficiency of detoxification enzymes that increase the sensitivity of the organism to the effects of endo-and ekzokotoksikants [5].

Among the endogenous factors that determine the vegatative dysregulation the most significant are a high level of hereditary burden of cardiovascular (36,2%) and endocrine diseases (24%) in maternal line, perinatal risks, concomitant by chronic hypoxia (67,9%).

Directivity of the neuroendocrine regulation defines the high level of "stress hormones" secretion – prolactin, somatotropin, cortisol, DHEA-s, pituitary-thyroid system activation, positively correlated with disorders of central hemodynamics, brain activity, the degree of cognitive, behavioral and neurological dysfunctions-cal ($r > 0,5$, $p < 0,05$) (Fig. 2). These hormones determine the hypothalamic syndrome symptoms of puberty (15.3% of cases), high frequency of reproductive system dysfunction in 19.3% of adolescents, with a predominance of menstrual disorders among girls (16%), among boys-delayed sexual development (13%), cystic-proliferative changes of gonads in both gender groups (6% and 5%), form a group of high risk of metabolic syndrome developing among young [9].

The specific of trace element metabolism among teenagers with VSD has been studied: in both gender groups of patients with SVD, in comparison with the control, identified significantly ($p < 0.05$) higher levels of iodide (49,16 ± 1,4 and 10,85 ± 0,4 mmol / l, 49.64 ± 1,0 and 16,9 ± 2,16 mmol / l resp.), copper (Cus, 25,4 ± 3,36 and 16,7 ± 0,52 mmol / l; 18,98 ± 0,8 and 15,01 ± 0,76 resp.), cobalt (Cos, 0,35 ± 0,03 and 0,20 ± 0,02 mmol / l, $p < 0.05$) most explicit among boys. Significantly lower concentrations of lead (0,006 ± 0,001 and 0,08 ± 0,02 mmol / l resp. ($P < 0.001$), with the accumulation in its form elements are presented (Pb el 2,01 ± 0,09 and 1,62 ± 0.06 mmol / l resp. ($p > 0.05$), which may indicate an extreme instability of cell membranes, contributing to the formation of cytotoxic effects, occur a powerful "nonspecific" goitrogen, explaining the high

incidence of diffuse nontoxic goiter, diagnosed in 28% of cases. A significant correlation between the trace element imbalances and immune endocrine dysfunction is revealed: high level of TTG ($r = -0,8$, $p < 0,05$), prolactin ($r = 0,8$, $p < 0,05$), growth hormone ($r = 0,9$, $p < 0,05$) cortisol ($r = -0,7$, $p < 0,05$), sex steroids- estradiol ($r = -0,8$, $p < 0,05$) and gonadotropin-releasing hormone, FSH ($r = -0,9$, $p < 0,05$). In such way, the imbalance of Cu, Co, Li, Pb is a pathogenetically important factor which causes a high intensity of compensatory mechanisms, disruption of lipid metabolism (19%), disharmony of physical development (28%), disorders of sexual development.

Studies have shown a marked decompensated activation of free radical oxidation, inhibition of antioxidant systems of antiradical protection, reducing the buffer capacity of ACM detoxification among patients with SVD (Fig. 2). Extremely high level of active oxygen metabolites processing may cause the destruction of proteins, nucleic acids and lipids of biological membranes, damage the membrane complexes, cause cytotoxic effects, which can be regarded as one of the most important pathogenetic factors of parenchymal and endothelial injury, determining the endogenous intoxication level.

The examination of immune endocrine relations shows the involvement of immune and endocrine system of organism in the process of autonomous regulation of competitive interpopulative lymphocytes relations, humoral and nonspecific elements of the immune system. Neurovegetative disorders among adolescents with VSD are developed against a background of relative and absolute lymphocytosis, with an increase of the NK markers expression by 25% (CD16+), and late lymphocyte activation (HLA DR), hypoactivity of phagocytic and T-helper immunity element, low level of antibodies, dysimmunglobulinemia with IgE hyperproduction, decrease of IgG level, which may cause the formation of multi-organ pathology and chronic disease progression (table). Psychosomatic and neuroendocrine disorders deterioration is associated with a sharp tightening of intersystem relations and the reduced number of freedom degrees between the indicators of cellular and humoral immunity and adrenal hormones (cortisol, DHEA-S), sex hormones, gonadotropins (Fig. 2), that the most expressed among adolescents with complicated SVD forms - connective tissue dysplasia, hypothalamic syndrome, symptomatic arterial hypertension.

Conclusions: The received data indicate the presence of pathogenetically significant changes in the major regulatory systems of adolescents with SVD - high frequency of mental health problems, complex sub-clinical abnormalities in the immune, endocrine and reproductive system, accompanied by a high level of endogenous intoxication at the organism and cellular level, trace element metabolism dysfunction and significant intensity of compensatory mechanisms.

The revealed complex of polysystem dysfunction requires the organization of health monitoring system of the mentioned group. The program of "Early diagnosis and prevention of cardiovascular and endocrine diseases among adolescents" might become the key component of the young people help program, which significantly optimizes the system of children and adolescents' health monitoring, embedded today in city health centers of Khabarovsk and Khabarovsk region. The program aims: creation of unified methodological approaches to the timely identification of risk groups; improvement of pathology detection, optimization of treatment results in primary care; adolescents' life quality indicators improvement, professional guidance according to the identified pathology.

Guidelines of clinical management should be:

(4) Medical and psychological counseling, adolescent and family support.

(5) Psychosomatic health primary screening based on the adolescents' life quality assessing (SF36 ped) as a technique of dysfunction severity and direction estimating, as well as monitoring of rehabilitation measures effectiveness.

(6) Biological and acquired risk factors, connective tissue dysplasia markers, endocrine dysfunction analysis, based on a questionnaire.

(7) Implementation of teenager's health passport, which includes the expansion of the laboratory and instrumental research complex, including lipid profile analysis, glucose, calcium, phosphorus, uric acid level analysis; hormonal status (TSH, FT4, prolactin, cortisol, LH, FSH, estradiol, testosterone); endocrine glands ultrasound - thyroid, adrenals, gonads; oxidative and trace element status determination- as disease severity and prognosis markers.

5) Individual indications - DNA-diagnostics of endogenous detoxification, cardiovascular disease predisposition, immunological examination.

VSD medical treatment, in addition to the basic neuro-and sedative drugs, should include a pathogenetically substantiated therapy using drugs with antioxidant, membrane stabilizing and detoxifying effects, hormonal imbalance elimination. Organization of medical and counseling help for young people with VDS must be done by such specialist as pediatrician, neurologist, endocrinologist, gynecologist, andrologist, geneticist, psychologist, social worker. Timeous interdisciplinary and interdepartmental intervention of specialists will help to optimize treatment quality, prevent psychosomatic, cardiovascular, endocrine pathology progression risks among young people.

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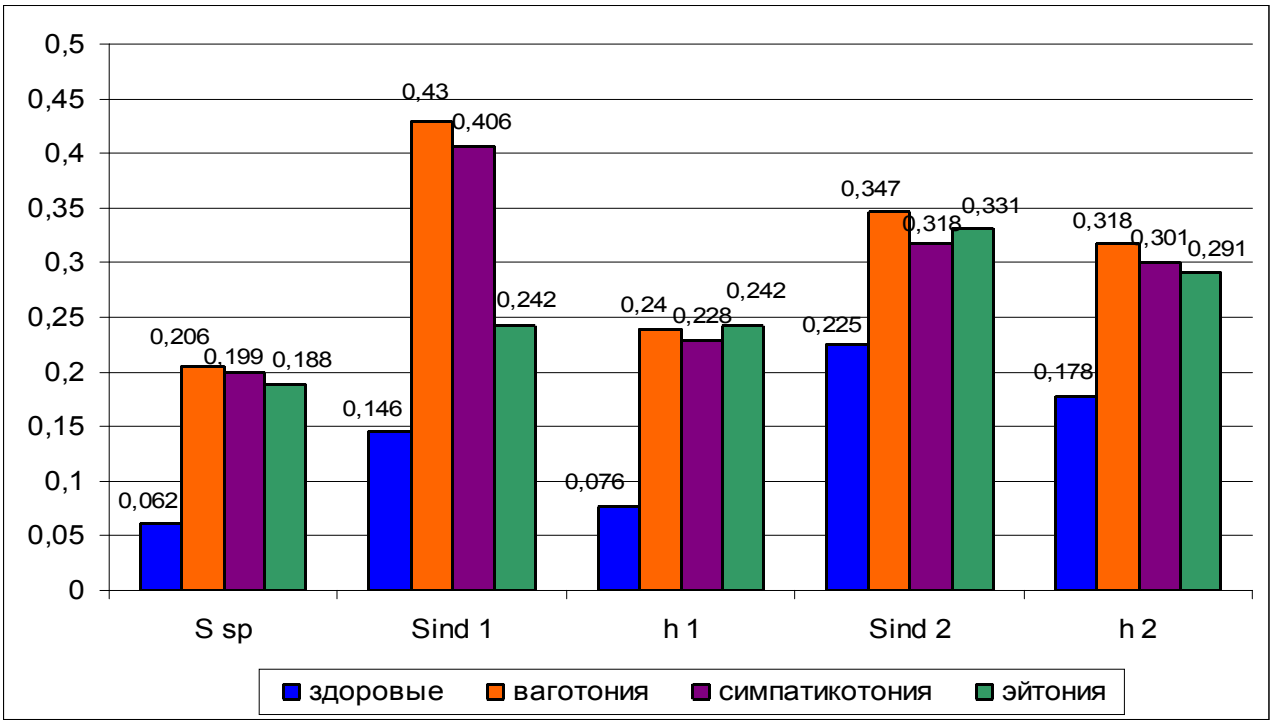


healty vagotonia sympathicotony ayton

Figure.1 **Redox status of adolescents with different types of autonomic regulation**

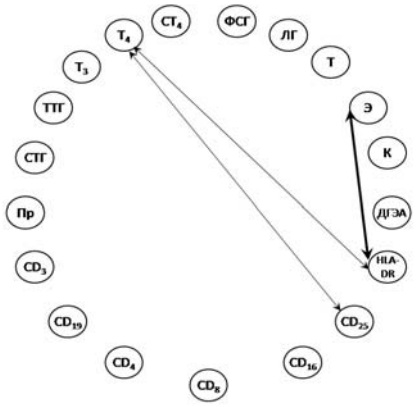
Table

Some indicators of immune status of children with SVD (M±m)

Indicator	Vagotonic type n=109	Sympathic type n=40	Atony type n=20	Control (healthy) n=78
Limph., %	46,02±1,03*	45,4±1,69*	47,91±3,08*	40,58±1,35
CD3+, %	28,49±0,93*	28,72±1,47*	25,4±3,26*	37,37±1,45
CD4+, %	23,38±0,71*	23,08±1,29*	24,0±1,59	27,27±1,02
CD16+, %	17,56±0,76*	15,0±0,88	19,55±1,17*	14,22±0,64
HLA-DR+,%	16,2±0,54*	14,25±0,79	18,0±2,9*	12,86±0,55
Limph., abs	2,72±0,08*	2,76±0,11*	3,28±0,39*	2,39±0,09
CD3+, abs	0,77±0,03*	0,79±0,05	0,9±0,16	0,89±0,05
CD16+, abs	0,47±0,02*	0,41±0,03*	0,62±0,06*	0,33±0,02
CD25+, абс	0,41±0,02*	0,39±0,04	0,54±0,14*	0,3±0,02
HLA-DR+,abs	0,44±0,02*	0,39±0,03*	0,55±0,07*	0,31±0,02
IgG, г/л	14,73±0,98*	14,65±1,12*	14,37±1,8*	20,2±1,5
IgE, МЕ/мl	171,93±23,45*	147,76±32,53*	57,0±16,65*	85,31±24,97
NSTsp, conv.un.	22,3±1,08*	24,95±2,96	22,0±1,43*	46,05±2,93
HCT ст,conv.un.	30,51±1,3*	35,1±2,93	30,18±2,25*	55,19±2,65
FAN sp, %	32,47±1,41*	40,28±3,24*	31,73±5,39*	48,2±3,97
FAN st, %	39,06±1,48*	43,92±3,25*	45,73±6,69*	56,24±3,77

Note: * - significant differences (p<0,05) with control group indicators;

Girls



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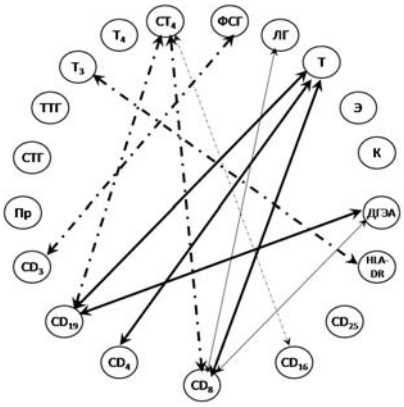

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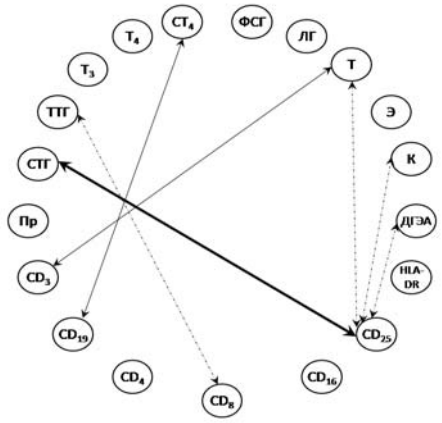
Boys



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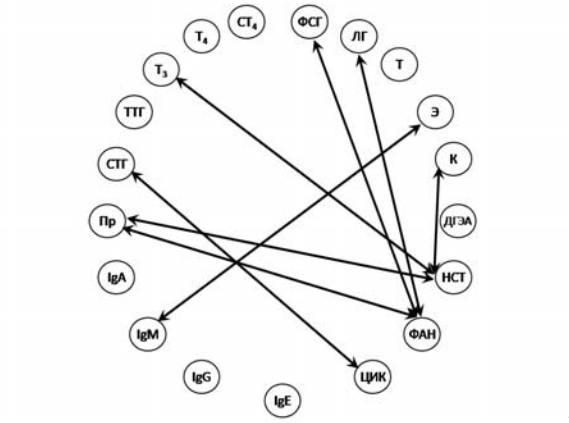

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Figure.2. **The nature of the immune endocrine relations among girls and boys with SVD in prepubertal (1) and pubertal (2) age**

Congenital malformations of the urogenital system in the Republic Sakha (Yakutia)

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The present study analyzes the data of the National monitoring of congenital malformations for 2000-2009 and for the first time the frequency, structure of malformations of the urogenital system of newborns and aborted fetuses in Yakutia are determined. The estimation of the level of effectiveness of the prevention of congenital malformations is given.

Keywords: monitoring, congenital malformations, urogenital system, fetus, newborn.

Introduction. Territorial registers and monitoring of congenital anomalies (CA) are of great significance for estimating showings of genetic cargo of the population. The congenital anomalies are considered to be one of the causes of prenatal mortality rate [3]. According to some studies conducted in different countries, 25-30% of all prenatal losses are caused by anatomic defects. The maximum rate of congenital defects (to 80-85%) is observed at early stages of prenatal development that has been revealed while studying materials of spontaneous abortions [8]. Among deadborns CA occur in 15-20% of cases. Within 1st year of life 25% of all cases of mortality are caused by congenital anomalies [4].

Congenital anomalies of urogenital system (UGS) appear to be serious medical-social problem as they cause the development of urinary tract infection (40-80%), up to the development of chronic renal failure (88%) [10, 11]. The congenital renal anomalies among children are not only common, but also have growing tendency, rating 30-50% of all congenital anomalies [2, 6, 13]. CA of UGS refer to the list of the most frequent congenital anomalies which are included in the International defects register which are subject to genetic monitoring (International Birth Defects Monitoring System, Eurocat). According to the incorporated register EUROCAT and the register of the Russian Federation for 2000-2010 the defects of UGS occupy 3rd place (15,17 and 17,18% accordingly) in the structure of leading congenital anomalies. In the structure of UGS pathology hypospadias is noted as the most prevalent (41, 98%), it followed by kryptorhism (21,56%), and then congenital defects of pyelectasia passage (13,45%) [3].

The genesis of congenital anomalies is mainly connected with chromosomal aberrations,

however, they can be manifested by rare monogenic illnesses (approximately in 2% of cases). More than 80% of CA have polygene nature and are connected with teratogen affection of the environment [1]. Most researchers consider that such exterior factors have adverse effect to the formation of primary kidney, leading to chronic hypoxia of nephritic fabric and development of various fetus system failures that can be manifested in various renal pathology [2, 9, 12, 14]. General principles of formation of urinary system defects are connected with histogenesis failure at cellular reproduction level, cellular growth, migration and differentiation, formations of intercellular and intrafabric cooperations. The failure of any links in development of urinary system can lead to defect formation [15].

Thus, because of high incidence rate of the urogenital system and its great influence to the structure of infantile death rate, infantile morbidity and physical disability it is necessary to study the given problem more thoroughly.

Materials and methods: 140,018 data about newborns, a database of the Republican register of congenital anomalies, genetic cards of pregnant women, the form №025-11/at-98 on an infant with congenital anomalies. The analysis of data has been conducted by means of program Statistika 6,0.

Results and discussion: The analysis of Republican monitoring data on anomalies shows that for 10 years 289 cases of urogenital system anomalies (UGS) at newborns and fetus, including 192 isolated anomalies and 97 cases as a part of plural anomalies have been registered. Besides, 236 cases of pyelectasia have been noted: unilateral - 185 (Yakutsk - 115, in rural areas - 70), bilateral - 51 (Yakutsk - 26, in rural areas - 25). Mid-annual frequency of urogenital system defect at newborns and eliminated fetuses has made 0,14%. The highest incidence rate of UGS was marked in 2006-2007, thus the frequency of isolated defects has amounted 0,25%, and in composition MCD (multiple congenital defects) - 0,1% (fig. 1).

Within the studied period 164 newborns with UGS isolated anomalies were revealed, and 28 fetuses were eliminated subject to medical outcomes (Tab. 1). Fetuses with CA UGS were eliminated with parental consent, and basically, due to bilateral process (bilateral renal agenesia, bilateral renal hypoplasia). The efficiency of preventive measures was estimated in 14,5%. In the structure of UGS isolated defects at newborns and interrupted fetuses hydronephrotic renal transformation (Q 62.0) - 0,07% and infantile polycystic kidney (Q 61.1) - 0,02% (Tab. 1). On the third place unilateral renal agenesia (Q 60.0) - 0,01% was noted at newborns, and at fetus there were other specified UGS anomalies. The general frequency of UGS isolated anomalies at newborns has amounted 0,12%, and at interrupted fetuses - 0,02%.

UGS anomalies in composition of congenital anomalies have been verified in 97 cases: 72 newborns (74,2%), 25 eliminated fetuses (25,7%) (Tab. 2). In the general structure of UGS anomalies in composition of multiple anomalies among newborns (0,01%) the leading positions are taken by hydronephrosis (0,02%) and unilateral renal agenesia (0,02%), the second place - infantile polycystic kidney (0,01%). There was timely detection and elimination of fetuses with infantile polycystic kidney - 7, with unilateral renal agenesia - 5, with bilateral renal hypoplasia – 4. Newborns with UGS severe and rebellious anomalies in composition of MCD (bilateral renal agenesia - 3, infantile polycystic kidney - 4, bladder extrophy - 2), as well as with hydronephrosis and unilateral renal agenesia ($p<0,05$) were significantly born in rural areas than in Yakutsk. The frequency of UGS anomalies in composition of multiple congenital anomalies at newborns has been 0,05%, and 0,02% at interrupted fetuses accordingly. The general frequency of UGS congenital anomalies in composition of MCD has been 0,07%, and after preventive measures it has decreased to 0,05% at newborns.

In connection with lack of some data the study of women's anamnesis with indications on live or dead birth as well as a fetus with CA UGS on genetic cards has not revealed objective risk factors of congenital anomalies formation.

The conclusion. Thus, unilateral renal agenesia and hydronephrosis appear to be the most frequent renal anomalies at newborns, the latter can undergo to surgical correction depending on injury level. Authentically high frequency of birth rate cases with CA UGS including rebellious anomalies in rural areas is caused by insufficient preventive actions.

Children with pre-natal revealed pathology of urinary system should undergo dynamic supervision at early age for early diagnostics of UGS diseases, preventive measures of urinary tract infection, nephrosclerotic formation and nephritic insufficiency [5]. To conduct suitable prophylaxis of congenital anomalies it is necessary to improve the level, possibilities and quality of diagnostics, and also to use «Instructions on CA phenotypical manifestations» [7] and multimedia directory system «Congenital anomalies» [4].

Figure 1

Frequency of isolated defects of urogenital system and in composition of multiple congenital defects at newborns and fetuses for 2000-2009

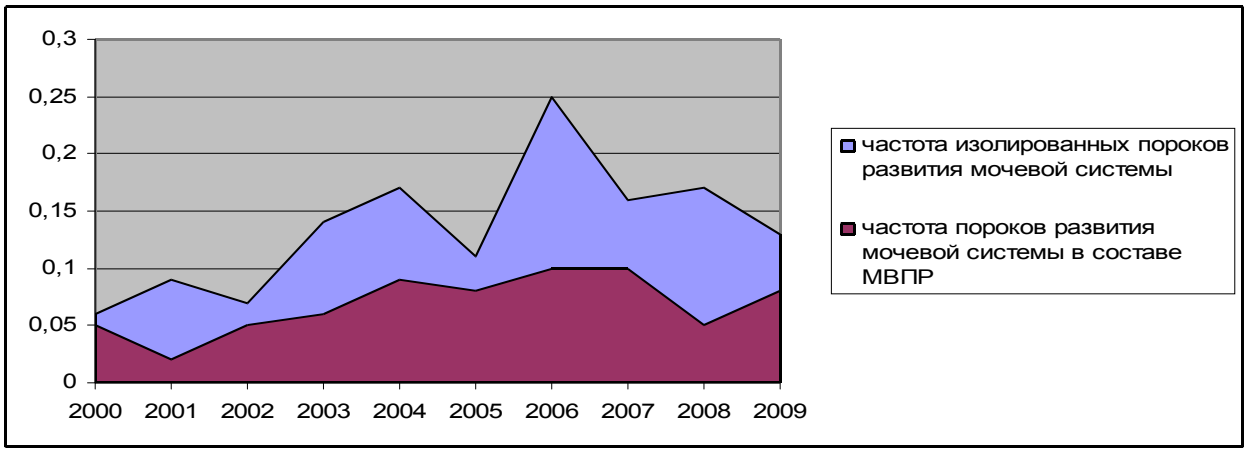

Table 1

Isolated congenital anomalies of urogenital system in Republic Sakha (Yakutia) for 2000-2009

Defect type	Live birth (newborns)				Eliminated (fetuses)				Total n	Frequency (%)
	Yakutsk n	Districts n	Total n	Frequency (%)	Yakutsk n	Districts n	Total n	Frequency (%)		
Unilateral renal agenesia	13	4	17	0,01	-	-	-	-	17	0,01
Bilateral renal agenesia	-	-	-	-	2	-	2	0,001	2	0,001
Unilateral renal hypoplasia	2	4	6	0,004	-	-	-	-	6	0,004
Bilateral renal hypoplasia	-	-	-	-	1	-	1	0,001	1	0,001
Single renal cyst	1	1	2	0,001	-	-	-	-	2	0,001
Infantile polycystic kidney	7	13	20	0,01	3	3	6	0,004	26	0,02
Unclassified polycystic kidney	-	1	1	0,001	-	-	-	-	1	0,001
Renal pelvis passage failure and ureter anomaly	-	-	-	-	1	-	1	0,001	1	0,001
Hydronephrosis	44	44	88	0,06	7	4	11	0,008	99	0,07
Ureter atresia and stenosis	1	-	1	0,001	-	-	-	-	1	0,001
Megaloureter	-	1	1	0,001	-	-	-	-	1	0,001
Reflux bladder ureter	3	1	4	0,003	-	-	-	-	4	0,003
Accessory kidney	2	-	2	0,001	-	-	-	-	2	0,001
Merged, lobular and U-shape kidney	3	5	8	0,006	-	1	1	0,001	9	0,006
Ectopic kidney	3	5	8	0,006	-	-	-	-	8	0,006
Unclassified renal anomaly	1	-	1	0,001	-	-	-	-	1	0,001
Posterior urethral valves	1	1	2	0,001	-	-	-	-	2	0,001
Other bladder and urethra anomalies	-	-	-	-	1	-	1	0,001	1	0,001
Other classified urinary system anomalies	1	-	1	0,001	2	1	3	0,002	4	0,003
Unclassified urinary system anomaly	-	2	2	0,001	-	-	-	-	2	0,001
Total:	82	82	164	0,12	19	9	28	0,02	192	0,14

Table 2

Urinary system anomalies in composition of multiple congenital anomalies in Republic Sakha (Yakutia) for 2000-2009

Diagnosis	Live birth (newborns)				Eliminated (fetuses)				Total n	Frequency (%)
	Yakutsk n	Districts n	Total n	Frequency (%)	Yakutsk n	Districts n	Total n	Frequency (%)		
Agenesia and other reduction renal defects	-	-	-	-	1	-	1	-	1	0,001
Unilateral renal agenesia	6	11	17	0,01	2	3	5	0,004	22	0,02
Bilateral renal agenesia	-	3	3	0,002	2	1	3	0,002	6	0,004
Unilateral renal hypoplasia	7	1	8	0,006	-	-	-	-	8	0,006
Bilateral renal hypoplasia	1	-	1	0,001	3	1	4	0,003	5	0,004
Infantile polycystic kidney	-	4	4	0,003	3	4	7	0,005	11	0,01
Unclassified polycystic kidney	-	1	1	0,001	-	-	-	-	1	0,001
Renal dysplasia	-	1	1	0,001	-	-	-	-	1	0,001
Hydronephrosis	7	12	19	0,01	1	1	2	0,002	21	0,02
Ureter atresia and stenosis	-	1	1	0,001	1	-	1	0,001	2	0,001
Ureter agenesia	-	1	1	0,001	-	-	-	-	1	0,001
Accessory kidney	1	2	3	0,002	-	-	-	-	3	0,002
Merged, lobular and U shape kidney	3	4	7	0,005	2	-	2	0,001	9	0,01
Ectopic kidney	2	1	3	0,002	-	-	-	-	3	0,002
Bladder extrophy	-	2	2	0,001	-	-	-	-	2	0,001
Other types of ureter and bladder neck atresia and stenosis	-	1	1	0,001	-	-	-	-	1	0,001
Total:	27	45	72	0,05	15	10	25	0,02	97	0,07

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Tactical Approaches at the Perforative Peritonitis in the Neonates

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Abstract

The outcomes of treatment of the newborn with perforative peritonitis for 20 years from 1992 to 2011 in the Pediatric Center RH№1-NCM MH RS (Y) are studied. The use of peritoneal drainage in the complex of measures of preoperative preparation of a patient allowed lengthening the time of preparation from 1.5 - 2 hours to 8 - 12 hours. In this case, there was the possibility of a more appropriate correction of fluid and electrolyte metabolic disorder, urine output restoration, reducing signs of infection and toxic shock, which helps to prevent serious complications of general peritonitis as multiple-organ-failure syndrome and disseminated intravascular coagulation syndrome. Over the study period neonatal mortality with perforative peritonitis decreased from 75% to 21%.

Keywords: the newborn, peritonitis, peritoneal drainage.

Advances in neonatology related to better quality of care for the newborn with low birth weight, premature newborn children, those suffered chronic intrauterine hypoxia and other adverse ante-and intranatal factors improve survival of such children and help to increase the number of the newborn at risk for severe disease of the gastrointestinal tract [2,5,6]. The most severe and life-threatening disease of the gastrointestinal tract of the newborn is perforation of the stomach and intestines. The fatality of the newborn with such disease reaches 40-80% [1,4]. The clinical progression of perforation of the gastrointestinal tract in the newborn is extremely serious, combined with a high intra-abdominal pressure syndrome and multiple organ failure [3,7].

The objective of the research: to study the outcomes of perforative peritonitis in the newborn depending on the use of preoperative abdominal decompression and tactical approaches changes in preoperative preparation.

Materials and Methods

Over 20 years from 1992 to 2011 31 newborn children with peritonitis were hospitalized in children's surgery department. By nosology 42% (13 patients) were neonates with necrotizing enterocolitis (stage III), 42% (13 patients) with automatic gastric perforations, 6.4% (2 patients) with destructive appendicitis, by 3.2% - liver abscess with peritonitis, maturated mesentery cust, arteritis of umbilical vessels (Table 1). During the first week of life neonates mainly with automatic gastric perforations, which often occur on the 2^{nd} -3^{rd} days of life in 54% of premature infants with respiratory distress syndrome, were hospitalized. Among neonates with necrotizing enterocolitis in 7 infants (54%) the phenomena of peritonitis occurred at the first week of life. In their case history this group of patients had chronic fetal hypoxia. The rate of prematurity in the group of patients with enterocolitis was 54% (7 neonates). Necrotizing enterocolitis of stage IIIa, which is characterized by the phenomena of intestinal obstruction, the presence of infiltration in the peritoneal cavity was observed in 3 cases (23%). The remaining 10 neonates (77%) were hospitalized with stage IIIb of necrotizing enterocolitis – the stage of perforative peritonitis. Perforations often localized in the ileum - 70%, in the descending colon - 30%.

All neonates underwent laboratory tests, including acid-base balance, electrolyte level, ultrasound investigation and abdominal plan radiography. Preoperative preparation included the selection of adequate ventilation parameters providing normal gas exchange, correction of hemodynamic disturbances, stabilized blood pressure, correction of electrolyte abnormalities, acid-base balance, hypovolemia, restored urine output of at least 1.5 - 2.0 ml/kg/h, blood transfusion and plazma transfusion if necessary, intravenous broad-spectrum antibiotics. The preoperative preparation includes warming the baby and maintaining body temperature at a normal level.

Since 2002 in the complex of measures of the preoperative preparation we have been applying peritoneal drainage for abdominal decompression under local anesthesia in the iliac roll. Reduced intra-abdominal pressure improves intestinal hemodynamics, renal blood flow, which allow extending the preparation of a patient from 8 to 12 hours from the time a child is admitted to the Department of anesthesiology and resuscitation of intensive care against the conservative treatment of infectious-toxic shock. The readiness criteria for surgery are restored urine output, pulse appearance in the peripheral arteries, improved blood pressure, oxygen saturation (at least 90 - 94%).

Results and Discussion

Necrotizing enterocolitis (NEC) is a disease of 'survived premature neonates', 2-9% of premature neonates become ill. In ethiology and pathogenesis of NEC a major role is played by ischemia, suffered in the perinatal period, inadequate nutrition in the early postnatal period and associated abnormal intestinal colonization. Risk factors are chronic hypoxia in respiratory distress syndrome, birth asphyxia, prematurity, congenital heart disease, NEC is also often observed in intestinal malformation - gastroschisis, intestinal obstruction, Hirschsprung's disease. Measures of NEC prevention in premature neonates are the optimal choice of antibacterial therapy, the enteral nutrition with half-cell milk formula in the optimum time with the definition of tolerance to it, early use of probiotics. Walsh and Kliegman classification distinguishes three stages of NEC according to the progression of clinical symptoms: suspected necrotizing enterocolitis (I stage), clear (II stage) and progressive (surgical stage), which is divided into IIIa - obstruction and infiltration in the abdomen and IIIb - perforation of a hollow body, the appearance of pneumoperitoneum in the X-ray.

In stage I the newborn (suspected NEC) have functional disorders of the gastrointestinal tract in the form of slight abdominal distention, may have extended loop of intestine, bloody additive in defecation against signs of growing intoxication as a propensity to bradyarrhythmias, leukopenia and thrombocytopenia. At this stage the newborn are consulted by a surgeon; through preventive conservative measures in most cases we could prevent the progression of symptoms of peritonitis. In such cases we cancel enteral feeding, give probiotics, start antibacterial therapy with cephalosporin (cefotaxime is chosen) and metronidazole, conduct immunotherapy if necessary, prokinetics, infusion therapy if necessary. In most cases according to our data against the therapy 89% of patients have a better sense of well-being which allows gradually introducing enteral feeding with half-cell milk formula *Alfare* or *Frisopre*.

With the progression of enterocolitis the clinical picture corresponds to stage II of 'clear' NEC, when reversible stage - IIa and irreversible stage IIb are distinguished. With the reversible stage of NEC the abdominal plan radiography has fluid levels in the bowel loops and the characteristic pneumatosis of intestinal wall - air bubbles interstitially in the bulk of intestinal wall due to necrotic changes in the intestinal mucosa. This stage can still be reversed, but the patient has starting necrotic changes in the intestinal tube, so it requires to change the antibacterial therapy with drugs of reserve (*Meronem*) and surely to introduce immunotherapy. If the state of the patient permits at this stage it is necessary to use hyperbaric oxygenation. But, as a rule, at this stage the

newborn require ventilation therapy and are in the neonatal intensive care unit with artificial lung ventilation. When stage IIb of irreversible NEC is observed the abdominal plan radiography has an extensive intestinal pneumatosis, the air may appear in the portal vein (air bubbles against hepatic shadow along portal vessels are observed) – the sign indicates the presence of distinct necrotic changes in the intestinal wall, the air gets into the lumen of vessels, the signs of ascites may appear, the symptom of 'static bowel loop' - a toxic expansion of the colon. This stage requires surgery - laparotomy and cutting off the affected part of the intestine in the form of removing intestinal stoma with or without resection. In some cases it is enough to apply laparocentesis and decompression of the abdomen against the intensive therapy according to the program of treatment of sepsis. But the outcome of NEC in survived neonates may be intestinal obstruction due to scarring of the affected area of the intestinal tube.

The stage of progressive NEC requires obligatory surgery because there are signs of peritonitis. Stage IIIa is characterized by signs of fibrinous peritonitis, covert intestinal perforation: not yet pneumoperitoneum, but patients have infiltrates or conglomerates of intestinal loops with the progression of the clinical picture of intestinal obstruction, radiologically there are multiple levels in the loops of the intestine, inflammatory changes in the anterior abdominal wall can be observed (a sign of interintestinal abscesses in the abdominal cavity). In stage IIIa we operated on three neonates, 1 patient died.

In stage IIIb clinically and radiologically there appear signs of perforative peritonitis: the phenomena of infectious-toxic shock with marble skin, microcirculation disoder, rapid bloating with expanded veins of the anterior abdominal wall, respiratory failure, oligourium; a large amount of free air in the abdominal cavity is radiologically determined (Figures 1, 2). According to laboratory data decompensated metabolic acidosis, leukopenia, thrombocytopenia, the shift of leukocyte formulae to the left with the emergence of toxic grain of neutrophils are recorded. At this stage of NEC the neonatal status is extremely serious, due to the severity of the state the preoperative preparation was short, in 2-3 hours neonates underwent surgery. The volume of surgery was restricted to surgical resection of affected areas of the intestine and excretion of intestinal stoma. This tactic was used with three neonates with stage IIIb of NEC, the mortality in this group was 66%.

Since 2002 in order to decompress the abdominal cavity during pneumoperitoneum in neonates we have been using peritoneal drainage, against which it is possible to more adequately conduct preoperative correction of hemodynamic disorder and perform surgery when the volume of circulating blood is filled. Over the past 10 years 7 neonates with stage IIIb of NEC were operated

with prolonged preoperative preparation against peritoneal drainage. The mortality was 28% (2 neonates).

In the group of neonates with automatic perforations of the stomach the state of a patient became worse sharply, always accompanied by increased intra-abdominal pressure, severe pneumoperitoneum. In most cases automatic perforations of the stomach were observed in preterm immature children, in our observation 85% of patients (11 neonates) had a respiratory distress syndrome in their history. In this pathology it is necessary to apply peritoneal drainage. In 2/3 of cases of automatic perforations of the stomach the pathology was located in the anterior wall of the stomach, in 1/3 of cases - on the back, which caused some difficulties in mobilizing the stomach and suturing the defect of the wall. As a rule, defects in the stomach were extended, were located in the center of the diseased stomach wall, represented by almost thinned mucosa. Therefore, suturing diseased wall leaded to the tubuliform deformation of the stomach of a patient, overcasting the second row of seam was not always possible due to a small area of the stomach. Until 2002 80% of neonates with automatic perforations of the stomach was fatal (4 of 5). Changed tactics of preoperative preparation as laparocentesis reduced the mortality rate in this group of preterm neonates to 25% (2 of 8).

Conclusion

The peculiarity of peritonitis in neonates is the presence of high intra-abdominal pressure syndrome, which is a starting point for the developed multiple organ failure syndrome. The elimination of high intra-abdominal pressure among measures of preoperative preparation for the newborn allows preventing serious complications of peritonitis. Changed tactics in preoperative preparation for neonates with general peritonitis reduced mortality of those with in stage IIIb of NEC by 2.4 times (from 66% to 28%), of those with automatic perforation of the stomach by 3.2 times (from 80% to 25%).

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Table 1. Reasons for peritonitis in the newborn

Nosology	*Number of patients*	*%*
Necrotizing enterocolitis	13	42%
Automatic perforations of the stomach	13	42%
Destructive appendicitis	2	6,4%
Liver abscess	1	3,2%
Maturated mesenterium cyst	1	3,2%
Arteritis of umbilical vessels	1	3,2%
Total:	31	100%

Level of Regulatory T-lymphocytes (CD4+CD25+FoxP3+) in Patients with Unstable Angina

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The role of regulatory T cells (Treg - cells) in the development of atherosclerotic lesions of the vascular wall is the subject of the leading laboratories. Treg - cells are found in atherosclerotic plaques of carotid and coronary arteries of a human. The study included men (n = 16) with a mean age of 61,5 ± 9,3 years, admitted to the intensive care unit with a diagnosis of unstable angina, and conditionally healthy men (n = 8), matched by age. A comparative analysis showed that in patients with unstable angina, there was a significant increase in Treg- cells (CD4+ CD25 + FoxP3+), and the downward trend in T-helper cells (CD4+). Perhaps, this increase in Treg- cells suppresses the further activation of atherosclerosis by inhibiting the proliferation and activation of T-helper cells. Besides, negative correlation between Treg-cells (CD4 + CD25 + FoxP3 +) and T-helper cells (CD4+), and the positive relationship between Treg-cells (CD4 + CD25 + FoxP3 +) and LDL-C are established.

Keywords: T-regulatory lymphocytes, unstable angina, atherosclerosis.

Introduction. During last decades, study of T regulatory cell-mediated suppression is in the focus of immunological research. First they have been characterized by S.Sakaguchi et al, [11] as CD4+CD25+ T cells in study of auto-immune diseases of mice. Regulatory T cells are supposed to play a significant role in maintaining of the immune homeostasis. They are able to suppress activation, proliferation and affective functions of a wide range of immunocompetent cells, including CD4+ and CD8+ T-cells, natural killers (NK) and naturally killing T (NKT)- cells, B – cells and antigen presenting cells *in vitro* and *in vivo* [15, 9].

The intracellular transcription factor FOXP3 is a specific marker of Treg cells. Expression of this protein defines the ability of regulatory T cells to inhibit promotive part of pro-inflammatory cytokine genes [8, 13]. Regulatory Tcells play a key role in the immune system due to their unique ability to control the immune response, they predict autoimmune diseases, allergy, and reaction of transplant rejection, maintain nutritional and transplant tolerance. This role have first been identified in mice in which a deficiency or removal of Treg cells have resulted in development of

autoimmune gastritis, thyroiditis, diabetes, and intestinal inflammatory disease. Further studies revealed the defects in CD4+CD25+FOXP3+ Treg cells to facilitate development of autoimmunity and the processes to be cancelled by transfer of Treg cells. However, regulatory Tcells can also play a negative role in body. Thus, FOXP3+ Treg cells suppress antitumural immunity, thus facilitating tumult progress [17, 9].

The role of Treg cells in development of atherosclerotic lesion of vascular walls is the subject of research of many leading laboratories. Treg cells have been identified in atherosclerotic plaques of human carotid [18] and coronary arteries [5,3]. A significant role of regulatory T lymphocytes in suppression of atherogenesis and stabilization of atherosclerotic lesions have been demonstrated on models of atherosclerosis of mice [14, 19]. Such an effect of regulatory T lymphocytes is considered to be predetermined by suppressive activity in reference to "proatherogenically" effective T lymphocytes, suppression of differentiation of O-type T helpers from 1-and 2-type T-helpers, as well as production of anti-inflammatory cytokines by regulatory T-lymphocytes. The immunoinflammatory response is considered to play a significant role in the course of ischemic heart diseases. Specifically, an inflammatory destructive process characterized by considerable infiltration of monocytes \ macrophages and T-lymphocytes secreting proinflammotory cytokines is of importance in development of an unstable atherosclerotic plaque [12, 2].

Materials and research methods. The study covers 16 patients, aged 46-72 (an average age being 61,5 ± 9,3), admitted to the intensive care unit of the municipal enterprise "Yakutsk City Clinical Hospital" diagnosed with unstable stenocardia. Nine conditionally healthy males comparable by age and not having a history of the ischemic heart disease and vascular pathology were included into the control group. Acute inflammatory, auto immune and oncological diseases made the criteria of exclusion from the study. The study was performed with the consent of patients and according to the ethic norms of the Declaration of Helsinki (2000 г.). A comparative group was made of 8 practically healthy males comparable by age.

Venous blood sampling (7-8 ml) was taken in the morning on an empty stomach during first three days after admission of the patient to the intensive care and resuscitation unit. Mononuclear cells of the periphery blood (MNC-PB) have been separated by means of phycol-verographine density-gradient centrifugation of heparinized venous blood. The mononuclear cell fraction has been washed with phosphate-salt buffer (PSB) and re-suspended, and the cell concentration has been determined. Cells were selected in the quantity of 1 x 10^6 and precipitated with centrifugation, supernatant was removed and re-suspended in 100 mkl buffer solution.

To define Treg cells through assessment of FoxP3 transcription factor expression, FoxP3 Staining Kit-PE («BD Pharmingen»™) was used, the study was conducted according to the protocol presented by the company-producer. The quantity of $1x10^6$ cells in 100 mkl PSB was transported into 12,75 mm test tube («Falcon», «BD Bioscience»), 20 mkl of CD4 - FITC and CD25 - APC antibodies were added to the suspension of cells, were incubated for 20 min in the dark at the indoor temperature and 2 ml of PSB were washed, and the sedimentation was re-suspended in the residual volume of PSB. The cells were fixed during 10 min in 2 ml of the corresponding reagent (included in the kit) in the dark at the room temperature and 2 ml of PSB were washed two times. Then, 0,5 ml of the permeabilitating solution included in the kit was added to the sedimentation, was incubated during 30 min at the indoor temperature, 2 ml of PSB were washed and the sedimentation was re-suspended in 100 mkl of PSB. 20 mkl of FOXP3 antibodies were added to the cell suspension, were incubated for 30 min in the dark, the cells were washed in 2 ml of PSB two times, 200 mkl of PSB were added and examined in the running cyto-fluorimeter FACSCantoII («BD Bioscience») using the software FACSDiva («BD Immunocytometry Systems»). Immunophenotype cells characterized by morphological features corresponding with those of helper T lymphocytes defined by the character of side light scattering (SSC) and expression of CD4+ were selected for processing the obtained data at the first stage of the analysis. The content of T regulatory cells was defined as a share of CD25+ FoxP3+ immunophenotype cells. The statistical analysis was held using «SPSS 17.0 for Windows». The equality of selected average values was corrected according to the Student parametric T criteria and Mann-Whitney non-parametric U criteria for independent samples. To define the tightness of links between the quantitative data under study, a correlated analysis with calculation of coefficients and the Spirman rank correlation was conducted. Variations at $p<0,05$ were taken as statistically relevant.

Results and discussion. The comparative analysis of the relative content of T lymphocytes revealed a decrease of the mean values of total T lymphocytes (CD3+) and T-helpers (CD4+) in patients with unstable stenocardia as compared with those of the control group, and they fall within the range of reference values. It is worthwhile to note here that the content of T helpers (CD4+) in the group of patients evidences the tendency towards a decrease ($p=0,063$) as compared with that of the control group (45,50 ± 1,55 %) (Table).

A significant variation has been identified in the relative content of regulatory CD4+CD25+FoxP3+ T lymphocytes, and the expression of these cells in patients with unstable stenocardia is increased 1,71 times than that in the control group ($p=0,039$) (Fig.) These data indirectly confirm our results concerning the relative deficit of T cell immunity obtained earlier [1],

as well as the data referring to an increase of the anti inflammatory IL- 10 in patients with unstable stenocardia as compared with that of patients with stable stenocardia [4]. The regulatory T lymphocytes are supposed to have an anti- inflammatory effect and are able to stabilize the atherosclerotic process [10].

Table 1

Content of lymphocytes in peripheral blood, %

Rates	Patients with unstable stenocardia (n=16)	Control group (n=8)	p ...
Total T-cells CD3+	66,25 ± 3,34	69,50 ± 4,13	
T-helpers CD4+	39,43 ± 2,50	45,50 ± 1,55	0,064
Treg-cells CD4+CD25+Foxp3+	5,56 ± 0,54	3,25 ± 0,25	0,039

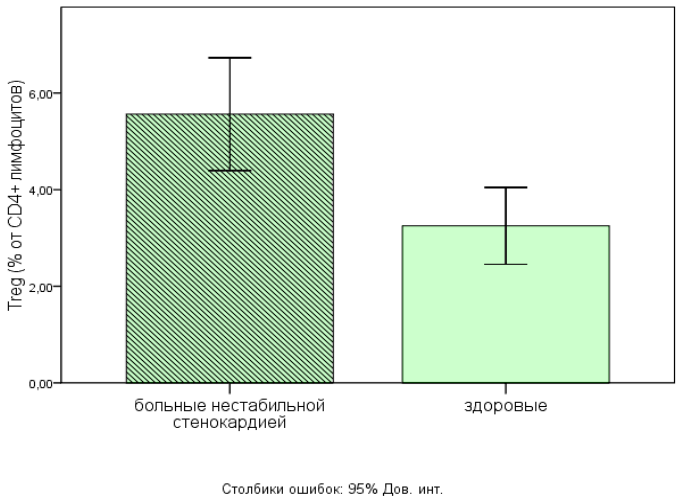

Fig. Content of regulatory T-lymphocites (CD25+CD4+Foxp3+)

Currently, the following subpopulations of regulatory T-cells: Tr1, type 1 regulatory T cells, Th3, type 3 helper T cells, CD8+ iTreg induced regulatory T cells and CD4+CD25+FOXP3+ Treg – cells have been identified. Tr1 cells are formed in the periphery, without the thymus gland, thus they belong in adaptive and/or inducible regulatory T cells (iTreg). iTreg cells are induced under the stimulation with activating agents (specifically, antigen) and are formed in the course of the

immune response. Differentiation of iTreg is antigen-dependent and is performed under certain conditions: in the presence of cytokines with immunomodulating properties and sensitive to these cytokines APC. Tr1 cells mostly secret IL-10, and TGF and IL-5 in small quantities. They are able to inhibit functions of Th1 and Th2 either *in vitro*, or *in vivo*. Tr1 cells control development of autoimmune processes, regulate activation of naïve cells and Tcells of memory, functions of dendrite cells (DC) and development of the immune response to various pathogens, allotypic antigens, and participate in the process of tumult growth [7, 6]. Suppressive properties of Tr1 cells are associated mostly with the ability of IL-10 secretion, as their functions can be disturbed by use of antiIL-10 monoclonal antibodies (мАТ) [6].

We have performed the correlated analysis that has identified the following associations of Treg cells: the negative link with T helpers (CD4+) and (r= - 0,523; p=0,018), and rather strong positive correlative associations with the level of the total cholesterol (r=0,702; p=0,004), atherogenic ХС-ЛПНП (r=0,724; p=0,002) and γ-glutomiltransferase (r=0,661; p=0,005).

Thus, a significant increase of the level of Treg cells in the serum of patients with unstable stenocardia allows us to hypothesize that it is this increase of Treg cells that inhibits further activation of the atherosclerotic process by inhibition of T helper proliferation and activation, notably, by means of increased secretion of anti inflammatory IL-10 cytokine, thus securing more favorable prognosis for the disease (the patients under study were discharged in better condition). The obtained data require further study.

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Pathogenic aspects of dysarrhythmogenesis in patients with bronchial asthma

The analysis of published data on the key aspects of the pathogenesis of cardiac arrhythmias and blockades in patients with bronchial asthma suggests that vegetative regulation of heart rate decreases with increasing of BA severity.

Among the main aspects of the pathogenesis of cardiac arrhythmias and blockades in BA patients one can name the following: hypoxemia, reduction of the vascular bed, pulmonary hypertension and right heart overload, hypercatecholaminemia, and also blood gas content changing and acid-base balance.

Keywords: bronchial asthma, cardiac rhythm and conduction disorders.

Relevance of the topic: Currently, significant progress in the diagnosis, treatment and prevention of bronchial asthma (BA).

However, the high prevalence and frequency of cardio - vascular complications make BA actual problem of modern medicine. Analysis of modern literature and our own data indicate that in these patients there are almost all types of cardiac arrhythmias, as well as combinations thereof. It should be noted that the question of the possible pathogenetic factors underlying arrhythmias in patients with asthma, the literature highlights a little. In this connection it is interesting to summarize and synthesize the available data.

Purpose of study

Based on an analysis of published data, to examine key aspects of the pathogenesis of cardiac arrhythmias and blockades in patients with bronchial asthma.

Results and discussion

Because of the close anatomical and functional relationship of respiratory and cardio - vascular system, they can be viewed as a single cardiorespiratory system[4].

One of the main indicators of the functioning of the cardiorespiratory system is the cardiac rhythm. It is a reaction to various stimuli internal and external environment, due to the adaptive role of cardio - vascular and respiratory systems and is regulated by many mechanisms [1]. It is known

that in the regulation of bronchial obstruction plays an important role the autonomic nervous system, to assess the state which use analysis of heart rate variability (HRV).

The study Zulkarneeva AD et al. [2] revealed a correlation of HRV and the severity of airflow obstruction. With increasing bronchial obstruction FAR decreases, which can be viewed as the progression of disorders of autonomic regulation of cardiac rhythm in patients with asthma. The pathogenesis of this phenomenon- is the development of a partial autonomic blockade due to decrease in the density of beta-adrenergic receptors in asthma exacerbations [10].

The blockade of the autonomic regulation of heart rate in patients with asthma may be due to previous long-term treatment of beta2-agonists.

Duration of asthma and the presence of an overdose of sympathomimetics lead to the development of adrenergic imbalance, which is accompanied by a breach of segmental and suprasegmental activity of the autonomic nervous system that manifests a decrease in HRV and an unfavorable factor for the development of cardiac arrhythmias [7].

Among other factors contributing to the emergence of arrhythmias and conduction disturbances in patients with asthma, the literature points to hypoxemia, which causes an imbalance between oxygen transport and the needs of tissue in it[3]; change the rheological properties of blood type hyperviscosity syndrome, which leads to a violation of the pulmonary microcirculation and cardiac [5]; anatomical changes (bronchial obstruction, pulmonary emphysema), which lead to reduction of vascular bed, narrowing pre-capillaries that causes an increase in pulmonary vascular resistance and pulmonary hypertension[8]; with the growth of pulmonary hypertension increases the load on the myocardium of the right heart, which leads to restriction of coronary fraction of cardiac output, worsening of the conduction processes and the emergence of foci of active heterotopia; hyper catecholaminemia, the cause of which, apparently, is an increased release of endogenous catecholamines in response to stress associated with a bout of breathlessness [6].

Under the conditions of hypoxemia activates anaerobic glycolysis, prolonged presence of which leads to tissue acidosis and disturbance of cell permeability, which leads to disruption of enzyme systems, the accumulation of Na + and Ca2 + in the cytoplasm and loss of K + cardiomyocytes. These electrolyte changes are manifested myocardial electrical instability and lead to arrhythmias [9]. Correction of electrolyte disorders and blood gas (decrease and increase of pCO2 pO2) has a fairly clear antiarrhythmic effect [11]. According to other data found no statistically significant association between indicators blood gases, acid-base balance and rhythm disorders [6].

Conclusions:

1. The analysis of published data suggests that with increasing severity of asthma decreased vegetative regulation of cardiac rhythm.

2. The main aspects of the pathogenesis of cardiac arrhythmias and blockades in patients with bronchial asthma include: hypoxemia, reduction of the vascular bed, pulmonary hypertension and right heart overload, hyper catecholaminemia, and changing blood gas and acid-base balance.

These factors underlying dysarrhythmogenesis patients with asthma should be treated in practice in the selection of appropriate therapy.

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Association of uric acid with coronary atherosclerosis in the population of Yakutia

Abstract

Research objective was to estimate the uric acid levels in patients with the verified coronary atherosclerosis and persons without clinical signs of IHD, and also the frequency of the association of hyperuricemia with coronary atherosclerosis depending on ethnic and gender origin on the example of Yakutia population. Results of the survey of men and women at the age of 45-64 years of native and non-native population with the verified coronary atherosclerosis according to selective coronaroangiography, and also of persons without clinical signs of IHD, were analyzed. The results of the research showed that the uric acid levels were significantly higher in patients with the verified coronary atherosclerosis (excepting of women of non-native nationality) in comparison with persons without clinical signs of IHD and higher in representatives of non-native nationality, than in the native population of Yakutia.

Keywords: coronary atherosclerosis, uric acid, native and non-native population of Yakutia.

Introduction. Uric acid's role as risk factor to the development of cardiovascular diseases is confirmed in the majority of researches. So, according to W.J. Fessel during a 10-year follow up of patients with hyperuricemia the 10-fold increase in risk of the development of ischemic heart disease (IHD) and arterial hypertension (AG) [11] was noted. In the 12 years' prospective research Chicago Industry Heart Study the uric acid level was an independent risk factor in the frequency of cardiovascular diseases and mortality of women unlike men of whom this factor was insignificant [7]. In the National Health And Nutrition Epidemiologic Study I (NHANES I) from 1971 to 1992, positive communication between hyperuricemia and cardiovascular events, of men and women was noted. Dependence the uric acid level of on race is revealed: among representatives of Negroid race it was higher, than among Caucasian. Thus the risk of developing of cardiovascular diseases in men of Negroid race increased twice, and in women is more senior than 45 years – by 8 times [10]. The reasons of gender distinctions up to the end aren't studied. There is an opinion that a certain role is played by sexual hormones: at the women accepting preparations of estrogen and progesterone, the uric acid level is much lower, than in women who never accepted them. In the period of postmenopausal the maintenance the uric acid is higher, than before its approach [4]. In the research Atherosclerosis Risk in Communities (ARIC) the interrelation between hyperuricemia and early manifestations of atherosclerosis wasn't received [17]. According to the Progetto Ipertensione

Umbria Monitoraggio Ambulatoriale Study (PIUMA) it was shown that an increase in the uric acid level on 1 mg/dl of patients with AG the frequency of cardiovascular events increased by 10%. A similar effect gives increase the systolic arterial pressure on 10 mm of mercury or the total cholesterol level on 20 mg/dl [16]. In the research Multiple Risk Factor Intervention Trial (MRFIT) it was shown that the hyperuricemia is connected with an increase in risk of development of acute myocardial infarction by 26% [18].

Hyperuricemia in recent years many authors include in metabolic syndrome (MS) components. Thus note hyperuricemia association with hypertriglyceridemia and hypercholesterolemia, hypertrophy of myocardium of the left ventricle, obesity, with degree and weight of AG and with number of cardiovascular complications [1-5; 19; 20]. The uric acid level raises along with an increase in number of the MS components. According to population researches it was shown that the uric acid average level of raised with 4,6 to 5,9 mg/dl in patients with existence of three MS components in comparison with persons without metabolic disorders [9; 12; 15]. Uric acid influences on endothelium, smooth muscle cells and adipocytes, inhibits endothelial NO-synthase, stimulates nicotine-amide-adenin-dinucleotid-phosphate-oxidase and inflammation processes, activates local production of angiotensin II, brakes adipokines. All these processes lead to AG and MS development [6; 13; 14]. Realization of these effects requires penetration urates in cell which mechanism up to the end isn't clear. There is assumption that they can include reaction urates with oxygen or nitrogen with education of free radicals [4]. In patients with AG the hyperuricemia is important marker of renal damage. Only in patients with hyperuricemia increase of vascular renal resistance is noted. There is direct interrelation between the uric acid level and resistance of renal vessels, also with microalbuminuria and the return – with renal blood flow.

Research objective: to estimate the uric acid levels in patients with the verified coronary atherosclerosis and persons without clinical signs of IHD, and also frequency of the association of hyperuricemia with coronary atherosclerosis depending on ethnic and gender origin on the example the inhabitants of Yakutia.

Materials and methods. Results of survey of 396 men and 60 women are included in research at the age of 45-64 years with the verified coronary atherosclerosis according to selective coronaroangiography, being on stationary survey in cardiological branch of Republican hospital №1-National center of medicine of Yakutsk which made the main groups. In forwarding actions to areas of the Republic of Sakha (Yakutia) by results of complex medical survey comparison groups of 212 men and 271 women without clinical signs of IHD at the age of 45-64 years are created. Research period: 2007-2010. For the comparative analysis the surveyed persons were subdivided

into 4 groups: 1 – patients with the verified coronary atherosclerosis, representatives of native nationality of Yakutia (n=217), from them men – 189, middle age 54,34 ± 0,44 years, women – 28, middle age 53,39 ± 1,28 years; 2 – patients with the verified coronary atherosclerosis, representatives of non-native nationality of Yakutia (n=239), from them men – 207, middle age 54,76 ± 0,43 years, women – 32, middle age 55,81 ± 1,01 years; 3 – persons without clinical signs of IHD, representatives of native nationality (n=253), from them men – 108, middle age 51,28 ± 0,57 years, women – 145, middle age 51,19 ± 0,43 years; 4 – persons without clinical signs of IHD, representatives of non-native nationality (n=230), from them men – 104, middle age 51,09 ± 0,52 years, women – 126, middle age 51,37 ± 0,47 years. Yakuts are considered to be representatives of native nationality, non-native nationality – Russians, Ukrainians and Belarusians living in Yakutia constantly. As criteria of exception of research served: anomalies of development of coronary arteries, intact coronary arteries, existence of unstable stenocardia, acute myocardial infarction in the anamnesis till 6 months for groups of patients; in comparison groups – presence of IHD clinical signs and electrocardiogram-signs of the old myocardial infarction; the acquired and congenital heart diseases, cardiomyopathy, worsening of any chronic diseases, age are more younger than 45 years and of 65 years and are more senior for all groups. The characteristic of the investigated persons is presented in table 1.

Table 1

The characteristic of the investigated groups of men and women

Parameter	**Groups of patients with IHD**	**Groups of persons without IHD sings**						
	Native (1) (n=217)		**Non-native (2)** (n=239)		**Native (3)** (n=253)			
	men	**women**	**men**	**women**	**men**	**women**	**men**	**women**
Number of the surved persons, n (%)	189 (87,1)	28 (12,9)	207 (86,6)	32 (13,4)	108 (42,7)	145 (57,3)	104 (45,2)	126 (54,8)
	p_{m-w}=0,000		p_{m-w} =0,000		p_{m-w} =0,000			
Adress, n (%)	City / village							
	76 (40,2)/ 113 (59,8)	10 (35,7)/ 18 (64,3)	91 (44)/ 116 (56)	19 (59,4)/ 13 (40,6)	50 (46,3)/ 58 (53,7)	43 (29,7)/ 102 (70,3)	50 (48,1)/ 54 (51,9)	45 (35,7)/ 81 (64,3)
	p_{c-}	p_{c-}	p_{c-}	p_{c-}	p_{c-}	p_{c-}	p_{c-}	p_{c-}

	$_c$=0,000	$_c$=0,037	$_c$=0,000	$_c$=0,139	$_c$=0,278	$_c$=0,000	$_c$=0,580	$_c$=0,000
	54,22±0,42		54,91±0,39		51,23±0,35			
Middle age, years	54,34±0,44	53,39±1,28	54,76±0,43	55,81±1,01	51,28±0,57	51,19±0,43	51,09±0,52	51,37±0,47
	p_{1-3}=0,000		p_{2-4}=0,000					
BMI, kg/m²	28,64±0,33	28,29±0,74	29,62±0,29	32,97±1,02	26,09±0,41	26,14±0,38	27,92±0,47	27,08±0,42
	p_{1-3}=$_м$0,000-$_ж$0,009		p_{2-4}=$_м$0,001-$_ж$0,000					
TC, mmol/l	6,15±0,07	6,49±0,19	6,92±0,09	6,56±0,13	4,74±0,07	4,75±0,07	5,16±0,09	5.34±0,08
	p_{1-3}=0,000		p_{2-4}=0,000; p_{1-2}=$_м$0,001					
TG, mmol/l	1,84±0,07	1,81±0,15	2,20±0,09	2,29±0,23	0,99±0,05	0,99±0,03	1,28±0,07	1,14±0,06
	p_{1-3}=0,000		p_{2-4}=0,000; p_{1-2}=$_м$0,003					
HDL, mmol/l	1,06±0,04	1,52±0,13	1,14±0,06	1,00±0,05	1,45±0,04	1,60±0,04	1,47±0,03	1,68±0,04
	p_{1-3}=$_m$0,000; p_{1-2}=$_w$0,001		p_{2-4}=0,000					
Glucose, mmol/l	5,39±0,09	5,07±0,20	5,50±0,10	6,22±0,45	4,22±0,05	4,49±0,11	5,22±0,07	4,92±0,07
	p_{1-3}=0,000		p_{2-4}=$_m$0,059-$_w$0,000					
Diabetes millitus, n (%)	29 (15,3)	5 (17,9)	32 (15,5)	12 (37,5)	0	2 (1,4)	1 (1)	0
	p_{1-3}=0,000		p_{2-4}=0,000					
AG, n (%)	155 (82)	19 (67,9)	166 (80,2)	29 (90,6)	38 (35,2)	50 (34,5)	33 (31,7)	32 (25,4)
	p_{1-3}=0,000		p_{2-4}=0,000					
Smoking, n (%)	84 (44,4)	8 (28,6)	120 (58)	3 (9,4)	61 (56,5)	51 (35,2)	46 (44,2)	33 (26,2)
			p_{2-4}=$_m$0,022; p_{1-2}=$_m$0,007		p_{1-3}=$_m$0,046			
Family history of IHD, n (%)	94 (49,7)	15 (53,6)	77 (37,2)	21 (65,6)	34 (31,5)	88 (60,7)	17 (16,3)	42 (33,3)
	p_{1-3}=$_m$0,002; p_{1-2}=$_m$0,012		p_{2-4}=0,000		p_{3-4}=$_m$0,010-$_w$0,000			

Survey was spent by standard techniques and included following obligatory sections: standard poll under Rose's questionnaire (for comparison groups) and the questionnaire developed for estimation of objective condition; triple measurement of arterial pressure; anthropometrical survey with measurement of growth, weight and calculation of body mass index (BMI) (BMI = weight (kg)

/ growth (m^2)); electrocardiogram registration in rest; selective coronaroangiography (for patient groups); blood sampling from elbow vein in the morning on empty stomach for revealing of purine (uric acid), lipid (total cholesterol (TC), triglycerides (TG), high-density lipoprotein (HDL)) and carbohydrate (blood glucose) metabolism disorders. All researches are executed from the informed consent of examinees according to ethical standards of the Helsinki declaration (2000). Estimation of results spent on the standard classifications.

Statistical processing of the received data was held by means of package of computer programs SPSS (version 13). Results are presented in the form of M ± m, where M – average arithmetic, m – standard error of average. The importance of distinctions was estimated with t-Student criterion, χ2-Pearson. Distinctions were considered statistically significant at $p < 0,05$.

Results and discussion. The comparative analysis showed that the uric acid average levels were significantly higher in patients with the verified coronary atherosclerosis (excepting of women of non-native nationality) in comparison with persons without clinical signs of IHD (native: men – 336,18 ± 9,95 vs 299,08 ± 9,33, p=0,001; women – 318,61 ± 14,31 vs 255,64 ± 4,90, p=0,000; non-native: men – 368,79 ± 9,46 vs 273,65 ± 9,31, p=0,000 accordingly) (tab. 2). Ethnic differences were characterized by elevated the uric acid levels among not indigenous people in comparison with aboriginals in group of patients in men (368,79 ± 9,46 vs 336,18 ± 9,95, p=0,013 accordingly) and in group of comparison in women (303,31 ± 5,76 vs 255,64 ± 4,90, p=0,000 accordingly). The significant gender differences which are characterizing in group of patients among not indigenous people by increase the uric acid level in men in comparison with women (368,79 ± 9,46 vs 320,93 ± 18,88, p=0,004 accordingly) are received. In group of comparison in native men the uric acid level in comparison with women (299,08 ± 9,33 vs 255,64 ± 4,90, p=0,000 accordingly) was higher. Among not indigenous people in group of comparison in women the uric acid level (303,31 ± 5,76 vs 273,65 ± 9,31, p=0,006 accordingly), than in men was higher. The uric acid level was higher of non-native urban residents without IHD, as men (291,80 ± 10,49 vs 255,50 ± 15,07, p=0,043 accordingly), and women (319,62 ± 10,14 vs 294,25 ± 6,81, p=0,022 accordingly) in comparison with country people. Uric acid's role of the development of cardiovascular diseases and their complications is so far disputable and remains in the center of close attention of researchers [4; 9; 11]. According to the research executed in Korea, shown that uric acid level is associated with MS and coronary atherosclerosis [8]. The high uric acid levels in patients with coronary atherosclerosis according to our research, is possible, connected and that more than 80% of patients suffered arterial hypertension and about 40% had obesity at which function of renal is broken. Results of the research shown that among inhabitants of Yakutia the hyperuricemia has significant positive

correlation with coronary atherosclerosis (r=0,345, p < 0,01), lipid (r=0,320, p < 0,01) and carbohydrate (r=0,146, p < 0,01) metabolism disorders, arterial hypertension (r=0,241, p < 0,01) and obesity (r=0,185, p < 0,01).

Table 2

The comparative characteristic the uric acid levels in the investigated groups of men and women, M ± m

Indicator	Sex	Adress	1 Group with IHD native	2 Group with IHD non-native	3 Group without IHD native	4 Group without IHD non-native
Uric acid	men	city	349,36±15,37	352,05±13,29	299,26±15,87	291,80±10,49
		village	324,55±12,83	383,79±13,17	298,90±9,99	255,50±15,07
		total	**336,18±9,95**	**368,79±9,46**	**299,08±9,33**	**273,65±9,31**
		p	$p_{1-3}=0,001$	$p_{2-4}=0,000$ $p_{1-2}=0,013$ $p_{м-ж}=0,004$	$p_{м-ж}=0,000$	$p_{г-с}=0,043$
	women	city	328,00±16,32	305,88±27,18	268,05±9,73	319,62±10,14
		village	313,39±20,56	342,82±24,14	250,41±5,59	294,25±6,81
		total	**318,61±14,31**	**320,93±18,88**	**255,64±4,90**	**303,31±5,76**
		p	$p_{1-3}=0,000$			$p_{3-4}=0,000$ $p_{м-ж}=0,006$ $p_{г-с}=0,022$

Conclusion. Results of the research shown that hyperuricemia associated with coronary atherosclerosis, AG, obesity, lipid and carbohydrate metabolism disorders among population of Yakutia. Uric acid level is higher in representatives of non-native nationality in comparison with aboriginals of Yakutia.

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Genetic Characteristic of Virus C Hepatitis in the Republic of Sakha (Yakutia)

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Resume: Genetic characteristic of virus C hepatitis in the Republic of Sakha (Yakutia) is presented. Genotyping of virus of hepatitis C was carried out in the laboratory of the Central Research Institute of Epidemiology of the Federal Service of Supervision in the Sphere of Protection of the Rights and Well-being of Consumers (Rospotrebnadzor) of the Russian Federation, Moscow with application of PCR-test-system. This test-system allows identification of 4 genotypes of virus C hepatitis: 1a, 1b, 2a, 3a. During the years of 2007-2010 163 samples of viral RNA of the chronic hepatitis C patients from the Republic of Sakha (Yakutia) were genotyped.

Keywords: chronic virus C hepatitis (ChHC), hepatitis C virus (HCV), polymerase chain reaction (PCR).

Introduction: In spite of the fact that it quite recently became possible to study HCV, researchof it can be considered successful. There is no vaccine because of virus Chigh mutagenicity. Prevalence of virus C hepatitis beats all records in the world. According to various classifications 6, 11 and more genotypes and more than 90 subtypes of HCV are known [1, 2]. Millions of various quasitypes of HCV can exist in the organism of a person. Their existence can be explained by virus «escaping» of immune control of an organism that makes for occurrence of continually varying antigenic viral structures. There is constant «competition» between formation of new antigenic variants and development of antigen-neutralizing antibodies. And each time virus appears«a winner» but not human immune system.Some people became HCV carriers for a long (sometimes lifelong) period because of very high mutability of the virus. Genotyping of HCV in various regions of the world revealed that genotypes 1a, 1b, 2a and 3a are prevailed [7].Genotype 1b is dominating in Russia and it is registered in 50-56 % of cases in central part of Russia and in 80-83% - in the Far East [8, 9].

The purpose of research: studying of HCV genotype in patients suffering chronic virus C hepatitis in the Republic of Sakha (Yakutia).

Materials and methods: During the years of 2007-2010 163 samples of viral RNA of the chronic hepatitis C patients from the Republic of Sakha (Yakutia) were genotyped by means of PCR. 3 genotypes of HCV (1b, 2a, 3a) were registered, 2 genotypes (mixt) were isolated from a small amount of samples.

Genotyping of HCV was carried out using PCR-test-system in the laboratory of the Central Research Institute of Epidemiology of the Federal Service of Supervision in the Sphere of Protection of the Rights and Well-being of Consumers (Rospotrebnadzor) of the Russian Federation in Moscow (V.N. Chulanov - the head of the laboratory, Doctor of biological sciences).This test-system allows identification of 4 genotypes of virus C hepatitis: 1a, 1b, 2a, 3a.

Results and discussion:genotype 1b of HCV was registered more frequently – in 116 patients (71.2%). Genotype 3a was found in 26 patients (16%) and genotype 2a – in 14 patients (8.6 %). Two genotypes (mixt) were isolated in a small amount of samples: 1b+3a - in 3 samples (1.8%), 1b+2a - in 1 sample (0.6%), 1b+1a – in 2 samples (1.2%) and 1a+2a – in 1 sample (0.6%).

The same as in the Russian Federation genotypes 1b and 3a of HCV were revealed more frequently in chronic hepatitis C patients in the Republic of Sakha (Yakutia) - in 71.2% and 16% of studied cases accordingly. In Yakutia genotype 1b was found asethiologic factor of hepatitis C in 116 cases

(71.2%), less frequently 3a genotype – 16%. Unlike chronic hepatitis C patients from other regions of Russia presence of two genotypes in different combinations was revealed in the population of Yakutia. It should be noted that in the population of Yakutia genotypes 3a, 2a were met independently or in combination of other genotypes. They are known as seldom revealed genotypes in chronic virus C hepatitis patients (3a – 16%, 2a – 8.6%) [3].Interrelation of infection of virus C hepatitis and its genotype was confirmed by Russian and foreign researchers. Thus, 3a (in Yakutia – 16%) and 1a genotypes are more often revealed in patients addicting drug intravenously whereas 1b genotype is more often revealed in chronic virus C hepatitis patients infected as the result of medical parenteral manipulations [4, 5, 6].Combinations of genotype 1b with other genotypes (1b+3a, 1b+2a, 1b+1a, 1a+2a) in chronic hepatitis C patients in Yakutiaprove variety of ethiologic structures of the disease, severity of clinical course, resistance to antiviral therapy (Fig.1).

163 serum samples from chronic hepatitis C patients were studied, 75 of them with genotypes 1b, 2a, 3a of HCV were distributed according to age, sex and ethnic attribute of patients.

Prevalence of ChHC according to sex and depending on virus genotype was the following: 1b, 2aand 3a genotypes prevailed in women – 56%, 58% and 62%, in men it was – 44%, 42% and 38% accordingly.

Prevalence of ChHC according to age and depending on virus genotype is presented in Table 1. Average age distribution of patients depending on virus genotype did not reveal any significant difference in men and women. Average age in men with 1b genotype was 39.8±7.8, in women – 36.9±10.7. Difference in distribution of ChHC patients with 2a genotypeaccording to age was not revealed. Average age in men was 43.4±16.9, in women – 42.5±9.4. Average age of patients with 3a genotype was in men – 30.3±4.1 and in women – 32.8±8.7.

Distribution of ChHC patients according to their ethnic attribute and depending on virus genotype is presented in Figure2. Genotypes 1b and 2a prevailed in indigenous population – 80%, 58.3% whereas genotype 3a prevailed in Russian population and in other nationalities – 61.5%.

Conclusion: Thus, it was established that in the Republic of Sakha (Yakutia) as well as through Russia genotypes 1b (71.2%) and 3a (16%) prevailed. It can be explained by the fact that 1b genotype has greater viral load in comparison with other genotypes of HCV and it is almost unresponsive to antiviral therapy.Distribution of ChHC according to sex and depending on virus C genotype showed women prevalence.Distribution of ChHC patients according to their ethnic attribute and depending on virus genotype revealed that genotypes 1b and 2a prevailed in indigenous population. Virus genotyping is highly informative both for therapeutic prognosis and for epidemiological studies.

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Clinical and morphological characteristics of chronic gastritis with functional dyspepsia in the North

Abstract

The analysis of the clinical and endoscopic manifestations of the functional dyspepsia syndrome in patients of different ethnic groups, living in the Republic Sakha (Yakutia), is carried out. Among them patients with postprandial distress syndrome and epigastric pain are revealed. Clinical presentation and course of chronic gastritis with functional dyspepsia in the Republic Sakha (Yakutia) have a number of distinctive features: from the surveyed patients epigastric pain syndrome occurs in native and non-native patients, the intensity of pain in the natives is significantly lower than that in the non-natives. Postprandial distress syndrome was diagnosed in 2, 5 times more often in the native patients. At endoscopy in all patients with functional dyspepsia chronic gastritis was diagnosed. The natives more often have mixed gastritis, the non-natives - superficial gastritis. At the syndrome of epigastric pain continuous acid production and hyperacidity were registered more often in the non-natives, than in the indigenous population. At the postprandial distress syndrome normal acidity was more common in the indigenous population, in the non-indigenous - hyperacidity. At the syndrome of epigastric pain more effective was the prescription of anti-H. Pylori and anti-secretory drugs, and at postprandial distress syndrome – prokinetic drugs, at the identified hyperacidity the patients must receive in addition anti-secretory drugs.

Keywords: a syndrome of functional dyspepsia, epigastric pain syndrome, postprandial distress syndrome, gastric mucosa, Helicobacter pylori.

Introduction. Chronic gastritis with syndrome, functional dyspepsia (SFD) is one of the most pressing problems in medicine. Prevalence SFD is considered very high, but the exact static data, not, as many patients do not seek medical help. In recent years, a growing interest in functional dyspepsia. This is due primarily to the fact that this pathology along with other functional disorders of the digestive system causing significant economic losses to society, taking after acute respiratory infections second place in the list of most important causes of disability [2, 5, 6]. According to different authors, from dyspepsia suffer 30-40% of the population of Europe and North America. The annual incidence of dyspepsia syndrome is about 1% [7, 9]. At the same time

the share of functional dyspepsia falls from 50 to 70% of cases. Women dyspepsia occurs twice as often as in men [8, 10]. Frequency of symptoms of dyspepsia in the population is 30-40%, reaching in some countries, 60% or more. Gastrointestinal complaints are the cause of 4-5% of all cases of complaints of patients to general practitioners. In this case, the share of organic dyspepsia accounts for only 35-40% of all cases of this syndrome, and the proportion of functional dyspepsia - 50-60% [1, 3, 4].

Certain scientific and practical interest is the elucidation of the frequency and clinical manifestations of functional dyspepsia in patients hospitalized in the gastroenterology department YAGKB and frequency combinations of chronic gastritis (including H. pylori) with functional dyspepsia. Thus, many of the issues related to the study of functional dyspepsia in the Republic of Sakha (Yakutia), remain, gives reason to believe that their study is relevant.

The aim of the study was to investigate the clinical and morphological features of the chronic gastritis with syndrome pattern of functional dyspepsia in native-born and people of the Republic of Sakha (Yakutia), and to assess the effectiveness of treatment, depending on the gastric acid and H.pylori.

Material and methods. This study examined 105 patients with functional dyspepsia, including 41 patients with epigastric pain syndrome and 64 patients with postprandial distress syndrome. Considered groups of patients were homogeneous for age, gender, by ethnicity. Of the 105 patients included in the study, I group were 57 indigenous people (80% of them - Yakutia), II group - 48 people visiting (Caucasians). Considered groups of patients were homogeneous for age and sex. Group I included 22 men, 35 women, in the II group - 28 men, 20 women. The control group consisted of 30 healthy individuals. The range of initial evaluation included esophagogastroduodenoscopy. The study was combined with biopsy, which was taken at least 2 pieces: from the antral mucosa of the stomach body, in the presence of erosions of the mucous membrane - at least 4 pieces of the erosion.

Intragastric pH-metry was performed using autonomous atsidogastrometra "Gastroskan-24" (source system, Russia), which will record the pH automatically within 24 hours.

To determine the Helicobacter pylori in the gastric mucosa and the degree of contamination using histological, immunological and biochemical (rapid urease test) methods.

Histologically, the presence of NO were determined using enzyme immunoassay diagnostic system "HelikoBest antibodies." To confirm the eradication of H. pylori in patients along with the histological method used rapid urease test kits URE-Hp-Test-Pliva-Lachema (Brno, Czech Republic).

In assessing the results of histological examination for H. pylori are three degrees of contamination of the mucous membrane of the stomach, according to the Sydney classification: low - to 20, the average - from 20 to 50, and high - more than 50 microbial cells in the visual field.

Statistical analyzes were conducted with the use and combination of different methods and criteria(Student,Mann-Whitney). Data processing was performed using Statistica, version 6.0 (StatSoft, Inc.), Biostat 2007 2.0.

Results and discussion. In the analysis of clinical symptoms of functional dyspepsia patients identified with postprandial distress syndrome 64 (61%) and epigastric pain syndrome, 41 (39%). The main clinical manifestations of the syndrome of functional dyspepsia patients described by the group was the pain localized in the epigastric region, which was detected in 56,1±6,6% of patients with the indigenous population and 62,5±7,0% - the visitor ($p>0,05$). Along with pain in patients with indigenous populations were observed more severe diarrheal disorders: nausea - at 38,6±6,4%, vomiting - at 14,0±4,6, heartburn - at 21,1±5,4, regurgitation "odor of rotten eggs» - 29,8±6,1, bloating and fast saturability after taking even a small amount of food - from 31,6±6,2% of patients. Disorder observed in stool 12,3±4,4% as constipation and 24,6±5,7% of patients - in the form of diarrhea. In clinical manifestations of functional dyspepsia patients of this group dominated dyspeptic symptoms, predominantly in combination, such as: weight after meal with a sense of early saturation, bloating, rumbling, belching, nausea, vomiting. In the group of immigrants were more common: pain syndrome - 62,5±7,0% of patients with localization in the pyloroduodenal area and epigastric heartburn - at 54,2±7,2, burping - from 20,8±5, 9, early feeling of saturation - at 18,7±5,6, constipation - at 37,5±7,0% ($p <0,05$), and other symptoms of dyspepsia were observed less frequently. Thus, in patients with various functional dyspepsia in history can not be isolated only factors determining the development of clinical symptoms. Seems to play a role here summation pathogenic effects, that is, the disease is multifactorial in nature.

At esophagogastroduodenoscopy in patients indigenous most common mixed gastritis, focal atrophic gastritis and less superficial gastritis. The group of patients visiting more common superficial gastritis, which is combined with duodenogastric reflux. In 105 patients with the syndrome of functional dyspepsia, which included 51 men and 54 women aged 18 to 65 years, we have analyzed the degree of contamination H. pylori gastric mucosa. Lower degree of colonization of the gastric mucosa of the patients diagnosed in the indigenous population - (50,9%), moderate - (25,5%) and high - (23,6%). In patients visiting the degree of contamination is slightly higher than the root: low - (26%), moderate - (30%) and high - (44%).

A significantly greater degree of contamination H. pylori ($P <0,05$) was found in patients

with epigastric pain syndrome compared with postprandial distress syndrome can suggest that H. pylori infection plays a role in the genesis of pain in PD. Probably, H. pylori causes dysmotility of the upper gastrointestinal tract and increased visceral perception, which leads to the appearance of clinical symptoms of functional dyspepsia [2, 3].

The average pH of the stomach body was determined by the results of the 24-hour pH-metry in patients with epigastric pain syndrome, postprandial distress syndrome, functional dyspepsia.

The syndrome of epigastric pain hyperacidity was 51,2% (n-21), normatsidnost - 26,8% (n-11), hypoacid - 22,0% (n-9) cases. When postprandial distress syndrome of functional dyspepsia hyperacidity observed in 25% (n-16) of cases normatsidnost - in 56,2 (n-36), hypoacid - in 18,8% (n-12) of cases. Feature of gastric acid syndrome in patients with epigastric pain indigenous acid production is continuous and Hyperacidity - 4 (9,8±4,6%) cases normatsidnost - 3 (7,3±4,1%), hypoacid - 4 (9, 8±4,6%). From visiting patients gastric acid level somewhat higher: Hyperacidity was observed in 17 (41,4±7,7%) patients normatsidnost - in 8 (19,5±6,2%), hypoacid - in 5 (12,2±5 , 1%) patients ($p < 0,02$). For postprandial distress syndrome in patients with indigenous populations were characterized by: normatsidnost - in 29 (45,3±6,2%), hypoacid - in 10 (15,6±4,5%), hyperacidity recorded at least - in 7 (10 9±3,9%) patients. From visiting patients with postprandial distress syndrome is more common in hyperacidity, in 9 (14,1±4,4%), normatsidnost - in 7 (10,9±3,9%), hypoacid - in 2 (3,1±2,2%) patients ($p < 0,01$).

Thus, the syndrome of continuous epigastric pain and acid production Hyperacidity recorded more frequently in patients visiting - 17 (41,4±7,7%), and in patients with the indigenous population - 4 (9,8 ± 4,6%) cases ($p < 0,01$). When postprandial distress syndrome in patients with more common indigenous normatsidnost - 29 (45,3±6,2%), from visiting patients Hyperacidity - 9 (14,1±4,4%) ($p < 0,05$).

When comparing the average pH of the body of the stomach in two groups of patients with functional dyspepsia with the following results: the average pH in patients with epigastric pain syndrome was equal to 2,15 u, with postprandial distress syndrome – 5,1 units.

The highest acid production accounts for evening and night hours (20.00 to 04.00) - 1,4±0,2, which requires the use of antisecretory drugs with the biorhythm of acid.

We evaluated the relationship of acid-forming function of the stomach and pain intensity in patients with various forms of functional dyspepsia. Of the 41 patients with epigastric pain syndrome in 30 (73,2±6,9%) had hyperacidity, and the pain syndrome was detected in 10 (33,3%), moderate in 14 (46,7%) and the smaller - in 6 (20%) patients. In patients with moderate and mild pain was identified normatsidnost and hypoacid - in 5 (12,2±5,1%) and 6 (14,6±5,5%), respectively.

Consequently, the presence of pain in functional dyspepsia is significantly correlated with increased acid production in the stomach ($p < 0,05$), and when and hypoacid normatsidnyh states equally often present pain of moderate and low intensity.

Treatment of functional dyspepsia symptoms associated with great difficulties, because so far not developed effective therapies different variants of this syndrome. The variety of pathophysiological mechanisms of the syndrome of functional dyspepsia requires an individual approach to drug therapy in these patients. In this regard, there is still no consensus on the issue.

Patients with hyperacidity (n=31) was obtained as antisecretory therapy proton pump inhibitors - omeprazole (n=14), and rabeprazole (Pariet) (n=17).

Patients with normatsidnostyu and hypoacid H. pylori-negative received a prokinetic drug motilium 10 mg 3 times a day.

In the presence of H. pylori infection in all patients as a therapy of H. pylori received clarithromycin and amoxicillin for 7-day scheme.

When postprandial distress syndrome in 64 patients before treatment dyspeptic complaints reported 46.9% of patients (n=30) of them are dominated by moderate dyspeptic complaints - 18 (28,1%) compared with severe (n=13, 20,3%) and mild (n=3, 4,7%), dyspeptic complaints. On the 3-rd day of therapy, expressed dyspeptic complaints were recorded in 4 patients (6,25%), moderate dyspeptic complaints in 12% (18,75%), mild dyspeptic complaints - in 10 patients (15,63%). Only 3 days of treatment dyspeptic syndrome was arrested in 38 (59,37%) of 64 patients who complained of stomach indigestion before treatment. On day 5 of treatment expressed dyspeptic symptoms were observed, moderate dyspepsia occurred in 4 (6,25%), dyspeptic syndrome of low intensity - in 6 patients (9,38%). On day 7, treatment of dyspeptic complaints did not show any of the patients.

When FD with epigastric pain syndrome and postprandial distress syndrome after a month of treatment has been good progress.

Thus, the results of medical treatment of patients with functional dyspepsia led to the following conclusions.

In the presence of patients with functional dyspepsia of pain in the epigastric region, and 3,1 symptoms of discomfort in advanced gastric hyperacidity effectively destination 7–10 – days of therapy with proton pump inhibitors (omeprazole 20 mg 2 times a day), somewhat less effective in treatment of such patients therapy blockers H2-receptor antagonists, 150 mg two times a day (longer terms of treatment of pain and heartburn).

To eliminate a large number of clinical symptoms, usually combined into a single term "discomfort", require a comprehensive therapy including antisecretory agents in combination with

prokinetics, in some cases with enzymatic preparations.

Combined use of blockers of histamine H2-receptor with prokinetics, and some patients with the enzyme preparation showed high efficiency in the treatment of pain, and a large number of diarrheal illness in patients with functional dyspepsia.

A high level of eradication is achieved at the 10-day treatment of patients with chronic H. pylori gastritis with functional dyspepsia blockers, H_2-receptor antagonists in combination with two antibiotics (amoxicillin and tetracycline), which also should take note.

Thus, functional dyspepsia is one of the most common syndromes of the upper digestive tract, where there are various options for chronic gastritis with frequent persistence of H. pylori, a violation of the evacuation of the gastrointestinal tract. In the treatment of this syndrome have been used successfully H. pylori and antisecretory agents, with postprandial distress syndrome – prokinetics, and the detection of Hyperacidity designate antisecretory agents.

Conclusion. Clinical presentation and course of chronic gastritis with functional dyspepsia in the Republic of Sakha (Yakutia) have a number of distinctive features: epigastric pain syndrome occurs in 26,8% of patients and 73,2% of the indigenous population of the visitor, the intensity of pain in the root is much lower than that of visitors - 12 and 85% respectively. Postprandial distress syndrome was diagnosed in 71,9% of patients and 28,1% of the indigenous newcomers. At endoscopy in all patients with functional dyspepsia diagnosed chronic gastritis. The native inhabitants of the most common mixed gastritis (54,5%), the newcomers - superficial gastritis (66,7%). The syndrome of continuous epigastric pain and acid production Hyperacidity detected more often in immigrants (41,4%) than in the indigenous population (9,8%). When postprandial distress syndrome in indigenous normatsidnost more common (45,3%), the visitors – Hyperacidity (14,1%). The syndrome of epigastric pain more effective was the appointment of H. pylori and antisecretory drugs and at postprandial distress syndrome – prokinetic in identifying Hyperacidity therapy should supplement antisecretory agents.

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Table 1

Endoscopic picture of the various options syndrome functional dyspepsia, n (M±m%)

Endoscopic picture	Epigastric pain syndrome (n – 41)		Postprandial distress syndrome (n – 64)		
	1 group (n – 11)	2 group (n – 30)	P	1 group (n – 46)	2 group (n – 18)	P
Pathology wasn't found.	–	2 (6,7±4,6)	–	1 (2,2±2,2)	–	–
Endogastritis	2 (18,2±11,6)	16 (53,3±9,1)	>0,01	15 (32,6±6,9)	12 (66,7±11,1)	<0,02
Focal atrophic gastritis	3 (27,3±13,4)	5 (16,7±6,8)	>0,05	11 (23,9±6,3)	2 (11,1±7,4)	>0,05
Mixed gastritis	6 (54,5±15,0)	7 (23,3±7,7)	<0,02	14 (30,4±6,8)	2 (11,1±7,4)	<0,04
Duodenogastric reflux	–	–	–	5 (10,9±4,6)	2 (11,1±7,4)	<0,03

Table 2

The degree of colonization of the gastric mucosa Hp patients in different ethnic groups, (M±m%)

The degree of contamination HP	Altogether (n-105)	Including		P
		1 group (n-57)	2 group (n-48)	
H. pylori +	40 (38,1±4,7)	13 (22,8±5,6)	22 (45,8±7,2)	<0,03
H. pylori ++	30 (28,6±4,4)	16 (28,1±6,0)	14 (29,2±6,6)	<0,01
H. pylori +++	35 (33,3±4,6)	28 (49,1±6,6)	12 (25,0±6,3)	<0,03

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Prevalence of symptoms of gastroesophageal reflux disease and irritable bowel syndrome among Yakutsk population

Abstract

The authors reveal a high frequency of symptoms of gastroesophageal reflux disease and irritable bowel syndrome in the elderly population of Yakutsk. They also found out in their studies the differences in the frequency of GERD and IHD according to ethnicity and gender.

Keywords: gastroesophageal reflux disease, irritable bowel syndrome, elderly and senile age, the urban population.

Introduction: According to epidemiological studies prevalence of symptoms gastroesophageal reflux and irritable bowel syndrome is high – 20 – 40% of population). Almost half of adult population have gastroenterological symptoms, major part of these symptoms are functional, without morphological substratum. Sickness of digestion organs inflict significant economic damage to a society [1,2,3].

The problem of gastrointestinal disorder of elderly population in the conditions of the North is topical, because it is investigated not enough.

The research objectives: to investigate spread of symptoms of gastroesophageal reflux and irritable bowel syndrome among the Yakutsk population of 60 and senior.

Materials and methods: the research has been carried according to scientific program "Epidemiology of some chronic non-infectious diseases and risks of elderly population of Yakutsk". The object of investigation is the population of Yakutsk at the age of 60 and senior. The sample was done by method of casual numbers with the help of a computer program. The sample consists of 1394 respondents (200 – masculine, 200 – female in each age group of 60-89 years old and 194 people of the most elderly population). So the sample includes 7,6% of the whole number of elderly population of Yakutsk.

In the whole 775 people were investigated (response 71,6%). 379 people were included into

the data base for analysis of gastroesophageal reflux and 346 people of irritable bowel syndrome. Patients were divided into age groups (60-69, 70-79, 80-89 and more than 90 years old). Also according to gender indication they were divided into masculine, and female. Two race-ethnic groups were indicated: indigenous (Yakut, Even) and non-indigenous (Russian, Ukrainian, Belorussian etc.). Practically indigenous and non-indigenous inhabitants of Yakutsk gave the same responds. The most active respondents were people of 60-89 years old (p 0,001).

The research has been held in Republican Hospital and Geriatric Center of the Republican Hospital 3 in Yakutsk. People of 80 and senior, some patients of 60 and senior who could not be transported were examined by visiting them at their permanent houses. The most elderly population (90 and senior) was examined in Geriatric center of Republican hospital 3.

The research was approved by Ethical Committee of Yakutsk Scientific Center of the Siberian Branch of the Russian Academy of Medical Sciences (protocol 97, March 30, 2011). All respondents signed the informational agreement of participation in the research.

556 respondents were chosen (200 in each age group) for gasterointestinal symptoms among them: 235 males and 321 females, indigenous - 254 (45,7%) and non-indigenous - 302 (54,3%).

Table 1.Data of respondents according to sexual, age and ethnic groups

Age	N	%	masculine	%	female	%	indigenous	%	Non-indigenous	%
60-69 years	182	32,7	81	34,4	101	31,4	66	25,9	116	38,4
70-79 years	184	33,1	83	35,3	101	31,4	90	35,4	94	31,1
80-89 years	129	23,2	56	23,8	73	22,7	69	27,1	60	19,8
90 и < more	61	11,0	15	6,3	46	14,3	29	11,4	32	10,5
n	556	100	235	42,2	321	57,7	254	45,7	302	54,3

As it is shown in Table 1, respondents of 60-69 years old are 32,7 % (182 people), respondents of 70-79 - 33,1% (184 people), 80-89 years old – 23,2% (129 people), 90-more years old – 11,0% (61 people). Among them indigenous people were 254 (45,7%), including masculine – 127 (54,0%), female – 127 (39,6%). Non-indigenous were 302 people (54,3%), including masculine – 108 (46,0%), female – 194 (60,4%).

Results of investigation: according to Picture 1, the frequency of GER is 68,1% (379 people)

and IBS – 62,2% (346 people).

Fig. 1. Frequency of GER according to ethnic group including gender (%)

(Total, men, women, indigenous, non-indigenous)

Statistically significant results according to gender are revealed among population of 60 and senior: women – 56,7% (215 people) and men – 43,2% (164 people) ($p<0,05$). Statistically significant results according to ethnic indication are revealed: non-indigenous – 53,2% (202 people) and indigenous – 30,8% (117 people) ($p>0,01$), (pic.1). IBS is frequently diagnosed among female than the masculine (63,5% against 36,4%, $p<0,01$) and among non-indigenous than indigenous (53,4% against 46,5%, $p<0,05$).

Fig. 2. Frequency of GER and IBS according to ethnic group including gender (%)

(GER, men, women, IBS men, women, indigenous, non-indigenous)

As it is shown in Picture 2, GER is more often revealed among non-indigenous women (60,4%) than indigenous female (39,5%), $p<0,01$). There are no clear differences among males. IBS is frequently diagnosed among non-indigenous female 58,1% against indigenous female 45,2%, p 0,002 and indigenous males (54,7%) against non-indigenous males (41,8%, p 0,005).

Fig. 3. Frequency of GER and IBS according to age (%)

As it is shown in Pic.3 the reduction of symptoms is revealed in age group of 60-90 olds: GER from 30,8% to 12,4% and IBS from 32,3% to 13,8%.

Fig. 4. Frequency of heartburn and regurgitation among Yakutsk population aged of 60 and senior (%)

P<0,0001 P<0,01

As it is shown in Fig.4, 202 (36,4%) respondents suffer of acid. It was noticed that epigastic

pains statistically significant for women – 38,6% (124 people), for men – 33,1% (78%), p< 0,0001, for non-indigenous – 37,7% (114), indigenous – 34,6% (88 people), p=0,01. There are differences among non-indigenous women 38,1% (74 people) and 31,5% (40 people), p=0,0001, but there is no difference among indigenous people.

Regurgitation is educed at 147(26,4%%) respondents, according to gender statistically meaningful results are revealed for women 30,8%% (99 persons) against 20,4%% (48 persons), p=0,0001, ethnic distinctions are not gotten. Reliable distinctions are educed on ethnic belonging of non-indigenous women 40, 1%% (51 persons) against 20,4 %% (26 persons) p=0,01, non-indigenous women 24,7%% (48 persons) against 22,0%% (22 persons), p=0,0001.

Table 2. Distribution of frequency of symptoms of GER on the age-related group (%)

Age of group	Number	Male		Female		Indigenous		Non-indigenous			
	Heartburn	%	Regurgitation	%	Heartburn	Regurgitation	Heartburn	Regurgitation	Heartburn	Regurgitation	Heartburn	Regurgitation
60-69	75	37,1	56	38,0	37,1	35,4	37,0	39,3	30,6	36,3	42,1	40,0
70-79	67	33,1	46	31,2	38,4	31,2	29,8	31,3	34,0	24,6	32,4	38,5
80-89	41	20,2	30	20,4	17,9	27,0	21,7	17,1	27,2	27,2	14,9	12,8
90 и <	19	9,4	15	10,2	6,4	6,2	11,2	12,1	7,9	11,6	10,5	8,5
n	202	36,4	147	26,4	33,1	20,4	38,6	30,8	34,6	30,3	37,7	23,1

As it is shown in Pic.2 the reduction of frequency of heartburn is revealed in age group of 60-90 years among women from 37,0% to 11,2%, and among men from 38,4% to 6,4%, among indigenous from 34,0% to 7,9% and among non-indigenous from 14,1% to 4,8%, p<0,03.

The reduction of regurgitation is revealed in age group of 60 and 90 among men from 35,4% to 6,2%, among women from 39,3% to 12,1% and among indigenous from 36,3% to 11,6%, among non-indigenous from 40,0% to 8,5%.

Fig.4. Frequency of GER (%)

Monthly heartburn is observed for 25,0% respondents (24,6% male and 24,6% female; 25,1% indigenous and 24,8% non-indigenous). Weekly heartburn is revealed at 11,3% patients (6,2% for men, 13,3% women, p <0,001) and (9,4% for indigenous, 12,9% for non-indigenous, p<0,05).

Monthly sour belch is educed for 20,6% of patients (16,1% for men, 23,9% for women, 25,1% indigenous and 16,8% non-indigenous). Weekly and more often sour belch is observed for 5,7% of respondents (4,2% for men, 6,8% for women, p>0,03) and 5,1% for indigenous, 6,2% for non-indigenous, p>0,04).

Dyshagia is revealed for 6,8% respondents (5,5 % for men and 7,7% for women, p > 0,04) and (2,8% for natives and 3,9% non-native).

Table 3.Symptoms of bowel disorders according to ethnicity and sex

Symptoms	number	men	women	indigenous	non-indigenous	P m-w	P i-n						
		n	%	n	%	n	%	n	%	n	%		
Swelling of stomach		231	41,5	83	35,3	148	46,1	113	44,4	118	39,0	0,0001	
Defecation less than 3 times a week		113	20,3	35	14,9	78	24,3	51	20,0	62	20,5	0,0001	
Defecation more than 3 times a day		34	6,2	17	7,2	17	5,3	17	6,7	17	5,6		
Difficulties of defecation		226	40,6	78	33,2	148	46,1	100	39,3	126	41,7	0,0001	0,01
Diarrhea		114	20,5	47	28,5	67	14,6	56	22,0	58	19,2	0,008	
Hard stool		231	41,5	76	32,3	155	48,2	105	41,3	126	41,7	0,0001	0,05
Mucus in stool		42	7,6	12	5,1	30	9,3	24	9,4	18	5,9	0,0001	
Feeling of incomplete bowel movement		149	26,8	43	18,3	106	33,0	63	24,8	86	28,4	0,0001	0,008

From the table 3 it is evidently seen that swelling of stomach was observed for 41,5% respondents (231 persons), more often it is marked for 46,1% women than for men (46,1% and 35,5% accordingly, p <0,0001) and for indigenous 44,4% and for non-indigenous 39,0%. Swelling of stomach is reduced at people from 60 to 90 years old. Defecation less than 3 times a week was

noticed for 6,2% (34 persons), there is no sexual and ethnic differences. There was reduction of diarrhea according to age. Defecation less than 3 times a week was marked for 20,3% (113 persons) of respondents, more often for women- 24,3% (78 persons) than for men 14,9% (35 persons), p <0,0001.

Frequency of locks is revealed for 27,4%% (31 persons) from 19,4%% (22 persons) in age from 60 to 90. Most of symptoms of bowel disorders were more often observed for non-indigenous people, so for women to men. These results are not for frequency of stool more than 3 times a day and mucus in stool. It is noticed that indigenous people suffer from constipation - 14.6%, from diarrhea - 1.3%, alternating constipation and diarrhea - 2.9%. Among non-indigenous people constipation is noticed for 19.4%, diarrhea - 1.4%. Alternation of them - 2.7%. Thus, non-indigenous women have more often constipation - 24.4% than that of indigenous women.

Conclusions:

1. High-frequency of symptoms of GER and IBS is educed among the elderly population of Yakutsk.
2. High-frequency of symptoms of GER and IBS is totally educed for women and for non-indigenous population.
3. Symptoms of GER and IBS are decreased for people of 60 and elder according to gender and ethnicity.

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Ivanov I.S., Lazarenko V.A., Ivanov S.V., Goryainova G.N., Ivanov A.V., Tarabrin D.V., Litvyakova M.I.

Features of the ratio of collagen I and III in patients with postoperative ventral hernias

Modern herniology presents innovational field of surgery. Among the causes of hernia development the disturbance of collagen metabolism plays a great role, and leads to heterogeneous maturation of the connective tissue and disorder of its structural characteristics. Investigation of the collagen contents of the connective tissue with the help of polarization microscopy reveals Collagen Type I to Type III ratio in skin and aponeurosis in patients with and without hernia disease. Presented investigation makes prognosis and prophylactics of hernia disease possible in early post operation period.

Keywords: Collagen Type I and Type III, post operation hernia, hernia disease, polarization microscopy.

Introduction. Nowadays treatment of abdominal anterior wall hernia disease is the actual problem of surgery. Among all surgical operations hernioplastics presents up to 32%, ventral hernias (VH) contribute 26%, 35% of the latter ones are urgently operated due to squeezing. 10 – 14% of all laparotomies are complicated in the late post operation period with VH of abdominal anterior wall. According to the opinion of certain authors [1,2,3,4,7] the rate of mediate VH continues to increase, presenting from 57 to 83% of whole quantity of anterior wall of the abdomen hernias. Despite of wide application of modern surgical techniques in clinical practice, the results of VH treatment cannot be accepted as satisfactory ones. It's well known that collagen metabolism disorders lead to the weakness of the connective tissue, and later to VH development. Collagen metabolism

investigation is possible with the help of monoclonal antibodies using, or special staining and polarization microscopy [1,5].

Most effective methods of surgical treatment of patients with VH are those with the synthetic materials using for plastics [4,6,7,8,9]. Although using of plastics without intention with application of synthetic materials has led to improvement of hernias treatment results, still there are certain problems of the select of the type of synthetic endoprothesis and of the method of surgical treatment [3,7]. Thus it is reasonable to forecast hernia disease and perform prophylactics of complications in early post operation and rehabilitation periods.

The purpose of investigation.

To estimate Collagen Type I to Collagen Type III ratio and Collagen contents in the skin and aponeurosis in patients with and without VH.

Tasks of investigation.

To confirm differences of Collagen Types Ratio (TC) in skin and aponeurosis in patients with and without VH.

To reveal correlation connections of TC ratio in skin and aponeurosis in patients with and without VH.

To consider the information level of polarization microscopy for possible verification of hernia disease.

Materials and methods

In the presented work there were used data of examination and treatment of patients with uncomplicated VH, who were treated from 2010 till 2012 in clinics of surgical diseases № 1 of Kursk State Medical University, based in the Kursk Regional hospital.

95 patients were examined, and were divided into examinating and control groups. There were 30 males (31,6%), and 65 (68,4%) were females. Examinating group included 46 patients, among them – 37 (80,4%) were the patients with VH, 7 (18,9%) suffered from small hernias, 19 (51,4%) had middle ones, 7 (18,9%) had big ones, and 4 (10,8%)suffered from giant hernias. The rest 9 (19,6%) were patients with umbilical hernias, among them 4 (44,4%) patients suffered from hernias of middle sizes, and 5 (55,5%) – from small ones. There were 11 males (23, 9%), whose average age was 54±9,9, and females – 35 (76,1%) of 56,8±11,2. The control group was presented by 49 patients without hernias and without clinical signs of connective tissue weakness. These patients were treated in the department of general surgery of Kursk regional hospital with using of laparotomy, without hernias (for instance, after laparotomy cholecystectomy). Males were 19 (38,8%) with average age 62,8±13,3. Females were 30 (61,2%) with average age 54,5±13,8. Both

groups included two series of investigation – of skin and aponeurosis.

In laparotomy of both groups of patients skin and aponeurosis were taken. Tissues taken in operation were examined on qualitative contents of connective tissue collagen fibers. The cuts of tissues were stained with Sirius Red and examined in ordinary and polarization lights with the help of polarization microscope Altami Polar 2, magnification x100, x250 и x400, x630. Photographing of micro specimens were fulfilled with using of digital ocular camera Altami 3 Mpx., there were taken pictures of 10 fields of view with different magnification.

Estimation of Collagen Types ratio (TC) was based on differences of color scale, characteristic for each type of collagen: Type I Collagen is red, Type III Collagen is green. Estimation of Collagen Type I to Collagen Type III ratio was performed with using of program complex Altami Studio 3.0 and ImageJ 1,47a, on the base of examination of color histogram of the certain focus in each field of view. Determination of color spectrum was carried out on the base of histogram of each color. Absolute indexes of red and green colors, got with the help of visual-program complex for each field of view, were converted into comparative ones with accounting of standard deviation. Then it was accounted the level of TC ratio. Analysis of the results was performed with the help of embedded computer functions of supplement Microsoft Exel-2010, Statistica 6.0.

Results and discussion

Collagen Type I to Type III ratio in the skin of 1 group patients is 1,06±0,1, because of this green color predominates in spectrum. Examination of aponeurosis histological specimens showed that Collagen Type I contents is 52,35±2,97%, and Collagen Type III contributes 47,65±2,97% (Picture 1). Collagen Type I to Type III ratio in aponeurosis of patients with hernias is 1,11±0,15, this is much less than in patients without VH. Examination of the skin histological specimens of the 2 group patients (control) revealed that the contents of Collagen Type I is 69,07±2,66%, and Collagen Type III contents is 30,93±2,66%. Collagen Type I to Type III ratio in skin is 2,26±0,29. Polarization microscopy of the histological specimens of the aponeurosis of control group patients showed the contents of Collagen Type I is 69,11±2,68%, and Collagen Type III is 30,89±2,68% (Picture 2). Index of Collagen Type I to Type III ratio is 2,27±0,3, which is more than in patients of examinating group.

Thus, patients with hernias present reliable significant lowing of Collagen ratio both in skin and in aponeurosis in comparison with patients without hernias. The contents of Collagen Type I in the skin of patients with small hernias is 51,46± 1,34%, and Collagen Type III is 48,531±1,34%. Collagen Type I and Type III in aponeurosis of patients with hernias of middle sizes is 51,4±2,32%

and 48,6±2,32%.

In examination of skin specimens of patients with big hernias we revealed, that contents of Collagen Type I is 50,7±0,8% and Collagen Type III is 49,3±0,83%. Within examinating group there were 4 patients with giant hernias, in whom average content of Collagen Type I is 50,4±0,82%, and of Type III is 49,6±0,82%. Comparative analysis of the results showed that within control and examinating groups there are no significant differences between series (comparison of the results of skin and aponeurosis examination). Due to this corresponding conformity of Collagen Types ratio in skin and aponeurosis was revealed.

Thus, index of Collagen Types ratio in skin and aponeurosis in patients of each group is the same. Examination of Collagen Type I and Type III ratio in skin of patients with and without hernias revealed significant differences of collagen contents. Collagen Types ratio in patients without hernias is 2,26, whereas in patients with hernias it is significantly lower - 1,06 ($p \leq 0,001$).

Collagen Types ratio in aponeurosis of patients without hernias is 2,27, but in patients with hernias it is 1,12. Collagen Type I and Type III ratio in the skin and aponeurosis of patients without hernias is 2,26 and 2,27 correspondently, it shows absence of significant differences and presence of strong correlation association (Spirman's coefficient is 0,71) (Picture 3).

In patients with hernias Collagen Type I to Collagen Type III ratio in skin is 1,06, and in aponeurosis it is 1,12, it also presents absence of significant differences and presence of strong correlation association (Picture 4). Comparison of Collagen Type I and Collagen Type III indexes in examinating and control groups showed significant differences between them ($p \leq 0,001$). Decrease of Collagen Type I and Type III percentage is one of the causes of post operation hernias development.

Due to information above, we can consider, that changes of Collagen contents of the connective tissue precisely decrease of Collagen fibers Type I to Type III ratio is one of the factors of VH etiology and pathogenesis. Collagen Types ratio in the contents of the connective tissue in skin and aponeurosis has strong correlation association both in control and examinating groups. Usage of the presented method of Collagen Types indexes estimation in the connective tissue of the anterior wall of abdomen gives surgeons the opportunity to choose well-founded method of VH treatment.

Conclusions:

Collagen Types ratio in aponeurosis of patients with VH is significantly less, than in patients without VH.

Collagen Types ratio in skin and aponeurosis has strong correlation association in control and

examinating groups.

Polarization microscopy has high information level in investigation of Collagen Types ratio disorders in the structures of the anterior wall of abdomen.

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Table 1

Characteristics of Collagen Type I and Type III in skin of patients of examinating and control groups

	Series 1 – Skin (N=95)		
Groups	Collagen Type I	Collagen Type III	Collagen Type I and Type III ratio
Examinating Patients with VH (N= 46)	51,48±1,83* **	48,52±1,83* **	1,06±0,1 [1]
Control Patients without VH (N= 49)	69,07±2,66* **	30,93±2,66* **	2,26±0,29 [1]

*- p≤0,001, comparison of indexes between groups of patients.

** - p≥0,5, no significant differences between series in group.

[1] – Spirman's coefficient = 0,71, comparison of indexes between series.

Characteristics of Collagen Type I and Type III in aponeurosis of patients of examination and control groups

*- p≤0,001, comparison of indexes between groups of patients.

	Series 2 –Aponeurosis (N=73)		
	Collagen Type I	Collagen Type III	Collagen Type I and Type III ratio
Examinating Patients with VH (N= 46)	52,35±2,97* **	47,65±2,97* **	1,11±0,15 [1]
Control Patients without VH (N= 49)	69,11±2,68* **	30,89±2,68* **	2,27±0,3 [1]

** - p≥0,5, no significant differences between series in group.

[1] - Spirman's coefficient = 0,71, comparison of indexes between series.

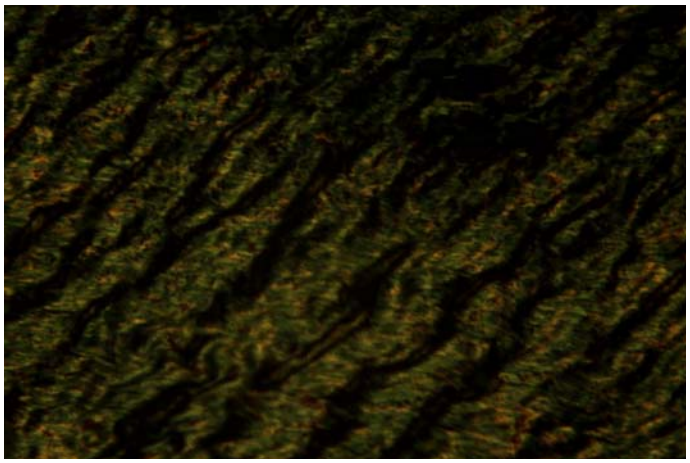


Fig. 1. Microscopic picture of the section of aponeurosis in patient with VH. Polarization microscopy. Sirius Red. X400.

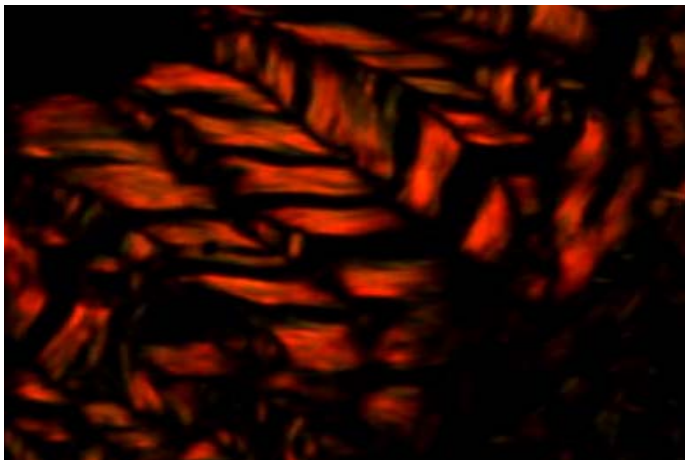


Fig. 2. Microscopic picture of the section of aponeurosis in patient without VH. Polarization microscopy. Sirius Red. X400.

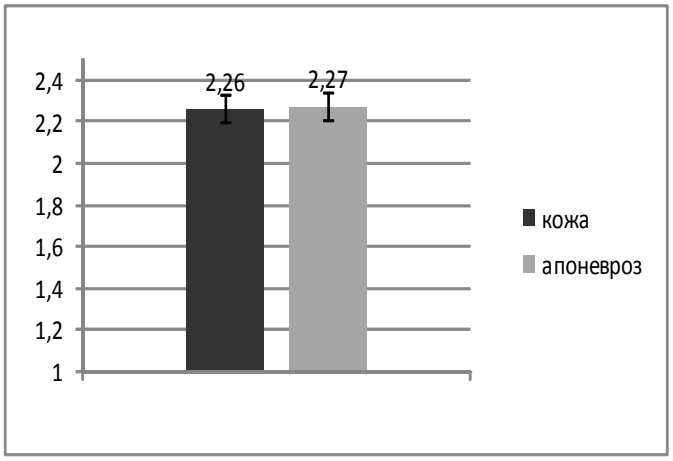


Fig. 3. Collagen Type I to Type III ratio in skin and aponeurosis of patients without VH.

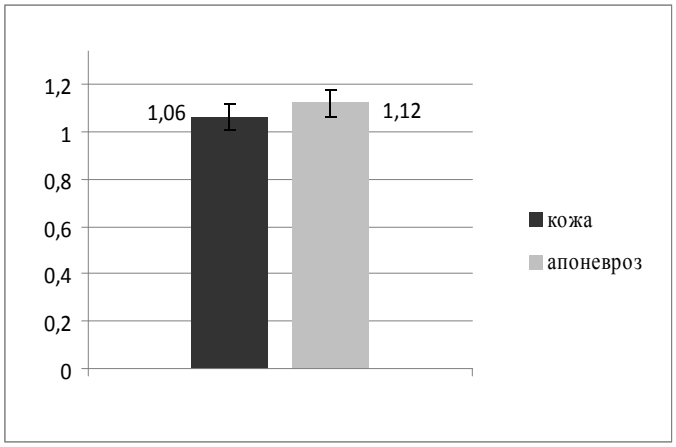


Fig.4. Collagen Type I to Type III ratio in skin and aponeurosis of patients with VH.

ROLE OF THE HEPCIDIN IN THE DEVELOPMENT OF ANEMIA IN PATIENTS WITH JUVENILE RHEUMATHOID ARTHRITIS

Egorov A.S., Fedorova E.V., Chasnyk V.G., Vinokurova F.V.

Abstract. Overproduction of hepcidin in the liver is considered to be due to the effect of high levels of proinflammatory cytokines. Interleukin-6 is known to play a key role in the development of anemia in patients with juvenile rheumatoid arthritis. During the study of 35 patients with juvenile rheumatoid arthritis treated with biological disease-modifying drugs (tocilizumab and golimumab), direct relations between the level of hemoglobin and hepcidin were not found. Most probable, anemia in rheumatoid arthritis is multifactorial and involves violation of iron metabolism in the organism and the negative effects of proinflammatory cytokines on erythropoiesis. Severe anemia can be associated with iron deficiency, or with the macrophage activation syndrome in children with juvenile rheumatoid arthritis.

Keywords: hepcidin, anemia, juvenile rheumatoid arthritis.

Introduction. Anemia of chronic disease, the anemia that is the second most prevalent after anemia caused by iron deficiency, occurs in patients with acute or chronic immune activation [15]. It is believed that the anemia in patients with chronic illness can significantly worsen the prognosis and quality of life of these patients.

For the first time this condition was described by Cartwright G.E, Wintrobe M.M. in 1952 [5]. However, the key pathogenic moment became clear after the opening of the peptide hepcidin in 2001 [8]. Name of the new peptide was formed by abbreviation Latin word **hep**ar (lat. - liver - the site of synthesis of peptide) and **cidin** (lat. - destroy - emphasizing antibacterial properties of peptide). It was shown that hepcidin synthesis occurs in renal tubules. Also, low levels of expression noted in other cells, tissues and organs, including macrophages, adipocytes, and brain cells, which may indicate the important role of hepcidin in the autocrine and paracrine control of iron metabolism at the local level [13]. Hepcidin is encoded as an 84-amino acid prepropeptid. The active form of the hormone circulates in plasma and it is binding to α_2-macroglobulin [9]. The main

route of elimination of hepcidin – renal clearance.

Currently, hepcidin is the main regulator of systemic iron metabolism in the organism [7]. Hepcidin acts by modulating the cellular export of iron in the plasma and extracellular fluid through ferroportin. Ferroportin - is a receptor of hepcidin and is the only known cellular iron exporter in vertebrates [21]. Hepcidin inhibits iron absorption in the intestine and the presentation of iron from macrophages, dispose of old red blood cells. Hepcidin injection into mice resulted in a significant reduction in serum iron within just 1 hour. Even though hepcidin is rapidly cleared from the plasma, the effect of a single dose was apparent for up to 72 hours. Probably, this time required for the re-synthesis of sufficient amounts of the hepcidin receptor - ferroportin [20]. Hepcidin synthesis rapidly increases in infection and inflammation. IL-6 is a major inductor hepcidin and acts through STAT3-dependent transcriptional mechanism. In volunteers who was introduced the IL-6 urinary hepcidin excretion increased several times and serum iron levels decreased in 2 hours after infusion [10].

Thus, IL-6 is a leading point of contact in the pathogenesis of juvenile rheumatoid arthritis and anemia. Production of IL-6 was significantly increased in patients with juvenile rheumatoid arthritis and correlated with the degree of disease activity [2] and to the development of anemia. In patients with rheumatoid arthritis indicated a significantly higher level of serum pro-hepcidin compared to patients with systemic lupus erythematosus and healthy control group [19]. In addition, serum pro-hepcidin was significantly lower in patients with iron deficiency anemia than in patients with rheumatoid arthritis and anemia without iron deficiency and a control group of healthy volunteers [12].

Anemia in rheumatoid arthritis is a typical example of the anemia of chronic disease [14]. The main mechanism of anemia – a disturbance of iron utilization in the bone marrow by the action of hepcidin, whose expression is increased due to overproduction of IL-6 [16]. Anemia is highly prevalent among patients with rheumatoid arthritis in the absence of effective treatment of the underlying disease. According to studies published from 1966 to 2003, the prevalence of anemia ranged from 33.3 to 59.1% [17]. According to a multicenter study of patients with rheumatoid arthritis, the prevalence of anemia in the first year after onset of the disease was 5%, 3 y - 11%, 5 - 13%, 7 y - 16%, 10 y - 7% [23]. In another study, the prevalence of anemia was 16.7% and was associated with the severity of rheumatoid arthritis [18]. In a placebo-controlled trial of infliximab anemia was observed in 39% of patients, 39% of women and 32% men [3].

Treatment of anemia in rheumatoid arthritis requires from rheumatologist understanding of

the pathogenic mechanisms underlying in the development of anemia. The best means of correction of anemia in rheumatoid arthritis is a systemic disease control by administrating synthetic and biological disease-modifying drugs: methotrexate [4], antagonists of TNF-α, rituximab, abatacept, tocilizumab [6]. In studies of combination therapy with infliximab-methotrexate noted an increase of hemoglobin and its normalization in 43% of anemic patients with rheumatoid arthritis [22]. Tocilizumab - recombinant humanized monoclonal antibody to human IL-6 receptor (IL-6). Tocilizumab selectively binds to and inhibits both soluble and membrane IL-6 receptor (sIL-6R and mIL-6R). In clinical trials of tocilizumab the hemoglobin level in patients with rheumatoid arthritis and anemia increased by 17 g/L at 2 weeks after the start of treatment [11]. Thus, with the using drugs acting on the overall important pathogenic link of rheumatoid arthritis and rheumatoid anemia is possible to implement a system control of the underlying disease and the effective correction of anemia.

The aim of our study was to determine the prevalence of anemia in patients with juvenile rheumatoid arthritis receiving treatment by the biological disease-modifying drugs and estimate the dependence of the level of hemoglobin in this group of patients from the level of hepcidin and other parameters of iron metabolism.

Materials and methods. The study included 35 children (12 boys and 23 girls) suffering from juvenile rheumatoid arthritis. At 19 children diagnosed polyarticular juvenile rheumatoid arthritis (pJRA), 16 - system onset JRA (sJRA).

All patients were treated by biologic disease-modifying drugs. Of these, 25 patients received tocilizumab - recombinant humanized IgG1 class monoclonal antibodies to human IL-6 receptor, 10 patients receiving golimumab - recombinant humanized monoclonal antibody IgG1 class, forming high-affinity stable complexes "antigen-antibody" with soluble and transmembrane bioactive forms with tumor necrosis factor alpha (TNF-α), preventing binding of TNF-α to its receptors. The study was approved by the Ethics Committee, prior to study the patients and their parents signed informed consent.

Estimate the dynamics of the following laboratory parameters: hemoglobin (n = 554), red blood cells count (n = 554), and reticulocytes (n = 135), mean corpuscular volume (n = 236), mean corpuscular hemoglobin (n = 241), mean corpuscular hemoglobin concentration (n = 191), white blood cells count (n = 554), and platelets (n = 543), absolute neutrophil count (n = 192), eosinophils (n = 191), monocytes (n = 192), basophils (n = 192), lymphocytes (n = 192), erythrocyte sedimentation rate (n = 554), the level of C-reactive protein (n = 383), soluble transferrin receptor

(n = 35), total serum iron (n = 76) and ferritin (n = 154), total iron binding capacity of serum (n = 60), the level of serum hepcidin (n = 25). All studies were conducted in certified laboratories on standardized methods, the results of the study are presented in SI units.

In addition, clinical signs of activity of juvenile rheumatoid arthritis were evaluated: joint swelling, pain and articular syndrome restriction of joint movement. Also evaluated the response to treatment according to the guidelines of the American College of Rheumatology (ACR score).

Anemia was diagnosed based on the WHO criteria for the different age groups.

To evaluate the results were used methods of the statistical description, statistical hypothesis testing and modeling.

According to the results of the study the prevalence of anemia in patients with juvenile rheumatoid arthritis receiving treatment by biological disease-modifying drugs was 60.0%. At the same time, the prevalence of anemia in patients with polyarticular JRA was 42.1%, and in patients with systemic JRA - 81.3% (Table 1). At 71.4% was found mild anemia, in 23.8% - moderate anemia and 4.8% - severe anemia (Figure 1).

Based on these data was performed statistical analysis and constructed multivariate models describing the dependence the level of hemoglobin from hepcidin and other parameters of iron metabolism.

Thus, the low level of hemoglobin is noted for the high-level of serum hepcidin and low-level of serum ferritin, which can probably be attributed to associated iron deficiency in patients with juvenile rheumatoid arthritis. In addition, the low level of hemoglobin is observed at combination of high serum ferritin levels and low levels of serum hepcidin, which in its turn, may be due to the development of macrophage activation syndrome at these patients, however, the nature of this phenomenon is not fully understood and requires in-depth study in larger number of patients (Figure 2).

The decrease hemoglobin levels is observed at combination of high level of serum hepcidin and high total iron binding capacity (TIBC), which may also be due to associated iron deficiency. Moderate decrease hemoglobin levels is observed at the mean values of serum hepcidin, and total iron binding capacity, which is characteristic of anemia of chronic disease (Figure 3).

And moderately low hemoglobin level celebrated with a combination of high serum hepcidin level and low level of soluble transferrin receptor (sTFR), which is characteristic of

anemia of chronic disease, due to inhibition of sTFR expression by proinflammatory cytokines (Figure 4).

Conclusions. Anemia widely distributed in patients with juvenile rheumatoid arthritis receiving treatment by the biological disease-modifying drugs. It is caused by the fact that this group includes patients with severe pJRA and children with sJRA. However, the prevalence of anemia in this group higher than that for patients with pJRA and sJRA receiving standard treatment of juvenile rheumatoid arthritis [1].

Anemia in juvenile rheumatoid arthritis is multifactorial and develops as a result of hepcidin overproduction and disorders of iron reutilization accompanied iron restricted erythropoiesis. However, severe cases of anemia, probably association with the iron deficiency, or with the development of macrophage activation syndrome.

To estimate the iron metabolism in patients with juvenile rheumatoid arthritis in addition to standard indicators such as the level of serum iron, TIBC, transferrin saturation and ferritin levels, is necessary to determine the level of soluble transferrin receptor.

Greatest interest is the reduction of hemoglobin accompanied by increased ferritin levels with low serum hepcidin. This condition is probably be associated with the development of macrophage activation syndrome in patients with juvenile rheumatoid arthritis and requires further study.

Table 1.

Prevalence of anemia in JRA patients.

	Anemia	No anemia	Total
pJRA (prevalence, %)	8 (42,1%)	11	19
sJRA (prevalence, %)	13 (81,3%)	3	16
Total (prevalence, %)	21 (60,0%)	14	35

Figure 1.

Frequency of various degrees of anemia in JRA patients.

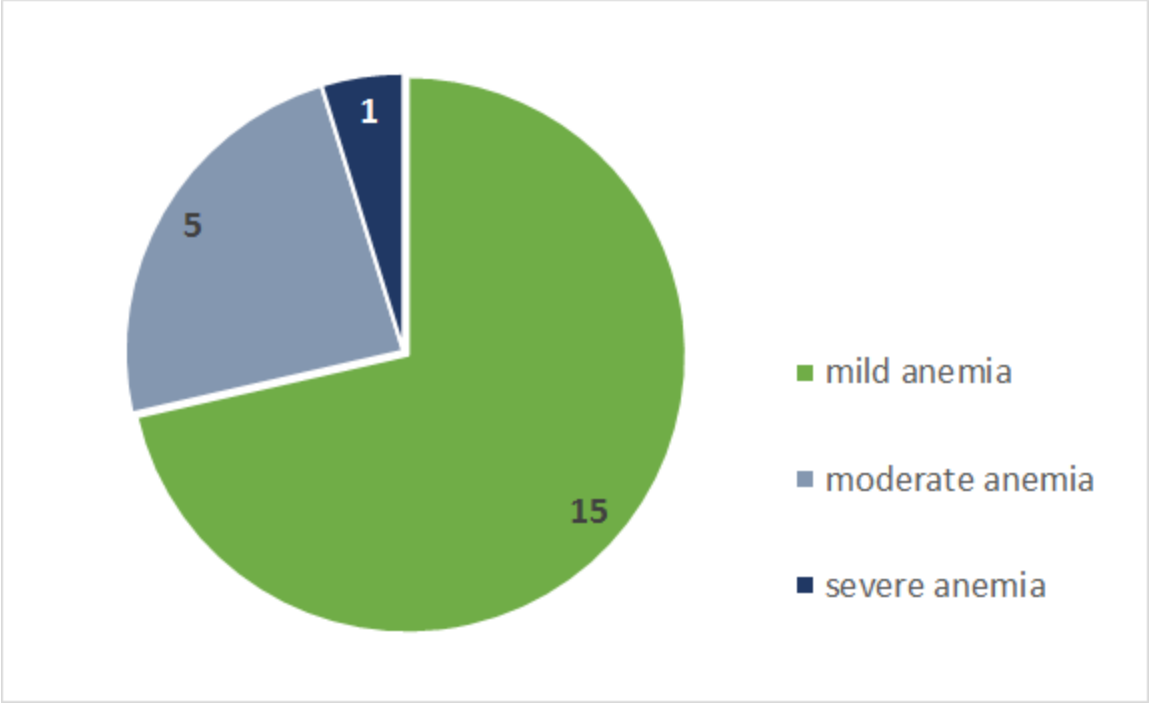
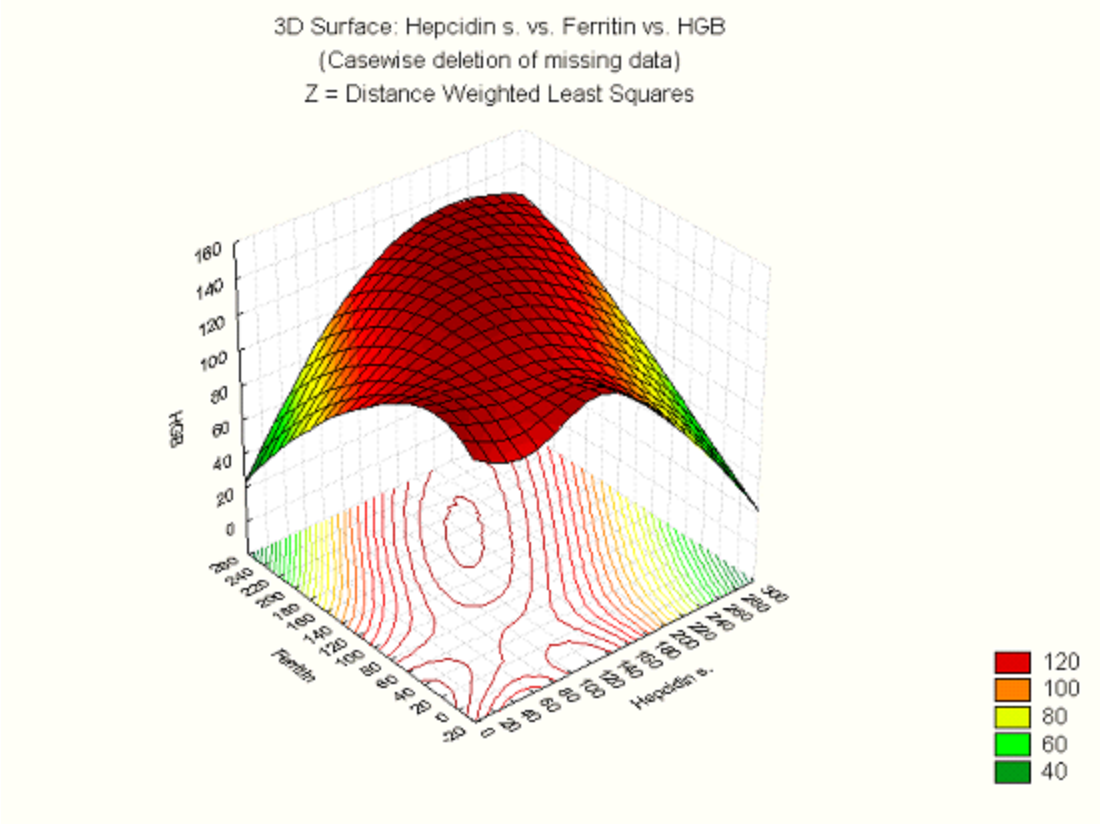
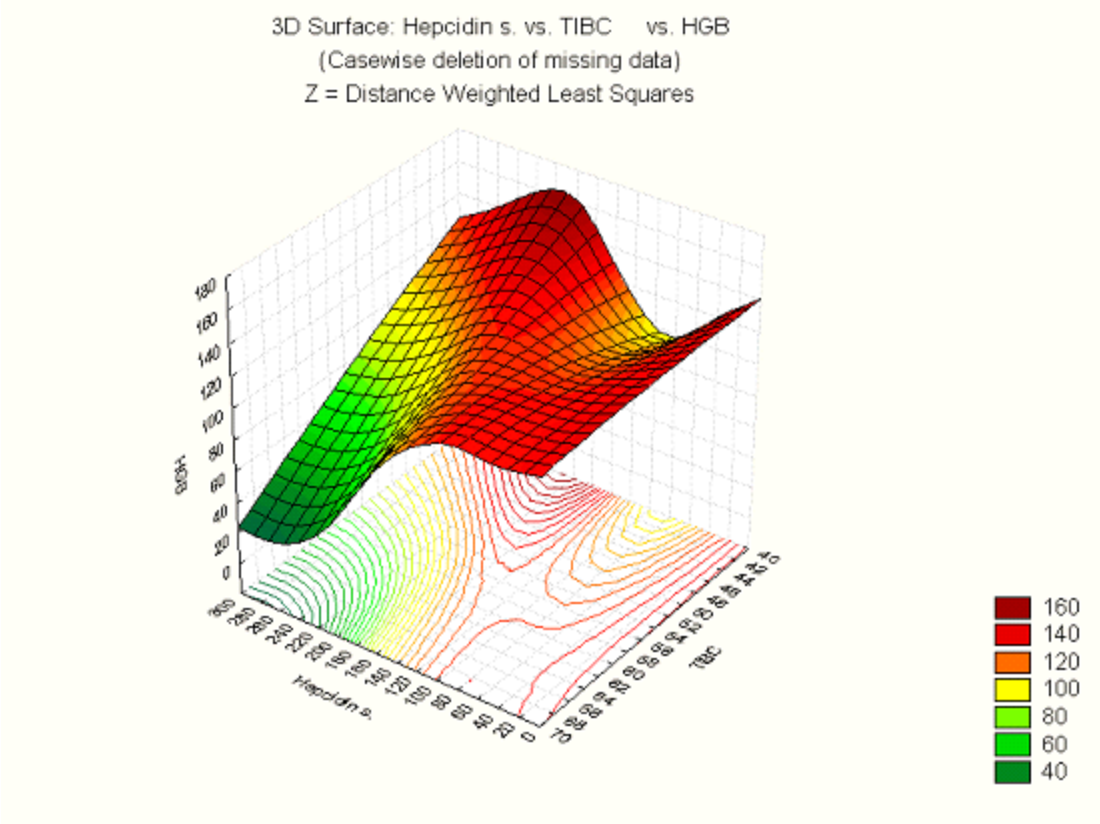


Figure 2.



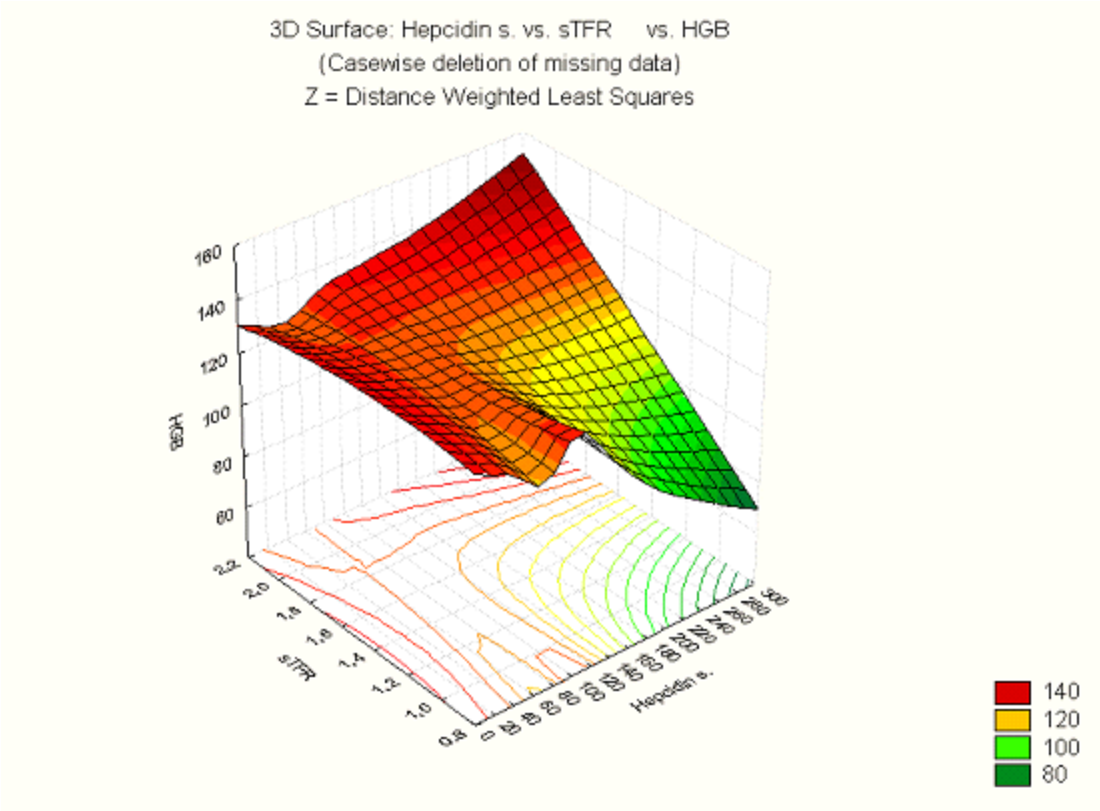
Dependence of hemoglobin level from hepcidin and ferroportin levels.

Figure 3.



Dependence of hemoglobin level from hepcidin and TIBC levels.

Figure 4.



Dependence of hemoglobin level from hepcidin and sTFR levels.

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Prevalence of chronic kidney disease in the elderly and senile patients with dyscirculatory encephalopathy

ABSTRACT

THE AIM OF THE RESEARCH. Cerebrorenal relationships between the early signs of cerebral atherosclerosis and the level of the calculated glomerular filtration rate (GFR) with account of the influence of risk factors (RF) of cerebrovascular diseases (CVD) in elderly and senile patients of the Republic Sakha (Yakutia), suffering from chronic brain ischemia (CBI) depending on the region of residence were under study.

PATIENTS AND METHODS. The study included 245 patients from 60 to 89 years, comparable by age and sex, were divided into two groups according to region of residence (Arctic and Antarctic), for two age groups (elderly and senile age) and by the sex. The main method of the study of cerebral hemodynamics in this work has been ultrasound dopplerography (usdg). Doppler sonography survey with color scanning and spectral Doppler analysis of the cervical arteries on extracraniallevel was performed according to standard method for ultrasound systems ACUSON «Sequoia-512» sensor linear format of the generated frequency of the ultrasonic signal 4 and 8 MHz in the ever-wave mode. All of the sample investigated the functional state of the kidneys. GFR, was determined by the settlement formulas; Cockcroft&Gault GFR= (140-age) × body weight (kg) 810* creatinine of blood (mol/l)×E, where E-1,23 for men, 1,04-for women and MDRD: GFR= 186×(creatinine of blood mg/dd)-1,154 × (age)-0,203 × (0,742 for women) with subsequent determination of the stages of chronic kidney disease. We used a brief MDRD formula, which of laboratory indicators requires only establishing the values of concentrations of serum creatinine.

RESULTS. The direct positive correlation between the thickness of intimate-media (TIM) and the average of the FCPF, and also found a statistically significant relationship between factors in the onset and progression of GFR and CBI, dependent on region of residence.

CONCLUSION. Features of cerebrorenal relations of persons of elderly and senile age in the Republic of Sakha (Yakutia) are caused by region of residence.

Keywords: the region of residence, ecology, elderly and senile age, chronic brain ischemia, chronic renal disease.

INTRODUCTION.

At the present time, there is a lot of scientific works, devoted to the chronic brain ischemia and chronic kidney disease. The study of vascular-cerebral diseases is one of the priority directions of domestic neurology, takes into account the higher prevalence of these diseases, frequent disability and mortality of patients [1]. In the last few years, there has been increasing medical and social significance of chronic forms of ischemic cerebrovascular diseases [6].

SKF is considered to be the most accurate indicator, reflecting the functional state of kidneys. focusing on her value of note stage of CKD. Currently, according to the large population-based

registers the prevalence of CKD is not less than 10%, reaching 20% or more for certain categories of persons (older, diabetes of the 2nd type) [2,3].

PATIENTS AND METHODS

The study included 251 patients with chronic brain ischemia (CBI) of the I and II stages. Diagnosis of CBI was placed respectively classification of vascular lesions of the brain Institute of neurology RAMS (1985), the wording of the diagnosis in accordance with ICD-10 . Criterion for the diagnosis was also instrumental confirmed by the defeat of vessels of a brain with the relevant clinical picture of the stages of the CBI (CBI -I; CBI -II). Proceeding from the purpose of all observations have been subdivided into the second group. Criteria of division is a region of residence. In accordance with the classification of E.B.Shmidt (1985) depending on the stage of the CBI groups are divided into subgroups; A patients with CBI - I and B patients with CBI -II stages.

I group observations made 174 patients in the subgroup A 87 , in the subgroup of B-87 living in the Arctic zone, the II group of 177 patients in the subgroup A -90, in the subgroup of B - 87, living in the Viljujsky zone . These zones are not the same due to its natural and ecological peculiarities, and people living in them, differed by the way of life, the nature of the basic lessons, the level of civilization, way of life, peculiarities of power. The main method of the study of cerebral hemodynamics in this work it has been ultrasound dopplerography (USDG). Doppler sonography survey with color scanning and spectral Doppler analysis brachicephalic arteries in extracranial level was performed according to standard method for ultrasound systems ACUSON «Sequoia-512» sensor linear format of the generated frequency of the ultrasonic signal 4 and 8 MHz in the ever-wave mode.

Examined both common carotid arteries in the longitudinal and transverse planes with a view to identifying cross-section, in which атеросклеротическая a plaque had the greatest size. Determining the percentage of stenos in the zone of maximum narrowing of the lumen of the artery, evaluated the characteristic plaques [4].

For descriptions of quantitative data calculated the mean value and the standard deviation. To establish the amount of the contribution of the factors in the General regularity contingency tables we focused on the value of a standardized balance in cells. For the assessment of the interlink ages quantitative variables the rank correlation was used. In all of the used statistical criteria for the threshold level of importance we took a value of $p<0.05$ [9].

THE RESULTS OF THE STUDY

In addition, between the indicators of the Cockcroft&Gault and MDRD installed private correlation in the control of influence of age: r=0.31 times when p=0,000. The initial atherosclerotic features of brain vessels and their influence on the functional state of the kidneys. The analysis of the severity of atherosclerosis changes of the main arteries of the heads of the studied shows the significant difference of the coefficient of asymmetry of blood flow, the characteristics of plaques (localization, surface structure, size, shape) and the thickness of the complex intimate media in the main arteries of the scalp.

On the occurrence of plaques the group is characterized by the lowest frequency of occurrence of atherosclerosis plaques (73%) in comparison with II (57.6 per cent). It should be noted that in group I of plaque size of more than 10 mm occur in 2 times less than in II ($\chi 2$=18,46, st.sv. 4, p=0.001) [7].

A comparative analysis of the thickness of the complex intimae-media according to gender shows that, on average, men have the thickness of the complex интимы-media more than the similar indicator for women (1,11±0,31; 1,18±0,31 against 1,08±0,31 and 1.14±0,30).

DISCUSSION

The purpose of our work was to determine the cerebro-renal interrelationships between early features of cerebral atherosclerosis (TIM and ASP) and the level of the calculated filter glomerular filtration rate with account of the influence of the traditional factors cerebrovascular diseases in elderly and senile patients depending on the region of residence.

Decrease in GFR serves as the main marker of a pathological condition-CKD, on the basis of which , as it is said in the literature, there is fibrosis kidney parenchyma, leading to the loss of all the functions [5]. Decrease in GFR and MAY serve as main markers of pathological state of chronic kidney disease (CKD). It is known that the vital resources of the human Ecology depends on negative factors of the environment (the bad ecology). Messages about the connection of morbidity CBI and CKD pollution of the environment are ambiguous and contradictory. A number of researchers have proven the strengthening of the risk of cerebrovascular disease through air pollution (Environment). Identification of high frequency of CKD patients with CBI in the assessment of the functional state of kidneys with the help of formulas indicates the simultaneous hypertension restructuring and atherosclerosis changes, as described in the literature [11] the different structural and functional levels of the brain and kidneys.

At the present time there is no doubt that the AG is one of the most important RF development and mechanism of progression of the CVD and CKD. Dyslipidemia occupies the leading position among the RF CVD and worsens the prognosis of any renal disease, and diabetic

nephropathy is one of the main reasons of development CKI. Is known from the literature that heart disease and kidney are interdependent and continuous chain of events, which some call cardiorenal continuum, and others cardiorenal syndrome. As they say in the literature, the risk of developing CKD increases with age [10], the decline in GFR with age was observed in our study [8].

Statement in these patients with different stages of the CBI thickness intimae-media of the common carotid artery (CCA) more than 0.9 mm and the apparent existence of atherosclerosis plaques implies a high probability of widespread atherosclerosis in these patients [12].

On the basis of our research it can be stated that the development and progression of chronic brain ischemia and chronic kidney disease in the studied patients of elderly and senile age goes in parallel, in this case the patients living in ecologically polluted Viljujsky region, revealed the direct and indirect signs of a more pronounced pathological aging of the central nervous system, which manifests itself in a more distinct atherosclerotic vascular disorders of the brain, as well as more severe renal dysfunction.

CONCLUSION

Thus, in patients with HIM takes place denominated atherosclerotic changes in blood vessels of the brain in the form of detection of atherosclerosis plaques, the combined stenos and high values of thickness of the complex intimae-media, dependent on the ecological state of region of residence.

Established positive relationship between RF onset and progression of CBI and the level of GFR demonstrates the unity of FR vascular lesions of the brain and CKD, the frequency of RF higher in patients residing in ecologically polluted region.

When conducting the correlation found a close relationship between atherosclerotic vascular changes in the brain and reduced kidney function, which points to the associated pathology of the kidney and the brain, which in turn determines a high risk of further progression of CBI with reduced kidney function.

When making heavier stage of the CBI and the declining kidney function, which indicates that the growth is also the stage of CKD and this explains the parallelism of the processes atherogenesis of the brain and the kidneys.

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CONCOMITANT INJURIES OF CHEST AND ABDOMEN: THE MINIMAL INVASION

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The results of surgical treatment of patients with combined chest and abdominal injuries are analyzed. The use of Computer Assisted Surgery technology has significantly increased the accuracy of diagnosis, and the introduction of minimally invasive techniques has shown to be indispensable in cases of severe trauma.
Keywords: injury, shock, diagnostics, treatment.

Introduction. Growth of injuries over the latest decade caused by processes of urbanization, natural disasters, criminal situation to a large extent shape up as civilization disease (1, 6). The main role in this problem belongs to road traffic situation, which is compared with "road war" (4, 9). Traumatism pattern is changing due to essential increase of multiple and concomitant injuries, which reach 80% (5). WHO reports about 3 place of polytrauma in the structure of mortality (7). It's confirmed that general element in development of shock as well as fatality in case of polytrauma is heavy internal hemorrhage (3, 8). Visualizing technologies are of great values in diagnostics of major concomitant injury when checkup is thickened by critical condition, impairment of consciousness, lay-up of damages of several systems (2, 3). In case of shock-producing polytrauma endovideosurgery also becomes the only possible method of treatment complying with fundamental principles of Hippocrates "Never do harm". However minimally invasive operations have not yet become common use in emergency, still being platform for development of selective surgery.

Purpose. To estimate efficiency of video-endoscopic surgery in diagnostic and treatment of major concomitant injury of breast and abdomen.

Material and methods. We have analyzed results of treatment of 128 patients with different types of concomitants injuries of breast and abdominal cavity organs using video-endoscopic technologies. Patients took treatments at thoracic department of Ivanovo regional clinical hospital during 2009 and 2012. Age of patients were from 15 to 74 years old (average 33±2,5). Among them there were 83 men and 45 women. The reasons of injuries were (fig.1): pedestrian accident at 98 (2 of them had railway injury) people (76,6%), fall from a height – 17 (13,3%), compulsive actions – 5 (3,9%), impaction – 2 (1,6%) and others – 6 (4,7%). In addition 113 (88,3%) people had non-penetrating trauma, but 15 (11,7%) people had thoracoabdominal injuries. It is important to note, that all thoracoabdominal injuries are suffered as a result of criminal circumstances. Mostly injured were delivered to the hospital far gone. Injury severity were defined according to International standards (AIS and ISS scales), but condition severity according to APACHE II system. Diagnostic of traumatic shock level and fate prognosis was conducted according to Nazarenko score scale (includes hemodynamic parameters, injuries morphology, continuity time of shock). 16 patients' (12,5%) condition was critical and they died during 2 hours at a time when reanimation being performed. In addition 19 (14,8) people with major, amphibolous injuries (5 scores according to AIS) shortly after operation had complications that brought on death. Package of diagnostic maneuver included X-ray examination of breast, ultrasound investigation of abdominal cavity and

retroperitoneal space, video laparoscopy, video thoracoscopy. According to indications X-ray scan of continuities, axis and skull. 106 (82,8%) patients 24 hours a day have multi-layer spiral CT (MSCT) within the program of decreasing road accidents mortality since 2008.

Results and discussion. Diagnostic final stage of all patients depending on detected injuries was endovideoscopy. In case of major trauma shock endoscopy was the only method of instrumental examination. In this situation procedure of injury control system was performed immediately and concurrently with intensive therapy (so called anti-shock therapy) in special anti-shock operating room. Immediately after delivering 4 patients had thoracoscopy, 7 – laparoscopy, and 2 toracoscopy and laparoscopy simultaneously. Others had torocoscopy in 39 cases, laparoscopy in 78, toracoscopy and laparoscopy in 4 cases. Amount and order of operations complied with damage control system. According to videotoracoscopy indications 33 had hemothorax, 14 – pneumatothorax not corrected after drain. During thoracoscopy all patients are diagnosed following injuries: lung laceration – 17, lung laceration with hemorrhage from intercostal vessels – 8, hemorrhage from intercostal artery – 4, hemorrhage from intrathoracic artery – 2, costal hematoma – 11, cordis trauma (pericard, right atrium) – 2, hemothorax without detected source of hemorrhage – 3. Using videoendoscopic methods 39 (83,0%) patients were performed necessary amount of surgical aid in different combinations: intercostal vessels closure – in 5 cases, intercostal vessels coagulative hemostasis – 7, congelation of lung slight defects – 14, closure of lung major injury – 7, costal hematoma disclosure – 11, hemothorax elimination (including clotted) – 21 cases. All patients had sanitation of pleural cavity. Procedure was finished by setup of 1 or 2 basal apical drain tube with follow-up active vacuum aspiration system during 3-5 days. Conversion to thoracotomy was performed in 8 patients. Open operations indications were: intrathoracic artery injury with endless intrapleural hemorrhage – 2, deep lung laceration with endless hemorrhage – 3, lung crush injury – 1, cordis trauma (right atrium pericardia laceration) – 2. 4 people had traditional thoracotomy. In other 4 cases the second stage was video assisted thoracal surgery (VATS). Instrument developed by authors was extensively used in operations (useful model patent 84211 of 10.07.09). In 7 findings rupture of diaphragm was detected and hemoperitoneum was diagnosed. In addition 3 people through cupula defect were detected to have hepatorrhexis, 2 – ruptured spleen. Initially rupture of diaphragm was made. Then laparotomy with reversal of abdominal cavity organs injury (fig.3) was done. Separate group was 11 patients who had hemothorax with multiple floating cough fracture. All injured were in major condition according to AIS and ISS scales. According to APACHE II system condition severity was evaluated in 5 score. In order to eliminate pathologic lability of ribs and intrapleural complications we normalized breast bone skeleton using method of mini invasive wire fixation under thorascopic control. In our observations lung capacity mend and arterialization were registered in a day after fixation. 7 patients had early transfer from lung ventilator to spontaneous breathing. There was early activation of patients in 9 cases. We didn't notice suppurative complications and duration of stay of patients at emergency department and hospital was dramatically shortened. 87 patients had video laparoscopy. Laparoscopy indications in case of concomitant injury were: high energy mechanism of injury (road accidents, fall from a height, impaction), any abdominal presentation, altered state of consciousness, hematogenic shock and clinical picture of acute blood loss without source of external hemorrhage. Laparoscopy also was done after detection of free fluid and gas in breast based on the results of another testings no matter of clinical picture. During laparoscopy we diagnosed: hemoperitoneum without endoscopically detected source – 17, ruptured spleen – 38, hepatorrhexis – 21, ruptured intestine – 7, rupture of diaphragm – 4. In 28 (32,2%) cases necessary operation was done endoscopically. In any stigma of intraabdominal hemorrhage drain tube to abdominal cavity through endocamera port was setup in order to control injury possible evidence in postoperative period (fig.4). Other 59 (67, 8%) patients had conversion. Laparotomy indications were profuse hemoperitoneum with endless hemorrhage, gastrointestinal contents to abdominal cavity. Different operations were made to

patients: (splenectomy, hepatorrhexis closure, ruptured intestine closure, ileostomy, sigmoidostomy). Due to condition severity 3 (4, 2%) people died during operation. Total postoperative lethality was 23,8%.

Conclusions. Usage of endovideosurgery technologies significantly increased delicacy and promptness of diagnostics of abdominal and breast cavity organs injuries. Full volume of necessary operations in 67 (52, 3%) cases was made endoscopically. We managed to escape unreasonable explorative thoracotomy in 39 (83, 0%) cases which often were fatal stage in pathogenesis of traumatic shock. Used miniinvasive method of recovery of chest under thoracoscopic control reliably stabilized chest wall escaping wide dissection of injured soft tissues. Respiratory distress was reduced in all operated patients thanks to recovery of chest excursion; paradoxical respiration correction eliminated mediastinal flutter and accompanying pathological shock producing impulsation; there were no complications. Insertion of mini invasive technologies showed its indispensability in case of major shock producing injuries, when unjustified open operations act as fatal stage in trauma shock pathogenesis.

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POLYTRAUMAS REASONS

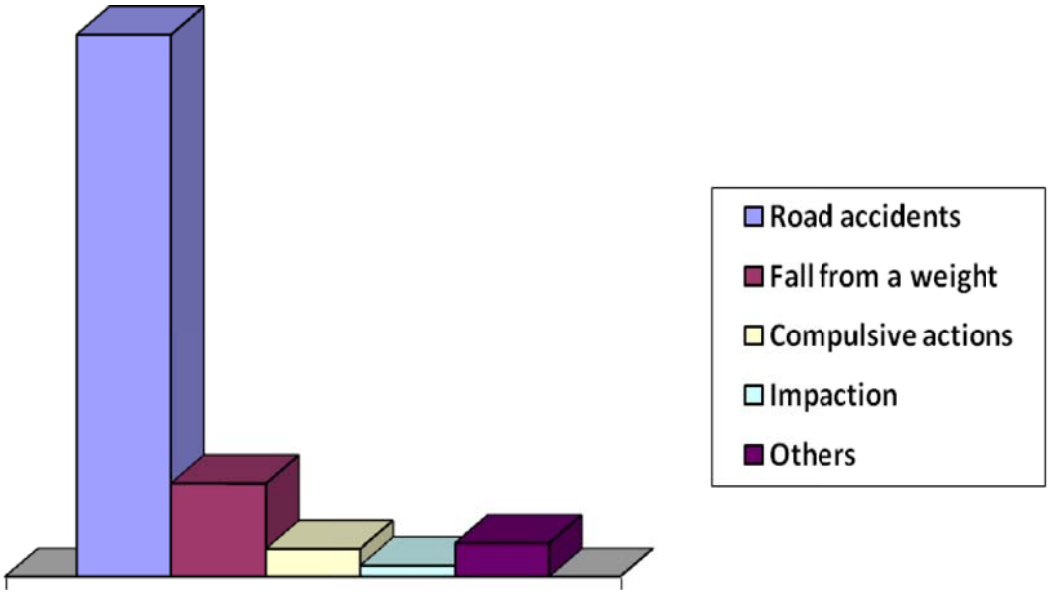

Fig.1

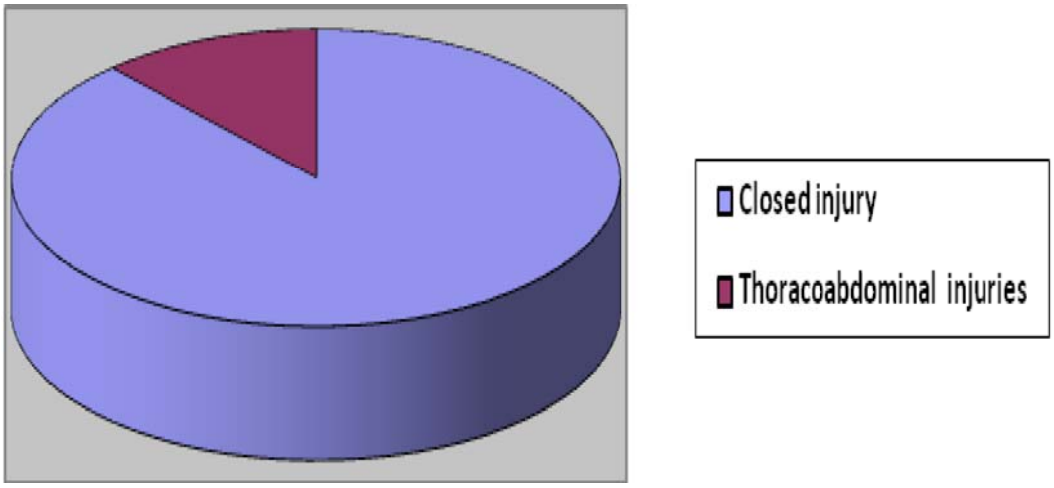

Fig.2

THORACOSCOPIC OPERATIONS RESULTS

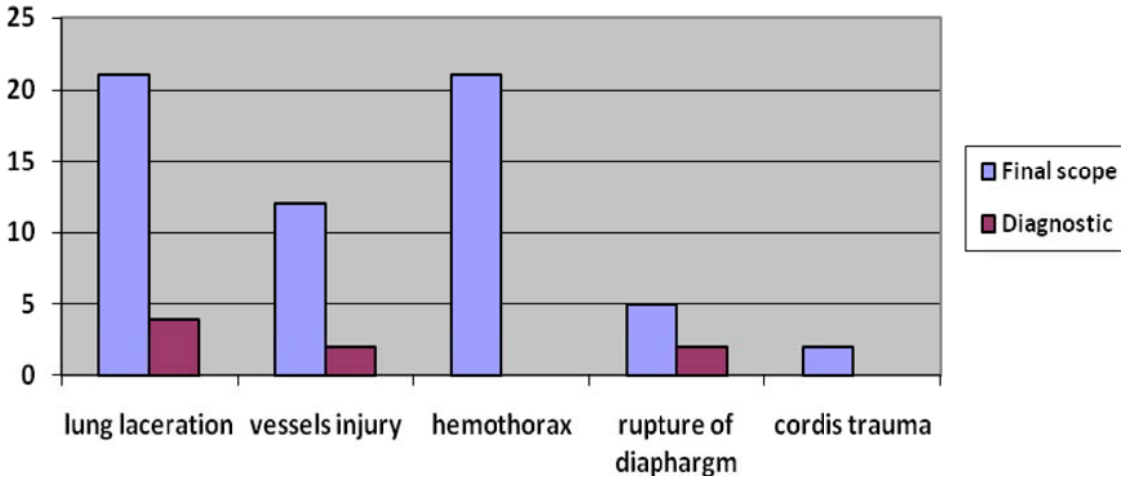

Fig.3

LAPAROSCOPIC OPERATIONS RESULTS

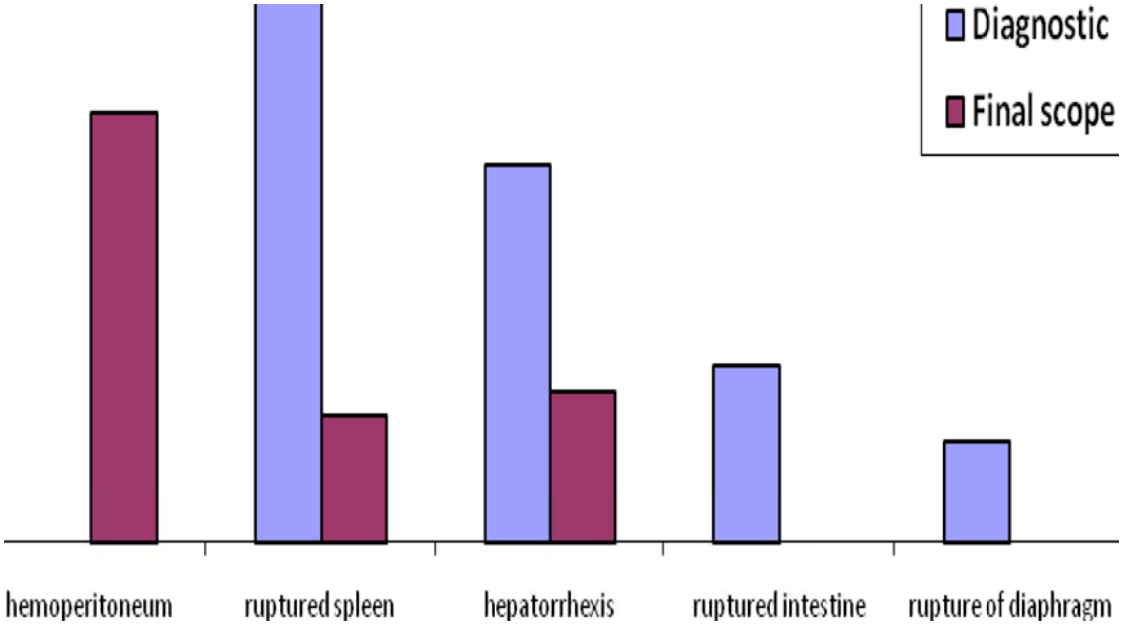
Diagnostic
Final scope
hemoperitoneum
ruptured spleen
hepatorrhexis
ruptured intestine
rupture of diaphragm

Fig.4

P.I. Zakharov, A.V. Tobokhov

SURGICAL TREATMENT OF GENERALIZED ATHEROSCLEROSIS WITH THE COMBINED HEMODYNAMICALLY SIGNIFICANT LESION OF CORONARY AND CAROTIDARTERIES

Abstract

This article illustrates surgical treatment results analysis of 98 patients with the combined disease of coronary and carotid arteries. The patients underwent a multi-step (69) or a single-step (29) surgery. On the basis of received results, a strategy of surgical tactics has been offered on how to treat this category of patients.

Keywords: combined disease, coronary and carotid arteries, postinfarction aneurysm of left ventricle, single-step and multi-step surgeries.

The aim of this work - to study the results of the milestone and simultaneous operations on the carotid and coronary arteries to produce optimal strategy for patients with co-hemodynamically significant lesions of the carotid and coronary arteries.

Materials and Methods

During the period from 2001 to 2011g.g. we operated on 98 patients with concomitant hemodynamically significant lesions of coronary and carotid arteries in age from 42 to 69 years, mean age 54.3 years, the patients were all male. Of these, 69 patients underwent staged surgery of the carotid and coronary arteries - I group, the other 29 patients underwent simultaneous operations on the carotid and coronary arteries - II group, significant difference in age between the groups ($p = 0.57$). Most patients in both groups belonged to the III and IV angina. Table 1 shows the distribution of patients in functional class (FC) in the two groups before surgery.

Among the patients in group I patients with angina dominated FC II - III (81.2%), while Group II patients with angina dominated III and IV CHF (86.2%). It should be noted that in group II operated with unstable angina 13.8% when they were in Group I of - 1.4%. Patients operated with class II angina in group I -26.1%, and in group II were not. Thus, most operated in both groups of patients with III and IV angina (76.6%).

According to the degree of chronic cerebral vascular disease (HSMN), the majority of patients treated HSMN II degree (see Table. 2).

It should be noted that among the patients operated on in the asymptomatic stage HSMN in group II was 31.0%, and in Group I, there were only 17.4%. Also note that in both groups the percentage of operated in the III and IV Art. HSMN about the same. Thus, only asymptomatic stage HSMN operated 21.5% of patients, in Article II. HSMN operated 61.2% of patients. Operated in the III century. HSMN up 12.2%, in Article IV. HSMN - 5.1%.

Volume of transactions with combined lesions of the carotid and coronary arteries in both groups is presented in Table 3.

As seen in Table 3 patients in group I carotid endarterectomy (CEA) and coronary artery bypass grafting (CABG) performed in 42 (60.9%) patients, and patients in Group II - in 19 (65.6%) cases. Total operations - 61 (62.2%).

CABG, resection of the aneurysm of the left ventricle (RALZH) patients in group I performed in 18 (26.1%) patients, and patients in Group II - 7 (24.1%) cases, only two groups - 25 (25.5%).

CABG, thrombectomy of the left ventricle (TLZH) RALZH and CEA performed in patients in group I - 9 (13.0%), and Group II - 3 (10.3%), only two groups - 12 (12.3%).

It should be noted that in Group II simultaneously CEA and CABG performed on a beating heart 3 (15.8% in this group) patients. To reduce the risk of cerebrovascular accidents in the first simultaneous operations performed carotid endarterectomy, then revascularization.

Group I first stage is performed carotid endarterectomy, then after 10 - 15 days performed heart surgery. It should be noted that bilateral CEA performed 7 patients in group I, on the 4th of them simultaneously performed bilateral CEA, the rest of the 3rd patients - in stages, with the interval between the operations of 7 days.

Three patients from group II made redressatsiya kinkinga ICA. The volume of interventions on the carotid arteries are shown in Table 4.

As can be seen from Table 4 in both groups, most of operations performed on the carotid arteries - the carotid artery patch plasty outs, CEA overlapping seam line on the artery and eversion CEA (56.5% and 51.7%, 17.4% and 27 6%, 20.3% and 17.2%, respectively, in groups I and II).

Discussion of Results

All patients discharged from the hospital in both groups reported significant improvement of health and reduction of angina, the majority of patients at discharge treated 0-I angina - 87.0% and 83.0% in groups I and II, respectively. These results are consistent with other authors [2,5,8,12] (see

Table. 5).

In Group I, one patient died after perioperative myocardial infarction with the development of progressive heart failure with a fatal outcome in the early postoperative period. In group II died two patients: one patient due to myocardial infarction in the perioperative period with the development in the immediate postoperative period of multiple organ failure on a background of gastrointestinal bleeding and a second patient from ischemic stroke with the development of brain edema.

Contractile function of the myocardium in the immediate postoperative period in both groups decreased (see Table 6)..

By echocardiography (echocardiography), the kinetics of the left ventricle in both groups improved by analyzing the data of pre-and post-operative period can reliably ensure that adequate revascularization increases normokineza zones and reduction of hypokinetic areas, thus improving both systolic and diastolic function the left ventricle.

Analysis of the results of the carotid arteries in the immediate postoperative period in both groups are shown in Table 7.

Most patients in both groups after surgery, CEA in the immediate postoperative period, there was some improvement - 78.2% and 55.2% respectively in groups I and II, the results remained unchanged in 17.3% of patients in group I and 31.0% in group II, the deterioration was observed in 3.0% of patients in group I and in 6.9% of patients in Group II. From ischemic stroke in the immediate postoperative period II died in group 1 (3.4%) patients died from other causes, one patient - 1.5% and 3.4% in groups I and II, respectively. Draws attention to some reduction in CEA results in group II patients studied.

Complications in the immediate postoperative period after the combined operations of the carotid and coronary arteries are shown in Table 8.

As seen in this table, the rate of complications in the early postoperative period after a few more simultaneous operations on the carotid and coronary arteries. Both groups are more common pulmonary complications and bleeding, with simultaneous operations are more common ischemic: stroke - 1.4% and 6.9%, TIA - 1.4% and 3.4% in groups I and II, respectively.

We also conducted an analysis of mortality in the immediate postoperative period, depending on the total amount of the operation (see Table 9)..

Direct dependence of mortality from heart surgery performed not clear, however, significantly increase mortality in patients of group II.

Mortality occurs in patients III and IV angina II group also notes the absence of mortality in

4 patients with unstable angina in operated simultaneously on the carotid and coronary arteries, whereas the patient with the same diagnosis from group I died in the immediate postoperative period. These data are consistent with the results of other authors [1,7, 9,11] (see Table. 10).

In the analysis, depending on the initial state of Art. HSMN notes mortality among patients with stage III and IV HSMN in both groups (see Table. 11).

It should be noted that patients with a landmark performance of operations was the cause of mortality in patients with unstable angina, perioperative myocardial infarction, it is obvious there was a need surgery simultaneously in both regions of the arterial system. At the same time there is a higher rate of mortality in patients undergoing one-stage operation in the carotid and coronary arteries with III and IV Art. HSMN. Our results of surgical treatment of associated lesions of the carotid and coronary arteries are consistent with the majority of authors [3,4,6,9,10].

Findings

1. Patients with concomitant coronary and carotid arteries, an individual approach to address the issue of staged or simultaneous operation, depending on the tolerance of the brain to ischemia and angina degree.

2. Patients with a high degree of tolerance to cerebral ischemia preferable landmark performance of procedures in these patients when there is a high degree of angina to the first phase of myocardial revascularization.

3. Patients with a low degree of tolerance to cerebral ischemia is necessary to satisfy a one-time, in the presence of low degree angina preferred embodiment of the method of staged (stage CEA) operations.

4. Conducting simultaneous operations increases the risk of stroke in the immediate postoperative period in patients with poor perfusion reserve of the brain, it is necessary to use additional methods of protecting the brain from ischemia during surgery.

5. In the presence of low-grade angina and a high degree of tolerance to cerebral ischemia, preference should be given to simultaneous operations on the carotid and coronary arteries.

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Immunehistochemical study of apoptosis marker p53 as a prognostic factor for breast cancer

Abstract

The increase of morbidity and invalidization frequency of patients with the breast cancer stipulates a necessity to find of the new diagnostic ways and prognostic markers with the aim for early diagnostic, optimization and individual way of therapy that will allow to improve the quality of life, patients physical and social rehabilitation. The analysis of results of histological research of operational materials from women of different age groups with the breast cancer with the subsequent immunohistochemistry (IHC) definition expression of mutation suppressor gene p53. Obtained data testify that IHC-research expression of mutation p53 correlate with high histological malignancy degree that proves need of the account apoptoziz in estimation of the malignant potential and defining breast cancer.

Keywords: breast, cancer, immunohistochemistry, suppressor gene p53, histological malignancy degree.

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A comparison of the degree of calcification of the coronary arteries and the results of perfusion scintigraphy in different ethnic groups in Yakutia

Antipina V.V., Voevoda M.I, Gyrgolkau L.A., Shcherbakova L.V.

The authors made a comparison of the quantitative value and volume of calcium in the wall of the coronary vessels and the results of perfusion scintigraphy in patients of different ethnic groups in Yakutia with coronary artery disease.

Keywords: calcium index, CT, the amount of calcium, atherosclerosis, indigenous, non-indigenous, perfusion scintigraphy.

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Features of the microbial spectrum gallbladder bile obtained during duodenal sounding in patients with cholelithiasis

A.L. Korkin, E.A. Ugorelova, D.P. Kislitsin

Summary

Patients aged 57, 8 ± 14, 4 years, with painful form of cholelithiasis were under study. The microbial spectrum of gallbladder bile obtained from the gall bladder intra –operationally - during cholecystectomy and duodenal sounding was analyzed. Statistically significant differences in the frequency of bacteriocholia in patients with cholelithiasis at the duodenal and intrabladder bile sampling were not revealed. In the bile, taken at the duodenal sounding, a statistically significant excess of conditionally pathogenic microorganisms: Streptococcus and Candida fungi groups, represented in the oral cavity, was revealed, which should be considered when interpreting the microbial spectrum of duodenal bile aspirate and addressing the need for antibiotic therapy.

Keywords: bile, bacteriocholia, cholelithiasis, diagnostics.

Introduction. Adequate selection of antibiotic therapy for inflammatory diseases of the gallbladder and biliary tract is a major problem in hospitals around the world [1,4,6]. Noted the increasing role of gram-positive bacteria and fungi [3,6]. The most relevant pathogens of nosocomial infections are microorganisms of the family Enterobacteriaceae. [1] Staphylococci in bile detected in 14-30% of cases [4].

Fence bile on research in therapeutic departments of hospitals traditionally performed during duodenal sounding. [2] Conducting bacteriological study of bile from the gall bladder is only realized in the surgical department of the hospital - intraoperative [2].

The purpose of this study was to determine the features of the microbial spectrum of gallbladder bile obtained during intra-duodenal sounding and gallbladder puncture in patients with painful form of gallstones (cholelithiasis).

Materials and methods. In the surgical ward and the clinical diagnostic clinic EDO Khanty-Mansiysk examined 142 patients aged 57,8 ± 14,4 years, with painful form of cholelithiasis. Group consisted of 74 people who have a fence was made of bile from the gall bladder intra - during cholecystectomy. Study group comprised 58 patients with gallbladder bile fence, made in the course of duodenal sounding (see table).

Bile samples were examined for anaerobic and facultative anaerobic opportunistic microbes. Initial seeding material and identification of isolates was carried out according to the Methodological guidelines [5]. Reliability of the results interpreted using the Pearson goodness of fit chi-square test - $\chi 2$.

Reliability of the results interpreted using the Pearson goodness of fit chi-square test - $\chi 2$.

Results. Microflora in the bile of a comparison group of patients detected in 43% of cases in the study group - in 58% of cases ($p > 0,05$; see table).

In the microbial spectrum of bile in patients comparison group dominated gram-negative bacteria (63%): the genus Escherichii Klebsiellae and in 70% of cases (see Table 1).

Gram-positive organisms in the control group (37%) presented cocci: the genus Enterococcus, Staphylococcus and Streptococus in 85%, which corresponds to the literature [4].

In the main group a statistically significant excess of Gram-positive microorganisms when

compared to the comparison group, mainly due to the genus Streptococus and Staphylococcus (p <0.05, see table).

Microbial spectrum of gram-negative microorganisms in the study group before and bacteria of the genus Escherichii Klebsiellae, which corresponds to the control group (p> 0,05; see table).

Conclusion. Statistically significant differences in the frequency of bakterioholii patients with cholelithiasis and duodenal bile intrapuzyrnom fence is not revealed.

In patients with gallstone in the bile, resulting in intrapuzyrnom fence, in 63% of Gram-negative bacteria are sown, and presented native Escherichii Klebsiellae.

In the bile, resulting in duodenal sounding, a statistically significant excess of conditionally pathogenic microorganisms: genus Streptococus and fungi Candida, presented in the oral cavity, which should be considered when interpreting the microbial spectrum of duodenal aspirate bile and addressing the need for antibiotic use.

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EXPERIMENTAL STUDY OF THE CONFINING FORCE OF CAST AND BENT METALLIC KLAMMERS IN THE COMPARISON WITH THE ELASTIC NYLON DEPENDING ON THE PRESENCE OF EQUATOR ON THE ABUTMENT TEETH

Abstract

The force of the fixation of nylon, cast metallic and bent metallic klammers to the supporting teeth has been investigated on the model of the dental defect. The stronger fixation to the supporting teeth with the expressed equator of metallic cast and bent klammers in the comparison with elastic nylon klammers has been revealed.

Keywords: detachable nylon dentures, the force of the klammers fixation.

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CONCERNING THE QUESTION OF ADAPTATION OF CHILDREN-NORTHERNERS TO NEW CLIMATIC GEOGRAPHIC LIVING CONDITIONS IN THE CENTRAL SIBERIAN REGIONS

Petrova I.A., Evert L.S., Zaitseva O.I., Platonova N.V.

Abstract

In article the concept about adaptation, adaptation stages are given. Questions of influence of adverse factors of Far North on a state of health of the children's population of these regions, features of a course of adaptation process at children who have moved to a constant residence in new climate-geographical conditions of accommodation are in detail considered.

Keywords: children, adaptation, adaptation and disadaptation mechanisms.

Adaptation is a process of adjustment of the organism to changing environmental conditions; it is an international term meaning accommodation of the organism to general natural, industrial, and social conditions. This term is used to name all kinds of innate and acquired adaptive activities with the processes on the cellular, organic, systemic, and body levels. Adaptation is, no doubt, one of the fundamental qualities of the living matter. It is an integral feature of all known forms of life, so comprehensive that not infrequently it is equated to the very notion of life [1].

Theoretical prerequisites of adaptation are disclosed in G. Selye's doctrine on the general adaptation syndrome [27]. Adaptive result can become apparent on the molecular, cellular, homeostatic, behavioral and psychic levels of organization of the entire organism. At the same time the healthy is characterized by the well-coordinated cooperation of different functional systems providing optimal homeostasis and adaptation to the habitation conditions [5].

In the process of adaptation under the influence of very strong or long impact of unfavourable environmental factors or because of the weakness of adaptive mechanisms disadaptation (derangement of adaptation) develops in the organism followed by pathological conditions – diseases of adaptation [2,3].

Between 'health' and 'pathology' there is a wide range of transitional conditions which were systemized by Baevsky R.M. from the point of view of adaptation theory:

- condition of satisfactory adaptation to the environmental conditions when homeostasis is maintained at the minimal tension of the regulatory systems;

- condition of tension of adaptive mechanisms at which homeostasis is maintained thanks to certain tension of the regulatory systems;

- condition of unsatisfactory adaptation to the environmental conditions which is characterized by decrease of functional reserve accompanied by the following increase of the regulatory systems tension and is the evidence of latent or initial pathology;

- derangement of adaptive mechanisms is seen when functional reserves are significantly reduced; homeostasis is broken [4,5].

From the clinician's point of view, three conditions are distinguished (in accordance with the stages of adaptation process): 1) premorbid condition (unsatisfactory adaptation); 2) prenosological condition (tension of adaptive mechanisms); 3) pathological condition (derangement of adaptation). Diagnosis of premorbid and prenosological conditions is a complicated and important problem in medicine [1,3].

There are two stages in the development of the majority of adaptation responses: initial stage of urgent but unfinished adaptation and long lasting adaptation originating from repeated realization of urgent adaptation in prolonged effect of the environmental factors on the organism.

The most significant negative stress-factors in the conditions of the far-away northern regions which influence the state of health, mental and physical efficiency, physical development, the course of the disease include effect of low temperature, long lasting solar insufficiency, sharp drops of atmospheric pressure, changes of partial oxygen pressure, magnetic storms, relationship of the physical condition and the season, etc. [6].

Man's activities in the conditions of the far-away northern regions go by at the breaking point of their physiological potentials at almost total mobilization of functional reserves. Stable adaptation is connected with permanent tension of controlling mechanisms, change of nerve and humoral relations, which in certain conditions can deplete. In the course of the development of adaptive processes hormonal mechanisms are the most exhaustible link. This process may result in temporary disadaptation as one of the last stages in adaptation to high doses of harmful factors [10].

The problem of adaptation and disadaptation is of large importance for the population living in the conditions of northern latitudes. Extreme conditions of the far-away northern regions worsen the qualitative characteristics of health, reduce reserve capabilities of homeostatic systems and can contribute to the development of pathology. Ecological conditions of the far-away northern regions

markedly influence the formation of the growing organism, its condition, and the development of its physiological systems [6,8,9,10].

The cardio-vascular system is a universal indicator of functional reserves and compensatory adjusting functions of the organism including adaptation to new environmental conditions [8,12]. The cardio-vascular system is one of the first to react to unfavourable conditions of the environment and to take part in the process of adaptation to extreme conditions [15,19,20].

Functional immaturity of the cardio-respiratory system in children in the conditions of the North becomes apparent in decrease of the threshold level of the intensity of physical exercise in which switching of the breathing and heart work regulatory type from volume to frequency takes place, it decreasing the efficacy of the organism response to the external action. This switching is accompanied by pulse acceleration, increase of blood pressure, and that of resistance of peripheral vessels, hypertrophy of the cardiac parts, cardiac rhythm disturbance, and disorders of the vegetative regulation [16,17,18,19,21,23,24].

The research showed that the process of adaptation to the conditions of the North is accompanied by the development of morphological and functional changes in the pulmonary circulation, not infrequently by the formation of the syndrome of primary northern arterial hypertension of the pulmonary circulation [20,21,25]. Arterial hypotonia is one of the most wide-spread pathologies in the conditions of the North [8].

In long habitation in the far-away regions of the North (10 years and more) the further change of circulatory system functioning takes place. It is characterized by the tendency to bradycardia, marked decrease of systolic and minute blood volumes, compensatory decrease of blood pressure, and peripheral vascular resistance. One believes that it is caused by the exhaustion of regulatory mechanisms, and strengthening of parasympathetic control [12,17,19,21].

In the period of seasonal changes practically all children had listlessness, paleness, slowed down responses or non-motivated irritability, headaches, dizziness, nausea, fluctuations of blood pressure were also noted, increase of HR, sleep disorders, reduced appetite, and exacerbation of symptoms of chronic diseases. One of the factors of the decrease of children's health level in the North is sharply limited natural motor activity, i.e. pronounced hypodynamia is noted in the North. Among the factors hindering adaptation, one singles out peculiar features of educational process, immaturity of educational activity skills, individual features of child's personality, teacher's negative attitude to a pupil, unstable social status of the family, etc. [5].

In the structure of children's diseases in the majority of northern territories diseases of the alimentary tract are on the first place and those of the muscular-skeletal system on the second place.

In the considerable part of children disorders of the cognitive activities, essential developmental lagging, signs of emotional trouble, and peculiarities of cognitive activity formation were revealed. In children-northerners early and mass development of myopia and astigmatism was noted [21].

The majority of works on the study of vegetative nervous system (VNS) in the ontogenesis are devoted to the central links of regulation, membrane mechanisms of providing functional reserves and compensatory adjusting responses being studied insufficiently. The significance and necessity of the study of adaptive role of biophysical properties of the erythrocyte membrane lipid bi-layer, peculiarities of cellular response types and their importance as criteria for the assessment of adaptation and re-adaptation of children-migrants from the North to new climatic geographical living conditions [13].

Any adaptation process is connected with regulation readjustment of both central links of the VNS and effector links on the level of membraneous cell receptors. The interaction of membrane cell structures with the environment may be one of the primary links in the complicated chain of forming adaptive regulation type in given ecological conditions. Membranes play the leading role in the formation of adaptive responses on the level of cells, organ tissues, and the entire organism [7,14] .

The majority of membranological studies were conducted and are being conducted on the membranes of blood cells and, first of all, on erythrocytes. It is conditioned by the fact that there is no nucleus, mitochondrion and other intracellular structures. The membrane preparations isolated from these cells are relatively homogeneous and are not contaminated by other membranes. Erythrocyte membranes are relatively easy to get in big numbers, at the same time they preserve their native properties, it being a suitable test subject. The type of vegetative response is determined by the reaction of membranes in vitro on the injected hormones and mediators. The dynamics of chlortetracycline probe fluorescence is measured in time and intensity [11].

The actuality of the topic under consideration is conditioned by obvious social significance of the problem, necessity of search for its solution with the help of assessment of child's organism adaptation state to the conditions of the changed environment and revealing children with tense unsatisfactory adaptation or its break among children-northerners, the study of risk factors of adaptive processes disorders (including metabolic ones), elaboration of prophylactic measures aimed at preventing pathological syndromes and states conditioned by disadaptation (arterial hypertension, syndrome of vegetative dysfunction, syncopal conditions, recurrent headaches, rhythm disturbances of rhythm and cardial conduction) and social and psychological disadaptation in children-migrants from the North.

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THE INFLUENCE OF THE YAKUT KUMYS ON SOME PROOXIDANT-ANTIOXIDANT INDICES OF SPORTSMEN

Abstract.

We investigate the influence of the Yakut kumys on lipid peroxidation and antioxidant system of sportsmen volunteers (freestyle wrestlers) aged 13-16 years during the recovery period in the summer sports camp "Rodnik" of the Republic Sakha (Yakutia). The athletes were divided into two groups: who drank kumys and who did not in the recovery period. The studies showed that on the 11th day of recovery period in the group of athletes who drank kumys by the scheme within 10 days, the concentration of tiobarbiturat - active products in erythrocyte membranes decreased in 1.57 times, while in the group of athletes who did not drink kumys- had remained at a high level. The content of low molecular antioxidants in the second group of sportsmen increased in 1.68 times, which was on 42% higher than in athletes who did not drink kumys. The level of ascorbic acid in the second group increased in 1.59 times, in the first group its content decreased in 8%.

Thus, it was confirmed that the Yakut kumys reception by athletes during the recovery period due to the scheme helped to reduce the intensity of lipid peroxidation and non-enzymatic activation of antioxidant defense, i.e. was the effective method in accelerating the recovery of the body.

Keywords: kumys, wrestlers, recovery period, lipid peroxidation, antioxidant system.

Introduction.

The study of adaptive reactions in athletes who train in Yakutia, is of particular significance, since the impact of extreme climatic factors are the cause of having a "polar tension syndrome". The main components of this polisindrom are oxidative stress, lack of detoxification processes, disorders of northern type of metabolic, northern tissue hypoxia, etc. [1, 2, 10]. Physical activity activates the sympathoadrenal system, increases oxygen consumption, which leads to the acceleration of the oxidation processes, including pathway of lipid peroxidation (LPO). In freestyle wrestlers and boxers Yakutia excessive activation processes (LPO) and reduced activity of antioxidant defense, is

most pronounced during the recovery phase, which plays an important role in slowing the recovery of the body and in lowering of physical performance [4]. One of the possibilities to speed up the recovery processes, improve efficiency is targeted regulation of metabolism by dietary factors. Therefore, we felt it appropriate to use koumiss as a means, for the recovery of athletes. Koumiss has long been a traditional national drink of Yakuts. It was usually used especially during haying operations, as it is quickly absorbed by the body and restores power [6]. Koumiss has a broad spectrum of action, it includes a variety of low and high molecular substances: proteins, vitamins, amino acids, mineral salts, active agents, etc. [7].

The rationale of koumiss will significantly enhance the ability of non-pharmacological medical support for sports activities. Impact of the Yakut koumiss on prooxidant-antioxidant parameters of athletes have not been studied.

Material and methods.

The study was conducted on 40 athletes, volunteers (freestyle wrestlers) of School of the Olympic Reserve (RBM) aged 13-16 years during the recovery period in the summer sports camp "Spring." The athletes were divided into two groups: the first (20 persons), which did not take koumiss in the period of reconstruction and the second (20 persons), which is daily for ten days took 250 ml 4 times in a day (3 times for 20-30 minutes before meals and at bedtime). Koumiss was manufactured by JSC «Sahaplemobedinenii" standard technology of mare's milk "Us Kut" TU 9222-001-55673105-2009. Compliance certificate from the Russian Federation № 0497019 RU.AE84.V.06712 TP.

Intensity of lipid peroxidation was determined by spectrophotometry method on the accumulation of tiobarbiturat - active products (TBA-AP) in the membranes of red blood cells [13]. Indicators of non-enzymatic antioxidant defense level was determined by the total content of low molecular weight antioxidants (LMAO) in erythrocyte membranes by spectrophotometric method [5] and the content of ascorbic acid in the serum by tetrometricheskim method [3]. The material for investigations was heparinized blood and serum. Blood sampling was performed in the morning on an empty stomach from the cubital vein.

Statistical processing of received data was performed using statistical software application package STATISTICA 6.0. The significance of differences between mean values was evaluated by nonparametric method «Kolmogorov-Smirnov». Probability of the null hypothesis accepted at $p < 0,05$.

The study was approved by the decision of the local ethics committee at FGBU "Yakut

Scientific Center of complex medical problems," RAMS.

Results and discussion.

The survey showed that in the early recovery period, the concentration of TBA-AP in the membranes of red blood cells in athletes of both groups was increased by 1.57 and 1.88 times, respectively, compared to the amount on preparatory phase (3.6 nmol / L). On the 11th day of the recovery period in the first group which does not take a koumiss, the concentration of TBA-AP has not changed. After the course of taking koumiss, in the second group the concentration of TBA-AP decreased by 1.57-fold ($P < 0.05$) (pic. 1). The total content LMAO of the first group of athletes at the origin of the study was higher in 1.31 times than total content of the second group of athletes (pic. 2). Lower LMAO in the athletes of second group shows reduced activity of enzymatic level of ant oxidative system (AOS) and the intensification of lipid peroxidation, as evidenced by the increase of the level of TBA-AP in these athletes (pic. 1). On the 11th day of the recovery period the total content LMAO in the first group of athletes has increased in 1.18 times. The second group of athletes which takes koumiss, the total content LMAO increased in 1.68 times, which is 42% higher than the first group. In addition, the positive impact of koumiss on the content LMAO proves raising of ascorbic acid as a component of low molecular weight antioxidants. The ascorbic acid in the body of athletes at the beginning of the recovery period varied within the physiological range (0.7 - 1.4 mg %) in the first group it was equal to 1.03 mg%, and in the second - 0.87 mg%. On the 11th day of the study in the first group of the vitamin C content decreased slightly to 0.95 mg%. In the second group after 10 days of reception koumiss ascorbic acid content increased to 1.59 times and equaled to 1.39 mg%. The chemical composition of the Yakut koumiss is rich in ascorbic acid, especially in June (93mg / l) and July (97mg / l), which is associated with the quality of pasture grasses. [8] Studies show that as a result of adaptation to a short growing season in the plants of Yakutia, a large structural diversity formes and increases the quantitative content of biologically active substances [9]. Raising LMAO and ascorbic acid in a parallel decrease in the level of TBA-AP in this group shows a positive effect of koumiss on the enzymatic system AOD. The antioxidant properties of koumiss due to the presence in it low molecular weight substances, including vitamins A (retinol), E (a-tocopherol), C (ascorbic acid), macro (magnesium, calcium), hormones (thyroxin, corticosteroids, etc.) , sulfur-containing amino acids (cysteine, cysteine, glutathione), which are a group of antioxidants that can inhibit lipid peroxidation. Vitamin C - an important water-soluble antioxidant, which is not synthesized in the body, and comes from the outside. Ascorbic acid can act as a donor and an acceptor of hydrogen ions due to the presence in the structure of two phenolic groups, its antioxidant properties are characterized by a wide range of inactivating actions on

various free radicals. Very important in the implementation of the antioxidant action of ascorbic acid is its ability to restore the radicals and products of a-tocopherol, regenerating its antioxidant activity. That is due to the synergistic effect of ascorbic acid and a-tocopherol in the oxidation of polyunsaturated fatty acids [11]. In defense of the lipids from peroxidation, ascorbic acid is superior to other plasma antioxidants. Alpha-tocopherol is the main fat-soluble antioxidant. It restricts the free radical reactions, as donor of hydrogen ions as vitamin C. It becomes a radical which reacts with other peroxy radicals and produce no radical connection. It stabilizes the membrane structure, on which perform the processes of free-radical oxidation, inhibits the formation of lipid oxidation, breaks the chain of free radical oxidation by neutralizing free radicals in the time of their formation [12]. Vitamin A as an antioxidant inhibits conversion of sulfhydryl groups in disulfide. Koumiss is rich by peptides and free amino acids, which are absorbed by the body at lower voltage main digestive glands. In koumiss is a large number of proteins with a particular faction of biocatalysts. Koumiss enzyme systems involved in the cleavage proteins, carbohydrates and fats, catalyze oxidation-reduction reactions. The virtual absence of toxicity, the ability to expand the narrow links metabolism, economize energy processes – cause both high efficiency and safety of koumiss for athletes.

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Scientific and methodological support of measures in the field of healthy nutrition of the population of Republic Sakha (Yakutia)

Abstract
Preservation and strengthening of population health in conditions of the North is the priority strategic mission of the President and the Government of the Republic of Sakha (Yakutia), medical science, practical public health services and innovative development of the region, and ensuring of qualitative health-improving feeding - national safety and improvement of quality of life of population.
Unified data base on actual feeding of various groups of population of the republic in 12 years dynamics was made by the researchers of the Institute of Health of North-east Federal University named after M.K. Ammosov; the results of clinical-epidemiological studies of health disorders and diseases caused by unsatisfactory feeding and actual food habits were received.
Correlation of insufficient feeding with development of complications during pregnancy, pathology of fetus and child health disorders was proved. Dependence of frequency of respiratory infections, atopic status upon duration of breast feeding of infant and also correlation of iron-deficient and osteopenic status in children and teenagers with insufficient intake of various nutrients including essential as calcium and iron were revealed. There was shown clear interrelation of breast feeding duration with educational level of mothers.
Results of long-term investigations carried out by Research Institute of Health, NEFU after M.K. Ammosov were used as basis for acceptance of the project of the Concept of State Policy in the Field of Healthy Feeding of the Population of the Republic of Sakha (Yakutia) in 2001 with the plan of basic activities up to 2005, for development of mechanisms of optimization of feeding of population of the republic, development of various normative-legal documents, scientific-methodical recommendations and educational-methodical complexes, and also for development of the project «Bases of State Policy in the Field of Healthy Feeding of Population of the Republic Sakha (Yakutia) for the period till 2025» that was approved on plenary session of inter-regional scientific-practical conference «Feeding - Basis of Healthy Way of Life and Health of Population in Conditions of the North» held on 4-5 April, 2012.
Results of scientific activity promote development of technology and manufacture of functional food stuffs from local raw products and also development of innovative activity aimed to preservation and strengthening of health of population in conditions of the North.

Keywords: policy, culture, organization, activities, feeding, population, scientific-methodical recommendations and educational-methodical complexes.

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EPIDEMIOLOGY OF GLAUCOMA IN THE REPUBLIC SAKHA (Yakutia)

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Abstract

Epidemiological indicators of glaucoma in the Republic Sakha (Yakutia) are analyzed. The prevalence and structure of glaucoma depending on the demographic and climatic conditions of the republic for 10 years (2001-2010) are examined.

Keywords: glaucoma, epidemiology, region.

Glaucoma problem is considered to be of great significance, for it causes blindness at 5,2-10,05 million persons in the world according to separate researchers. According to WHO researchers glaucoma in 13 % of cases serves as the blindness cause in the world, occupying the second place after cataract in blindness nosology. The researchers Quigley N.A. and Broman A.T. have noted that the number of patients with glaucoma in the world will increase up to 79,6 million by 2020 [14].

In the Russian Federation (RF) 1,025 million patients with glaucoma have been registered, 805 thousands of them being on dispensary treatment. Over the last 10 years in the Russian Federation the level of blindness owing to glaucoma has grown in 3 times [10].

The republic Sakha (Yakutia) is located in the northeast part of the Euroasian continent and is the greatest region of the Russian Federation. The area of Yakutia makes up 3,1 million in sq. km. Over 40 % of territory of the republic is behind the Polar circle. Yakutia is the coldest of the habited territories of the planet. Till now the republic is one of the most isolated and remote regions of the world in transport connection: 90 % of the territory have no all-the-year-round transportation [12].

According to the 2010th All-Russia census the total amount of population RS (Y) has made up 958,528 persons. Considering climatic and geographic conditions, the republic territory is conditionally divided into such regions as Arctic (Northern), Central, Viljujsky, Southern.

Survival factor of the population in the North is one of the major in contemporary

conditions. A lower level of the population's health is revealed in the territory of Siberia and the Far East. The most critical outcomes of health state are observed in the Asian North that is caused by extreme environment, unfavorable ecologic and hygienic situation in the centers of industrial concentration as well as poorly developed social infrastructure [1-3, 13].

Aim: to study glaucoma and its prevalence in RS (Y) concerning demographic and climatic – geographic conditions of regions in the republic within 10 years (2001-2010).

Material and methods: annual reports: 12, 14, 14 day patient departments, 16 temporarily disabled, 17, 30, 57, 201 annual reports: 12, 14, 14 DPD, 16 TD, 17, 30, 57, 201

Results and discussion. In 2001-2010 in the territory RS (Y) 85773 glaucoma patients were registered, including 9372 (10,9 %) with primary diagnosis established (Tab. 1).

In dynamics for ten years the increase of glaucoma disease was noted as a whole, up to 32,9% for addressing medical aid and 58,2 % for its primary reveal (in the Russian Federation the growth rate has made 7,6 % and 4,6 % accordingly) [8, 9].

In Fig. 1 it is visible that the intensive marker (IM) of the general disease (GD) among adult population in RS (Y) for ten years has grown up to 1394,9, i.e. 32,5 % (from 1052,9 to 1394,9), the average parameter in the investigated period was 1247,2. In structure of GD of eyes in RS (Y) glaucoma takes the third place after myopia and cataracts [8, 9].

The intensive marker of glaucoma in RS (Y) in 2006-2010 has increased by 2 %, exceeding markers of the Russian Federation on 48,5 %, the Far East Federal district (FED - 773,9) on 61,1 %, Tomsk region on 114,8 % [4-6, 8, 13] (Tab. 2).

High markers and growth of GD testify to high detection of glaucoma, though staff of ophthalmologists all over the RS (Y) has decreased from 83,8 to 79,4 % during the given period.

Fig. 2 demonstrates that markers of GD of glaucoma in various groups of areas RS (Y) are non-homogenous.

The central region is located in the central part of the republic, its structure includes Yakutsk city, the total population is 509273. The indigenous population (Yakuts) make up 61,1 % (2010) . The intensive marker of glaucoma (1557,2) has exceeded data all over the RS (Y) on 24,8 %. The growth rate of the given markers during research has amounted for 14,4 %, in age category 40 years and over has grown up to 21,6 % (from 2180 to 2652). Somewhat this increase is connected with population migration in the republic, due to inflow of rural inhabitants to the capital of republic Yakutsk. For the previous decade the number of adult population has grown on 16,5 %, while in age category of 40 years and over it was noted on 29 %. The high level of glaucoma and its growth is caused by the adjusted organization system for glaucoma diagnosing

due to high concentration of specialists (the amount of personnel has increased from 73,5 to 81,7 %) and affinity of the Yakut republican ophthalmologic hospital (YOC), equipped with updated diagnostic devices.

Northern (Arctic) region occupies one of the most extensive territories of Yakutia. The climate is arctic and subarctic.

In 2001 105,215 people inhabited the arctic areas of the republic , but further due to active departure of the arrived population by 2010 the population has amounted 840,36 persons, the population density comprising 0,01-0,08 people per 1 sq. km. This region is known as the territory of primary residence of the indigenous people Yakuts (45,6 %) and other small nationalities of the North: Evens, Evenks, Yukagirs, Chukchi (30,6 %) [1, 12, 13]. The intensive marker of glaucoma (1479,1) exceeds the markers of RS (Y) on 18,5 %, for ten years it has increased up to 77,3 %, in age category of 40 years and more it increased on 140 % (from 1520 to 3632,5). There is a higher rate of disease markers despite lacking of ophthalmologists in 4 areas: Anabarsky, Allaihovsky, Verkhoyansky and Srednekolymsky, due to organizing of the "mobile" work by YROH for rendering advice and surgical treatment to the population of remote areas. The intensive marker of glaucoma since 2004 is probably connected with a specialist's arrival in Srednekolymsky region. Though, in general the personnel maintenance has decreased from 89,7 to 84,6 % since 2006 .

The Viljujsky region occupies the plain of the river Vilyui and the territory located to the north. The climate of region is milder than in the north. 173,271 persons inhabit the territory, Yakuts comprising 56,2 % (2010).

In Viljujsky region the intensive marker of glaucoma is 945,3, i.e. lower than the marker of GI over the republic on 31,9 %, in dynamics for ten years its increase on 45 % has been noted, and in age category of 40 years and over it has grown on 56,5 % (from 1339 to 2096,6). Considering the growth of GI markers, relatively dense population (1,2-2,8 people on 1 sq. km) as compared with the whole republic (0,3 people on 1 sq. km), personnel maintenance (84,2 %), in 2008 a glaucoma treatment office was founded on the basis of the central regional hospital in Njurba.

The southern region occupies southern and southwest parts of the republic. The climate here is much milder [1, 13]. 191,948 persons have been registered, the population was formed for the account of new-arrived from other regions and republics of USSR. Among the new arrived population Russians occupy the first place (73,7 %), while the indigenous population Yakuts make up 9,9 %.

The intensive marker of glaucoma (555,5) is lower than the marker on RS (Y) on 124,5 %, for ten years it has amounted 43 %, in age category of 40 years and over 62 % were noted. Rather

low markers of GD in the region are connected with personnel shortage. If in 2001 personnel acquisition reached 100 %, in 2010 it amounted only 55,8 % due to the departure of specialists.

On Fig. 3 the dynamics of intensive marker of primary disease (PI) (on 100 thousand adult population) is presented. For the investigated period the intensive marker of PD has increased up to 57,7 % (from 104,8 in 2001 to 165,3 in 2010), and reached a maximum level in 2008 (181,6) [8, 9].

Average value of the intensive marker of PD for five years (2006-2010) has amounted to 159,4, this parameter being higher on 45,1 % than the markers in the Russian Federation [4-7, 9] (Tab. 3).

From Fig. 4 it is to be noted that the markers of PD in regions of the republic are as follows: high values during the investigation are noted in the Arctic region (190,8), they exceeding the data on RS (Y) on 19,6 %. In the Central (155,1), Viljujsky (114,3), Southern (94,4) regions the intensive marker of PD is considerably lower as compared with the republican marker on 2,7 %, 39,4 % and 68,8 % accordingly.

When distributing glaucoma patients on gender structure, sex differentiation had no significant influence on glaucoma frequency ratio, men were noted at 45,5 %, women at 55,5 %.

It is known that the glaucoma frequency ratio increases with the years. At the age of 40-50 years the percent of patients ranges from 0,1 to 1 %, after 70 years this figure increases up to 10 % and more [11].

In RS (Y) for ten years the relative density of glaucoma patients in age category of 40-49 years has decreased from 7,7 to 6,1 %; 50-59 years has increased from 16,9 to 21,6 %; 60-69 years has decreased from 37 to 31 %, at senior 70 years has increased from 36,9 to 40 %.

According to Tab. 4 the growth of absolute amount of “D” (dispensary) patients with glaucoma was detected, they comprising 44 % (from 5745 to 8278). During the investigation the number of «D» patients has increased up to 43,6 % (from 825,1 to 1184,8). In RS (Y) in 2001 the total number of registered glaucoma patients amounting to 27,6 % did not refer to «D» account, in 2005 their number reached 31 %, the next years the given marker has decreased to 15 % in 2010 (all over the Russian Federation - 20 %) [10].

The representatives of indigenous population (the Yakuts) comprise 68,1 % among «D» patients with primary glaucoma (PG) in the republic. The intensive marker of GD among the given category of the population amounted to 1581, it being higher than the data all over the republic on 26,7 % (Tab. 5).

The analysis of PG structure has shown the essential prevalence of open-angle glaucoma (OAG) form during all period of the supervision (67-75,3 %).

On estimating the efficiency of «D» supervision the clinical and functional characteristics are taken into account, including illness stage.

From Fig. 5 it is visible that during the investigation among «D» patients with glaucoma there was increase in quantity of patients of I stage on 3,8 %, II - on 2,6 %, III - on 0,6 %, with simultaneous decrease in the amount of patients of IV stage on 7 %.

Prevalence of PG in republic regions.

In the Central region «D» patients with PG has grown on 21 % (from 3366 to 4744). Prevalence of PG among the Yakuts amounted to 1132,7. OAG predominates of all glaucoma forms which frequency rate in dynamics has increased from 63 to 73,5 %. The efficiency of «D» supervision has revealed growth of the quantity of patients with I stage from 16 to 18 %, II - from 43 to 47 %, III - from 14 to 18 % and corresponding decrease at patients with terminal stage from 27 до17 %.

In Northern region the number of «D» group has increased to 79,7 % (from 653 to 1174). Prevalence of PG among the indigenous Yakuts has been estimated at 1524,9. Among PG forms OAG is the prevailing in the region, making up 72 %. Throughout all period of the supervision II stage of disease prevails (41 %). In dynamics the number of patients with I stage has decreased from 33 to 26 %, with III and IV stages has increased from 15 to 19 % and from 3 to 15 % accordingly.

In Viljujsky region the number of «D» group of patients with PG has increased up to 31 % (from 1048 to 1376). The prevalence of PG among the natives is 1231,9. Among PG forms OAG prevails in the region which has increased from 71 to 79 %. II stage prevails, comprising 43-42 %, the quantity of patients with III stage is stable - 17 %, with I stage it has increased from 23 to 26 %, and with IV – it has decreased from 17 to 15 %.

In Southern region the number of «D» group of patients with PG has increased up to 45 % (from 678 to 984). The prevalence of PG among the natives has made up 1694,7. In the region the OAG is at a higher rate which prevalence for 10 years has increased from 79 to 83 %. The quantity of patients with II stage has increased from 26 to 33 %, III - from 20 to 23 %; with I stage has decreased from 33 to 28 %, IV - from 21 to 16 %.

Thus, the analysis of epidemiological markers of glaucoma in RS (Y) in 2001-2010 has revealed:

1. A high level of general glaucoma in the republic (1247,2) which exceeds the data all over the Russian Federation on 48,5 %.
2. Increase of intensive marker of general glaucoma on 32,5 % (from 1052,9 to 1394,9).

3. High markers of general glaucoma in Central (1557,2) and Arctic (1479,1) regions, exceeding republican on 24,8 and 18,5 % accordingly.

4. Increase of intensive marker of general glaucoma in Arctic on 77,3 %, in Central on 45 %, in Viljujsky on 56,5 %, in Southern on 43 %.

5. Growth of primary glaucoma ratio in RS (Y) on 57,7 % (from 104,8 to 165,3), it being higher than the data all over the Russian Federation on 45,1 %.

6. High values of primary glaucoma marker in the Arctic region (190,8) that higher than the republican data on 19,6 %.

7. Increase of absolute number of patients with PG registered in dispensary observation has amounted to 44 % (from 5745 to 8278). The coverage of 100 thousand adult population for medical examination is estimated at 43,6 % (from 825,1 to 1184,8).

8. Incidence rate of OAG (75,3 % in 2010) in RS (Y).

9. Positive quantity growth of relative density among patients with I-III stages is noted with simultaneous quantity reduction of patients with terminal stage. However in the Arctic region the negative quantity growth of patients with advanced and terminal stages is revealed.

10. Incidence rate of PG in the republic among the natives (Yakuts) in Arctic (1524,9) and Southern (1694,7) regions, they being much higher as compared with the markers all over RS (Y) on 9,3 and 21,4 % accordingly.

The epidemiological data of glaucoma in RS (Y) testify to necessity of adequate monitoring of glaucoma patients, especially in the remote areas of the republic. For what it is necessary to establish a republican glaucoma center on the basis of YROH with introduction of medical information systems and telemedical technologies for carrying out remote medical consultations, teleconferences, introduction of new technologies and diagnostics and treatment methods.

Table 1

Absolute quantity of registered glaucoma patients in RS (Y) in 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All patients with glaucoma	7331	7212	7259	8614	8374	9297	9128	9518	9294	9746
Including primary glaucoma patients	730	779	709	858	804	1076	954	1250	1057	1155

Table 2

Intensive marker of general glaucoma in RS (Y) in 2006-2010 in comparison with showings of the Russian Federation (per 100 thousand adult population)

	2006	2007	2008	2009	2010
IM of General Glaucoma in RS(Y)	1365,1	1319,8	1369,9	1335,4	1394,9
IM of General Glaucoma in RF	892,4	899,5	906,4	918,0	951,2

Table 3

Intensive marker of primary glaucoma in RS (Y) and the Russian Federation in the period 2006-2010

(per 100 thousand adult population)

	2006	2007	2008	2009	2010
IM of Primary Glaucoma in RS(Y)	155,3	142,5	181,6	152,4	165,3
IM of Primary Glaucoma in RF	108,5	107,3	104,3	104,9	107,2

Table 4

The quantity of «D» patients with primary glaucoma and coverage of «D» supervision in 2001-2010 in RS (Y)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Absolute quantity of «D» patients	5745	5812	5593	6172	6069	6925	7151	7150	7706	8278
Coverage of «D» supervision	825,1	842,7	804,1	930,6	902,6	1016,8	1033,9	1029,1	1107,2	1184

Table 5

Distribution of PG in forms in RS(Y) among «D» patients (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
OAG	67	68,3	68	69,2	71,4	72,2	71,6	73,4	75,4	75,3
CAG*	28,4	27,8	26,4	25,4	23,5	21,9	21,3	19,9	18,4	17,8
MAG**	4,6	3,9	5,6	5,4	5,1	5,9	7,1	6,7	6,2	6,9

* CAG – angle-close glaucoma; ** MAG - mix –angle glaucoma

Picture 1. Dynamics of IM of General Glaucoma per 100 thousands adult population in RS (Y) in the period 2001-2010.

Picture 2. Dynamics of General Glaucoma in regions of RS (Y) in 2001-2010.

Picture 3. IM of primary glaucoma in RS(Y) per 100 thousands adult population in 2001-2010.

Picture 4. Dynamics of IM of primary glaucoma in regions RS(Y) in the period 2001-2010

Picture 5. Glaucoma distribution in RS(Y) by stages in the period from 2001 to 2010 (%)

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Features of the Sakha Republic (Yakutia) Population mortality dynamics in Different groups of Districts

Abstract

Basing on the retrospective analysis, the article presents the dynamics of the main causes of mortality of the population inhabiting different regions of the Sakha Republic (Yakutia) in the period 1991-2010. It reveals the periods of the mortality rate variations, as well as the trend changes in the main classes of mortality causes in the rural, industrial and Arctic groups of the republic's regions. It also emphasizes the importance of keeping record of the population loss peculiarities.

Keywords: population mortality, causes of mortality, regional peculiarities.

Introduction.

With its varied natural, climatic, social, economic and ecological conditions, wide-ranging demographic breakdown, Russia has pronounced regional peculiarities of the population mortality rates, which can be used to assess the population sanitary well-being and pathological peculiarities of certain groups [3,4,7]. This makes it especially important to carry out regional surveys of the population health indicators, and the mortality rate, in particular. The Sakha Republic (Yakutia), covering a huge area of 3.1 million square kilometers and characterized by considerable differentiation in the social and economic situation in different regions, also keeps track of the inter-regional peculiarities of the population mortality figures.

Aim of the Research: to study changing trends in the rate and breakdown of mortality in different groups of regions in the Sakha Republic (Yakutia).

Material and Methods of the Research.

We have conducted a retrospective analysis of the mortality rate in Arctic, rural and industrial groups of the regions in the Sakha Republic (Yakutia) for the period 1991-2010. We used the statistical data on mortality collected by the Federal State Statistical Service, the Regional

Office in the Sakha Republic (Yakutia), for these years, as well as state records of death from the Civil Registry Office under Government of the Sakha Republic (Yakutia) for the period 2007-2010[1,2].

Out of the zoning methods offered in professional literature, the method of medical and economic zoning was applied for the Sakha Republic (Yakutia) [6]. The method uses 32 parameters characterizing social and economic, medical and demographic features of areas, also considering basic indicators of the population health and public medical care. Thus, 35 administrative units of the republic were divided into three groups: Arctic, including 12 regions; rural (13); and industrial (10 regions and townships).

To study main causes of the population mortality we used the 10th revision of the International Classification of Diseases and Related Health Problems (1997).

Results and Discussion.

The mentioned groups of the regions significantly differ in the covered area and population density (Tab. 1).

The groups of regions also differ considerably by a share in the total population of the republic. The industrial group of regions is the most populated one, with 62.0% of the total population (589,359 people), as of the beginning of 2010; the rural group (13 regions) - 30.8% (291,977 people); Arctic group (12 regions) - 7.2% (68,011).

The study of the republic's population loss from 1,121.3 thousand people in 1991 to 958.7 in 2010 (by 162.6 thousand people, or 14.4%) showed different decline rates in the number of inhabitants in different groups of regions (Tab. 2). In the industrial group of regions, the population decreased by 92.1 thousand by the year 2005; then it saw a growing trend, thus the population loss over the studied period made over 80.0 thousand people (12%). Up to the mid-1990s, the rural group of regions demonstrated a growing trend, but in the subsequent period of 1995-2010 the population decreased by 19.0 thousand (6.1%). The Arctic group experienced the fastest rate of the population loss, which halved over 20 years (from 140.4 to 68.0 thousand people).

We should note that in the 1990s the republic witnessed all-time high migration of the population. In 1990, for the first time in many years, migration inflow was replaced by migration outflow at 6.7 thousand people. The following year of 1991 saw migration outflow increasing by 4.6 times and totaling to 30.8 people. The migration outflow reached its peak at 33.5 thousand people in 1994. The intensive migration outflow was caused by a number of factors: the general social and economic downturn, transition to the market economy, significant rise in cost of living in the North, liquidation of numerous enterprises and even settlements. The social and economic

transformations of the 1990s resulted in the loss of main advantages of living in the North: high salary and wages, sound provision with food and consumer goods, which attracted people from other regions of the country and helped to cope with sever climatic conditions[1]. By the year 2010, the migration outflow of the population almost halved (reducing by 1.9 times) and made 17.7 thousand people.

The comparative analysis of the total population mortality in the period 1991-2010 revealed the following facts (Tab. 3):

The rural group demonstrated higher mortality rates (7.8-8.9 per 1,000 people) than the mean republic's figures at 6.9-7.9 in 1991-1992; and in 1997-1999 (9.7 - 10.0 against 9.0-9.5). Then, up to the year 2010, the total population mortality rate remained rather high, being second after the Arctic regions, and ranged from 9.2 to 10.4. In comparison with the year 1991, by the end of 2010, this group of regions showed increase in this indicator by 29.5% (from 7.8 to 10.1 per 1,000 people).

The industrial group ranked first in 1994-1996 (from 9.4 to 9.9 per 1,000 people); otherwise, the total mortality rate in these regions was below mean regional figures, and from the year 2000 it has been the lowest among all the regions of the republic.

In 1991-1999 the Arctic group (except for the year 1997) showed the lowest mortality rates, with a growing trend, though (from 6.1 to 8.7 per 1,000 people). However, the year 2010 changed the pattern and gave start to annual growth of mortality; as a result, the past eleven years (2000-2010) the Arctic regions demonstrated the highest mortality rate ranging from 10.0 to 13.1 per 1,000 people; and there is a clear growing trend for future (Fig. 1).

Whereas excess male mortality is nowadays seen as a natural phenomenon, the Arctic regions display high female mortality, as well (Fig. 2, 3). It is not an overstatement to say that these regions are primarily responsible for the negative statistics on mortality in the republic. The Arctic regions also have the worst mortality in the working-age population, which accounts for over 50% of the dead, the mortality rate in this category being the highest in the republic (Table 4).

In the year 1991, there were six main classes of death causes in the republic, by frequency: circulatory system diseases (CSD); injuries, poisoning and other consequences of external factors impact (external causes); neoplasms; respiratory system diseases (RSD); digestive system diseases (DSD); and symptoms, signs and anomalies, revealed under clinical and laboratory examination and unclassified in other categories (vague symptoms). This breakdown was observed in the industrial and rural groups of regions; in the Arctic group it was slightly different with the external causes ranking first (Table 5).

[1] Analytical newsletter № 58, Regional Office in the SR(Y), FSSS, 2008

The rural regions demonstrated higher mortality of the first five classes of causes than mean republic's figures. This group also showed an unfavorable situation with infectious and parasitic diseases (20.6‰ against 14.2% in the republic in whole); nervous system diseases (10.6 against 7.3); congenital anomalies (19.3 against 10.5); urogenital system diseases (16.4 against 9.9, respectively).

The mortality rate of external causes in the Arctic regions exceeded the mean republic's indicator by 1.2 times (211.5 against 173.7); whereas the rates for neoplasms, CSD and DSD were relatively low. The industrial group of regions demonstrated moderate figures for all the classes of death causes, except for psychological disorders and endocrine system diseases (4.3 and 8.1 per 1,000 people, against 3.6 and 6.5 in the republic in whole). They also showed the lowest mortality rate of vague symptoms (13.1 against 19.7).

According to 2010 data, ranking of the first three positions remained the same in the republic, whereas DSD went up to the 4th position, vague symptoms occupied the 5th position, ousting RSD (Table 5). In general, respiratory system diseases left the 4th position among the main causes of death in all groups of regions. Vague symptoms were becoming more and more common, ranking fourth in the industrial regions and third in the Arctic regions, leaving neoplasm mortality behind (for example, this figure is 233.4‰ in Verkhoyansky region, in Eveno-Bytantaisky – 174.9, Allaikhovsky – 163.4, Srednekolymsky – 151.9) (Tab. 3).

Besides, the rural group of regions maintained an alarming situation with mortality of nervous (37.0‰) and urogenital (8.2) systems diseases; prenatal conditions (8.6) and congenital anomalies (4.5); external causes (213.0), with the figures being considerable higher than the republic's average.

The Arctic regions experienced a critical situation with mortality of all classes of diseases (except for neoplasms, respiratory diseases and complications during pregnancy, delivery and after-delivery periods); moreover, the mortality rate of psychological disorders and behavioral disorders exceeded the mean republic's figure by 6 times (17.6 against 2.8‰).

The industrial group of regions demonstrated rates of mortality comparable with the mean republic's average in all classes, except for a slight excess for certain causes (neoplasms, endocrine system diseases, respiratory diseases and digestive system diseases).

Conclusion.

Therefore, the mortality rate has significant variations in different medical and economic groups of regions in the republic. Comparison of population sizes in the given groups with the total mortality rate revealed an inverse proportion relationship: in 2010, the highest mortality rate was

registered in the least populated Arctic group – 13.1‰, while the most populated industrial regions showed a relatively low mortality rate – 9.4. It should be noted that these groups of regions differ a lot by economic zoning parameters. Relatively prosperous industrial regions are characterized by higher economic and social development, advanced transport infrastructure, as well as by satisfactory medical and health-improving facilities with sufficient resources, both material, like up-to-date equipment and devices, and human, like medical specialists of all profiles. Also, there are a number of major companies, capable of making great contribution into the local medical care in the area.

Peculiarities of the medical care functioning in the Arctic regions are largely determined by extreme natural and climatic conditions of living. Medical institutions fail to provide effective services due to vastness of the area, remoteness and difficult access to settlements, poor, and often nonexistent, transport infrastructure. But this is not the only problem. As daunting is the situation with understaffing, especially with doctors. Enough medical and diagnostics equipment was purchased under the national project on healthcare development and modernization; yet, there is still lack of qualified personnel to use the advanced equipment in full. In addition, all these problems are aggregated by low general social and economic development of the Arctic regions. The main external cases of death in this area lie, in fact, beyond the healthcare system liabilities, being rather a sphere for social and law-enforcement authorities (murders, suicides, accidental alcohol poisoning, etc.).

In this respect, it makes sense mentioning a high mortality rate of alcohol-related causes, which in ten Arctic regions in 2010 exceeded the mean republic's figure (65.9 per 100 thousand people) by 1.7-2.6 times (Fig. 4). There is potential for decreasing the population mortality, since a large share falls on the working-age population, making over 50% of the dead, and mortality in this category can be prevented. Higher mortality rates of endocrine, nervous, urogenital diseases, conditions arising in the prenatal period and from congenital anomalies, as well as 3-fold higher rate of deaths of vague symptoms (120.6‰ against 44.7) emphasize importance of proper diagnostics and treatment.

In the surveyed period the rural group of regions demonstrates significant positive changes in comparison with the 1990s. The figures on most classes of death causes correspond to the republic's average. The Regional Vascular Center and a number of vascular wards opened in first-referral hospitals are expected to decrease the mortality rate of myocardial infarction and strokes. Also, the recent years have witnessed large-scale equipping of rural medical institutions, as well as some positive changes in staffing.

According to WHO data, the current state of medical care can prevent fatal termination of most infectious and parasitic diseases, respiratory and digestive system diseases, especially in working-age population [5]. In this respect, all the groups of regions have potential of decreasing mortality rates of these causes.

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Table 1

Area and population density in different groups of regions in the Sakha Republic (Yakutia)

Groups of regions	Area (ths sq. km.)	Population density (people per 1 sq.km)
Arctic	1541.0	0.05
Rural	541.4	0.97
Industrial	1001.1	8.49

Table 2

Changes in population sizes in different groups of regions in the Sakha Republic (Yakutia) in 1991-2010 (ths people)

Groups of regions	1991	1995	2000	2005	2010	Loss in absolute numbers and %
Industrial	670.0	628.4	590.2	577.9	589.4	80.6 (12.0%)
Rural	310.9	314.1	308.9	299.7	291.9	19.0 (6.1%)
Arctic	140.4	106.0	89.5	73.0	68.0	72.4 (51.6%)
Sakha Republic (Yakutia)	1121.3	1048.5	988.6	950.7	949.3	172.0 (15.3%)

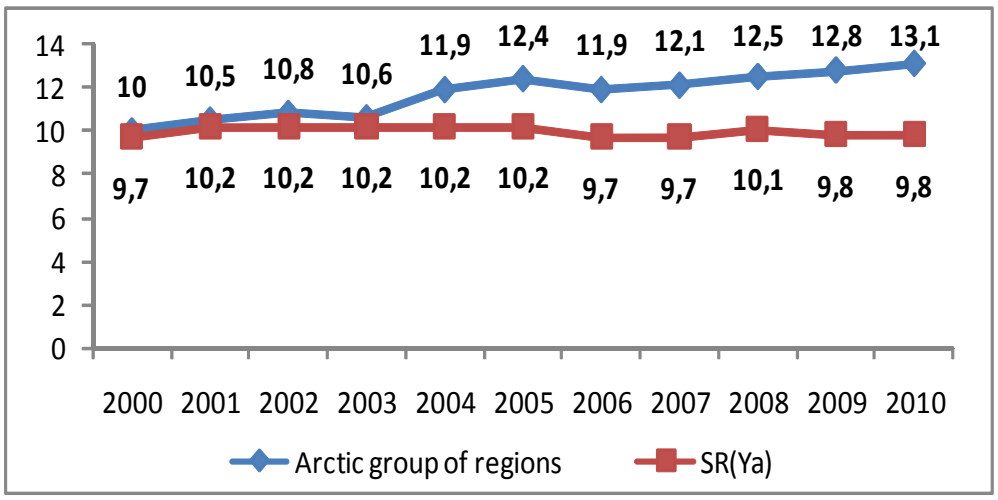

Fig. 1. Total population mortality rates in the Arctic group of regions and in the SR(Ya) (1991-2010)

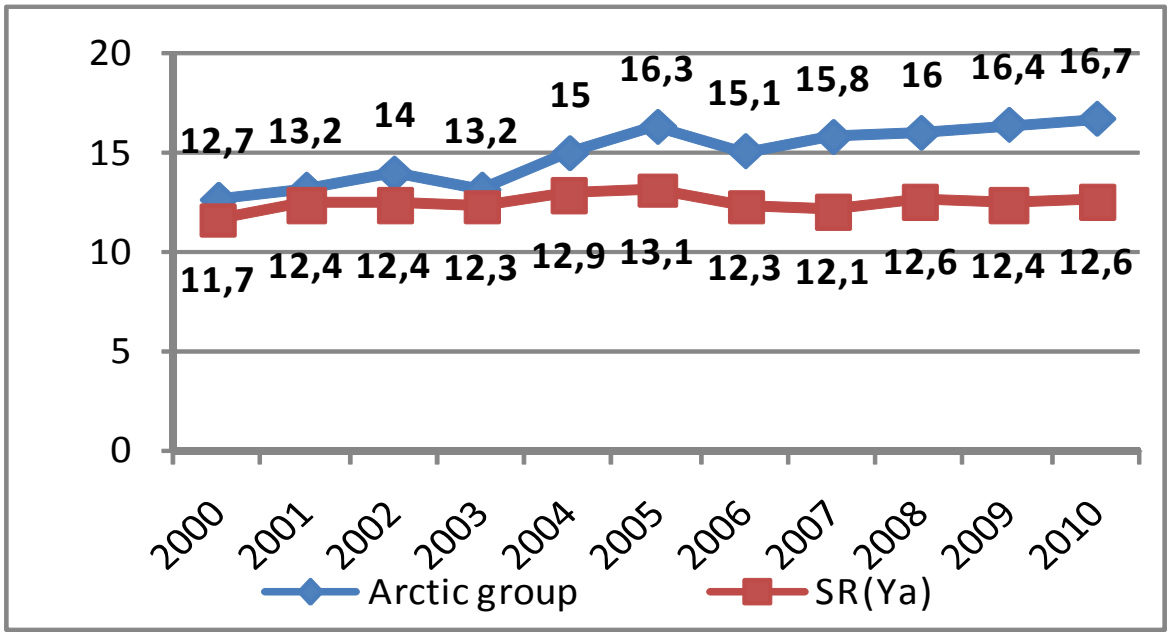

Fig. 2. Dynamics of male mortality rates in the Arctic regions of the Sakha Republic (Yakutia) in 2000-2010 (per 1,000 people)

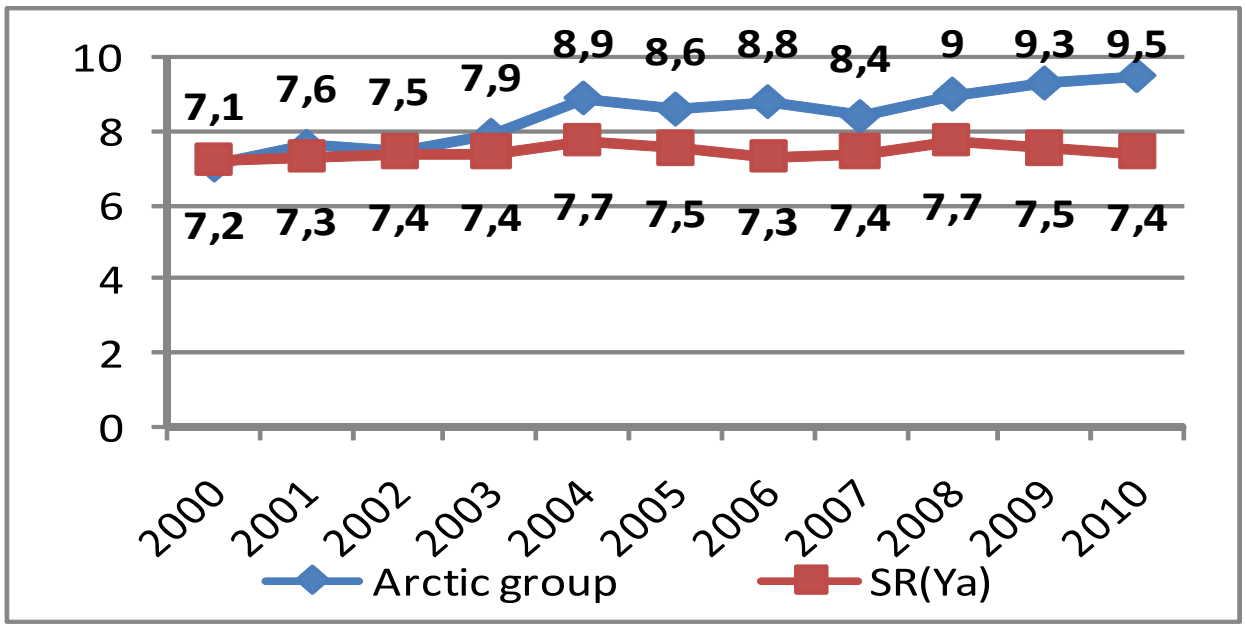

Fig. 3. Dynamics of female mortality rates in the Arctic regions of the Sakha republic (Yakutia) in 2000-2010 (per 1,000 people)

Table 3

Dynamics of the total population mortality in different groups of regions in the Sakha Republic (Yakutia) in 1991-2010

Groups of regions	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Rural	**7.8**	**8.9**	8.8	9.6	9.5	9.4	9.7	9.4	10.0	9.6	10.3	9.8	10.1	10.3
Industrial	6.4	7.6	8.8	9.9	9.8	9.4	8.4	8.5	9.3	9.3	9.6	9.8	9.6	9.9
Arctic	6.1	6.6	7.8	8.9	8.9	8.5	8.7	8.1	8.7	10.0	10.5	10.8	10.6	11.9
SR (Ya)	6.9	7.9	8.8	9.9	9.8	9.3	9.0	8.9	9.5	9.7	10.2	10.2	10.2	10.2

Table 4

Percentage of working-age population in the total number of dead and ratio per 1000 people in different groups of regions in the Sakha Republic (Yakutia)

Groups of regions	1991		1995		2000		2010	
	Percentage	Per 1,000 people	Percentage	Per 1,000 people	Percentage	Per 1,000 people	Percentage	Per 1,000 people
Rural	38.3	5.5	41.2	7.3	40.2	6.9	45.0	7.5
Industrial	48.2	4.9	54.0	8.3	48.7	6.8	46.7	6.6
Arctic	50.0	4.9	57.7	8.3	54.5	8.9	54.6	11.8

Table 5

Mortality in the Sakha Republic (Yakutia) of different causes in 1991, 2010 (per 100 ths people)

Groups of regions	1991						2010			
	Class II	Class IX	Class X	Class XI	Class XVIII	Class XIX-XX	Class II	Class IX	Class X	Class XI
Industrial	108.3	228.3	32.4	26.9	13.1	167.7	126.4	463.6	36.1	36.1
Rural	145.7	261.2	47.0	37.0	32.8	157.9	120.2	476.1	36.6	50.3
Arctic	96.2	156.7	40.0	20.7	19.2	211.5	89.7	542.6	22.1	86.8
SR (Ya)	119.7	232.8	38.1	29.4	19.7	173.7	120.7	469.5	34.9	55.7

Notes. Class II – neoplasms, IX – circulation system diseases, X –respiratory system diseases, XI – digestive system diseases, XVIII – symptoms, signs and anomalies revealed under clinical and laboratory examinations and un classified in other categories, XIX-XX – injuries, poisoning and other consequences of external factors impact, external causes of death.

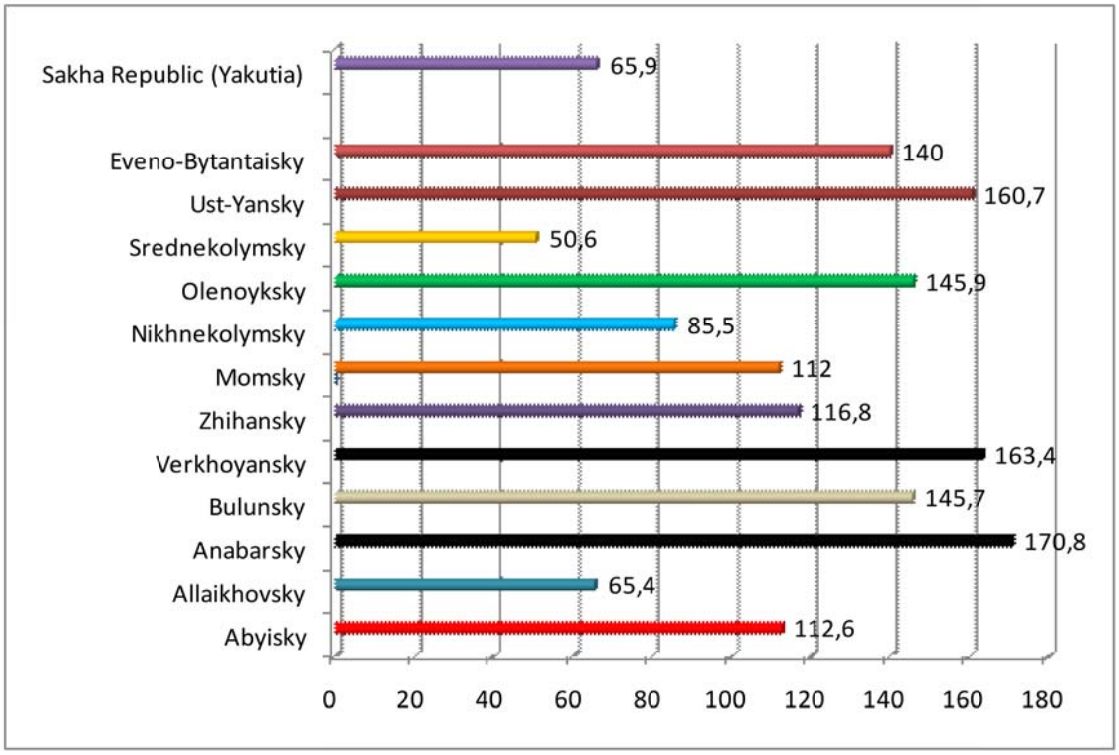

Fig. 4. Population mortality of alcohol-related causes of death in the Arctic group of regions in the Sakha Republic (Yakutia) (per 100 thousand people)

Sivtseva A.I.

Clinical and Epidemiological Characteristics of Chronic Bronchitis and its Place in the Structure of COPD

Chronic obstructive pulmonary disease (COPD) is characterized by poorly reversible respiratory limitation associated with abnormal changes, micro and macro-inflammation of airway. COPD traditionally refers to chronic bronchitis and emphysema. Destruction of alveolar walls is a hallmark of emphysema which may be associated with imbalance of "protease - antiproteinase" and such mechanisms as oxidative stress, inflammation of respiratory tract and systemic inflammation [27].

According to the classification made by A. Kokosov [24] chronic bronchitis (CB) is usually divided into two main forms: CB without obstruction of airflow (CNB) and CB with bronchial obstruction (COB). In the structure of COPD prevails notobstructive bronchitis (58-62%), followed by obstructive bronchitis (18-28%), which in the age groups above 50 years is 40-50% [3.19].

Chronic notobstructive bronchitis (CNB) is a diffuse lesion of mucous bronchial tree caused by a long irritation of airways with volatile pollutants of household and industrial nature and by viral or bacterial infection damage with development of inflammation (endobronchitis). This is manifested by constantly or periodically occurring cough with sputum usually not associated with other bronchial processes or involvement of other organs and systems. Not obstructive bronchitis affects mainly large (proximal) bronchi [29].

Chronic obstructive bronchitis (COB) causes great economic loss due to temporary disability, early permanent disability and mortality of patients. Absence of generally accepted ideas about the nature of the disease makes it difficult to modern diagnosis and, therefore, effective treatment [21].

National and international policy documents called consensus were developed for early diagnosis of this steadily progressive disease, conducting adequate therapy and for teaching practitioners. Such consensus for chronic obstructive bronchitis was developed in our country, proposed by A.G. Chuchalin - the president of the Russian Society of Pulmonologists, Academician of the Russian Academy of Medical Sciences (RAMS) and adopted at the 5th National Congress on

Respiratory Diseases in 1995. According to this consensus COB is defined as follows: "Chronic obstructive bronchitis is a disease characterized by diffuse non-allergic inflammation of bronchi of the obstructive type leading to a progressive deterioration of lung ventilation and gas exchange and manifested by cough, shortness of breath and expectoration not associated with damage of other organs and systems". (When diagnosing COB it is important to consider each component of this definition.)

As it is known, COB is characterized by progressive airflow obstruction and intensified bronchoconstriction in response to nonspecific stimuli. Obstruction at COB consists of irreversible and reversible components. Irreversible component, as it will be discussed below, is determined by degradation of elastic collagen base of lungs, fibrosis, shape change and obliteration of bronchioles. Reversible component is formed as a result of inflammation of the bronchial mucosa, spasm of smooth muscle and mucus hypersecretion. It is very important to take into account the existence of a reversible component in COB formation for treatment program with use of bronchodilators. Smooth muscle dysfunction contributes to development of respiratory diseases such as chronic obstructive pulmonary disease and pulmonary hypertension. These diseases can be accompanied by smooth muscles hypertrophy of airways vascular walls and/or proliferation and hyperreactivity, and related processes, such as fibrosis and reconstructions of the extracellular matrix [23].

COPD develops mainly in patients elder than 40 years, with age frequency of COPD cases increases. Thus, according to data of epidemiological study in Irkutsk district COPD was found in 1.5% of urban population aged 30-49 and among those aged over 70 years – in 10.6% [13, 23].

According to A.A. Grigorenko [11] 4 morphological forms of COB were identified: catarrhal chronic bronchitis, catarrhal-sclerotic chronic bronchitis, sclerotic chronic bronchitis, granulating chronic bronchitis. Morphological picture of chronic bronchitis changes depending on duration of the disease. At the initial stages compensatory and protective processes dominated in bronchi manifested by hypertrophy and hyperplasia of mucus-producing structures. In the long duration of bronchitis in its morphological picture of segmental bronchi sclerotic changes are observed indicating the exhaustion of compensatory and protective mechanisms.

The key pathomorphological features of COB are the following: a) changes in the bronchial wall with hyperplasia and hypertrophy of mucus-producing elements (goblet cells, submucosal glands), hypersecretion, abnormality of mucociliary clearance and repeated infection-dependent disease exacerbation, and b) extensive irregular, predominantly centriacinar emphysema, which determines irreversibility of ventilation and hemocirculation disorders [20].

Cellular part of COB morphological changes is based on migration of neutrophils from

bloodstream into airways, increased production of neutrophil elastase and progressive imbalance of proteinase inhibitors with increasing activity of neutrophils, high myeloperoxidase activity and generation of active forms of oxygen, reflecting the imbalance in the system of oxidase-antioxidase. Increased proteolytic activity in inflammatory locus of mucous airway leads to destruction of collagen-elastin relation, proliferation of fibrous tissue, deformation and obliteration of small airways. These are the basic processes at COB development resulted in irreversible airway obstruction. [13]

I.S. Platonov, G.G. Kruglikov et al. [14.18] who studied morphology of respiratory muscles came to the conclusion that that at low degree of respiratory failure degenerative and hypertrophic changes dominated, at moderate degree – necrotic changes, at severe degree – change of necrosis to fibrosis and proliferation of fibrous tissue in stroma. The greatest changes occurred in internal intercostal muscle, while the least changes - in diaphragm.

Based on analysis of molecular and cellular changes in the respiratory tract of COB patients four main stages of the disease can be determined [17].

Stage of aseptic inflammation. It is caused by excessive production of ROS and nitric oxide in the respiratory tract. Its major clinical manifestation is productive cough. Important biomarkers of this stage of COB are: increased chemiluminescence in blood leukocytes and bronchial-alveolar lavage of smoking patients and increased concentration of nitric oxide in expiration of non-smoking patients. For correction of inflammation intake of water-soluble antioxidants is needed: N-acetyl cysteine, ascorbic acid, etc. Intake of active metabolites of Krebs cycle - monosodium glutanate, malate and, to less extent, succinic acid are useful. These metabolites increase resistance of phagocytes to pathogenic factors.

Stage of obstructive changes. The cause of this stage is some relative lack of oc-antitrypsin because of imbalance of proteolytic enzymes activity and their inhibitors in lung tissue. As criteria serve decreased rate of expiratory airflow and increased content of oxyprilin in urine of COB patients. Increased content of hydrogen peroxide in expiration of COB patients was also revealed. Basic therapy of chronic obstructive pulmonary syndrome includes bronchodilators, preferably of anticholinergic nature. Such treatment reduces severity of main clinical symptoms of the disease, the rate of progression of pathological process and significantly improves the quality of life. Regenerations of elastic base of lungs can contribute to inhalation of natural inhibitors of protease or synthetic ag-antitrypsin.

Stage of reduction of bactericidal protection. This stage is the result of blockade of oxygen-dependent bactericidal system of alveolar macrophages and neutrophils on the background

of atrophic changes of bronchial mucosa. Methodology of assessment of the degree of suppression of lung antibacterial protection requires improvements. It seems that for this purpose assessment of the degree of myeloperoxidase oppression in blood neutrophils, in bronchial-alveolar lavage or the degree of suppression of ROS production by neutrophils and macrophages can be used. Clinical feature of this stage is appearance of purulent sputum. At this only stage of the disease appears need for antibiotic therapy, often in combination with immunostimulators (polyoxydony). Antibiotics should be prescribed immediately and in doses sufficient to suppress purulent process. Use of specific vaccines and trial of oxygen therapy as a means of restoring of alveolar macrophages stimulation is also proved.

Stage of severe respiratory failure. The final stage of chronic obstructive bronchitis development is caused by two factors: decrease of the total respiratory alveolar surface caused by emphysema, and collapseof bronchiole at expiration caused by atrophy of elastic fibers and smooth muscles of the walls. Hypoxemia is the main feature of this stage of disease. Intensive but little effective work of the external breathing is also characteristic. At this stage bronchodilators lose their therapeutic value. To reduce respiratory failure prolonged oxygen therapy is required both in hospital and at home.

Currently the death rate from chronic bronchitis is equal to mortality from lung cancer that indicates the high social impact of the disease. In Europe COPD mortality rate ranges from 10.5 per 100,000 of population in France to 61.4 per 100,000 of population in the UK. In Germany mortality rate from complications of chronic bronchitis is the fourth behind heart diseases, cancer and neurological diseases and equals 63.7 per 100,000 of population [25, 27, 28].

COB is the cause of 80% of death cases and over 50% of disability among all bronchopulmonary system diseases [16].

In the structure of CNPD identified during mass studies of population CB proportion ranges from 62.3% to 90% [1, 27, 12, 22].

In recent decades CB as the cause of primary disability made 42% in the structure of CNPD and to one third of these patients was given II degree of invalidism [10, 15].

Moreover, in Russia according to appeal for medical aid CB morbidity made 10% in total and it prevails in men population.

Single studies conducted in different years showed high prevalence of CNPD in the structure of internal organs pathology in Yakutia and Magadan district [4, 6]. High prevalence of CNPD was also found in population of Taimyr Autonomous District (14.8%) and chronic bronchitis took the leading place in the structure of CNPD - 86.9% that was significantly higher than the Russian

average rate [5].

Until now, relatively more investigated is the prevalence of chronic bronchitis among the organized population employed in the mining industry of the Republic of Sakha (Yakutia). Thus, it varies from 183.0 to 219.0 per 1,000 workers [8]. And there are only some reports concerning CONP prevalence in rural residents of Yakutia [9].

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Frequency of revealing of *Candida* at the tuberculosis of the respiratory system. Interrelation with the drug sensitivity spectrum of *Mycobacterium tuberculosis*

Abstract
The findings are presented stressing the need for timely diagnosis of candidiasis in patients with pulmonary tuberculosis, confirming the association between the presence of nonspecific flora in smear-positive tuberculosis patients and increased number of unfavorable outcomes of anti-tuberculosis therapy, and the association between the risk of development of drug-resistance in *M.tuberculosis* and microbial concurrence of *M.tuberculosis* and yeast-fungi.
Keywords: microbial concurrence, pulmonary tuberculosis, yeast-fungi, *Mycobacterium tuberculosis*, drug resistance.
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Corset for the treatment of vertebral fractures in children

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Abstract

In the treatment of 195 children and adolescents aged 3 to 18 years who received uncomplicated compression fractures of bodies thoracic and lumbar vertebrae, we used special extension plaster corset. The use of the corset in clinical practice eliminates strain on anterior vertebral body, helps to do physical therapy, to receive physiotherapy.

Keywords: children, fractures of the vertebral bodies, conservative treatment, corset.

Introduction.

The problem of treatment of uncomplicated compression fractures of the vertebral bodies in children continue to apply [1,3,5]. This is, above all, with different approaches to treatment and the lack of uniform criteria for evaluating short-term and long-term results of treatment [4,6].

Material and methods.

We have experience of monitoring and treatment of 199 children and adolescents aged 3 to 18 years who received uncomplicated compression fractures of the vertebral bodies. Among the victims were 110 boys (52,27%) men, girls - 89 (47,73%).
For the diagnosis of vertebral fractures in children have used the analysis of complaints, medical history, results of clinical studies and Radiology (radiography, rentgentomografi, computed tomography, magnetic resonance imaging). All children in the emergency department, except for orthopedic, trauma, examined pediatrician, clinical indications - related specialists.

The degree of compression fractures of the vertebral body of only one measured by the index of H. Vinz [7]. For fractures of the bodies of two or more vertebrae to establish the degree of severity, used an index Compression ratio of the height of the anterior vertebral body, compressed to the rear [2].

Results.

The most common - 86 (43,21%) of victims - vertebral fractures received children aged 8 to 12

years. Least likely to injure the spine in children age 5 - 17 (8,54%) patients.

Affected mainly received fractures of the vertebral bodies in the street and at home. Thus, the share of street and domestic mechanisms injuries was 94 (47,23%) and 81 (40,70%) cases, respectively. Fractures of the spine during exercise were 12 (6,03%) children. Road traffic injury was the cause of vertebral fractures in 7 (3,51%) of the victims. School mechanism of injury as the cause of uncomplicated compression fractures of the vertebral bodies, registered for 5 (2,53%) patients. Isolated fractures of the cervical vertebrae were diagnosed in 10 (5,02%) children, infants - in 134 (67,33%), lumbar vertebrae - in 34 (17,08%) patients. In 21 (10,57%) the cases mentioned associated injuries of thoracic and lumbar vertebrae.

A total of 199 children received 411 vertebral fractures. Most frequently diagnosed vertebral compression body ThVI - 47 (11,43%) cases. Least frequently injured vertebra CII - 1 (0,24%) clinical observation. In the course of the study were reported compression bodies CI, CIII, CIV and ThI vertebrae.

One was, compressed vertebrae in 80 (40,2%) children, two vertebrae - in 58 (29,14%), three vertebrae - in 45 (22,61%), four or more vertebrae - in 16 (8,05%) victims. For the treatment of 195 (97,98%) of the children used the conservative method. In 4 (2,02%) the cases affected children were operated on the spine.

Conservative treatment of uncomplicated compression fractures of the vertebral bodies in children is the leading, as these injuries are usually localized only in their bodies and are not accompanied by the formation of a mechanical or neurological instability. The volume of medical treatment is, as a rule, in traction on the vertebral column with simultaneous reclination injured spinal motion segments, employment physical therapy, physiotherapy, use of removable prosthetic reklinators and corsets.

All of these stages of treatment are important, but the most important of them, in our opinion, are the spine immobilization brace and physical therapy sessions. We have provided an original ekstenzionny plaster corset (positive decision to grant a patent for utility model, the application № 2012124372). Removable spine immobilization ekstenzion plaster corset patient performed immediately after relief of pain in the projection, compressed vertebrae. Up to this point, children get traction on the axis of the spine to the pelvis inclined plane with reclination, compressed spinal motion segments, medical therapy (analgesics age dosage), physiotherapy, master the complex physical therapy.

Immobilization with a plaster corset is done so that the top edge of the corset on the front surface of the body of the child is at the sternal notch and the lower end rests on the iliac wing (Fig. 1). On the back of the victim's body corset top edge is located at the spinous process of the vertebra following, compressed, and the lower edge of the corset is also based on the iliac wing. Described ekstenzion Minerva jacket eliminates the burden on the body, compressed vertebrae, so it does not give the victim an

opportunity to tilt the body forward, you can practice physical therapy, receive physiotherapy in the projection, compressed vertebrae, prevents axial load on the spine, as the children in the cast uncomfortable to sit. An important feature of the corset is that it is not removable, and even in the absence of pain in the back of his child will not be able to remove it yourself, even for a time, as is often the case with various designs of removable orthopedic products in the absence of direct supervision by the adults. Key physioterapy directed to hyperextension of the affected body through the upper edge ekstenzion plaster corset that helps reposition the displaced as a result of cranial trauma and pineal body height restoration, compressed vertebra. Therapeutic exercises are performed in patients standing and lying on the abdomen (Fig. 2).

Period spine immobilization brace in each case calculated individually and ranged from 6 to 16 weeks. All this time, patients were engaged in physical therapy, if necessary, by a doctor, endocrinologist, reduced bone mineral density appropriate diet and medication, and some, prolonged immobilization, received a second course of physiotherapy in the projection, compressed vertebrae, because the construction of the corset without labour allowed to do it.

It is known that pain in the projection, compressed vertebrae children are concerned only for a few hours or days and the younger the child's age, the severity of the syndrome algic smaller in nature and duration. Due to this, it is difficult to do to keep the child on strict bed rest for a long time if he has no pain. Most clearly seen in the evenings and weekends, when the medical supervision of the staff of the decreases in the wards and children sit, draw, play computer games, view videos, social networking with peers, etc. Attempts to discipline them and bring to the orthopedic treatment compliance regime effective in not all the victims, especially for pre-school children and adolescents.

In this regard, it is relevant improvement of methods of treatment. For this purpose we use the removable ekstenzion plaster corset. In curative treatment respecting the basic principles of emergency trauma - a reliable and adequate immobilization of injury the injured segment in combination with functional therapy - the opportunity to engage in physical therapy, receive physiotherapy, excluding the axial load on the spine.

All children immobilizing plaster corset moved well. None of the clinical observations were reported any negative side of the corset in clinical practice.

Conclusion.

Problem of diagnosis and especially treatment for compression fractures of the vertebral bodies in children and adolescents continues to be relevant. Thus, if a relatively small number of heavy traumatic spinal motion segments in children tactics developed and successfully used modern operational technology, as applied to the more numerous injuries - fractures of the vertebral bodies with low

compression - used different variants of conservative treatment. Pursued conservative therapy must meet the functional principle of the constant maintenance of normal muscle tone, especially the exclusion of the load on the front parts of the vertebral bodies and the creation of conditions for their consolidation in a physiologically correct position. Employment of children in physical therapy individually produced extension plaster corsets can successfully implement it. Material costs of medical institutions with the minimum, the parents of traumatized children as it does not bear any financial burden, because the treatment is part of the mandatory health insurance.

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b

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c)

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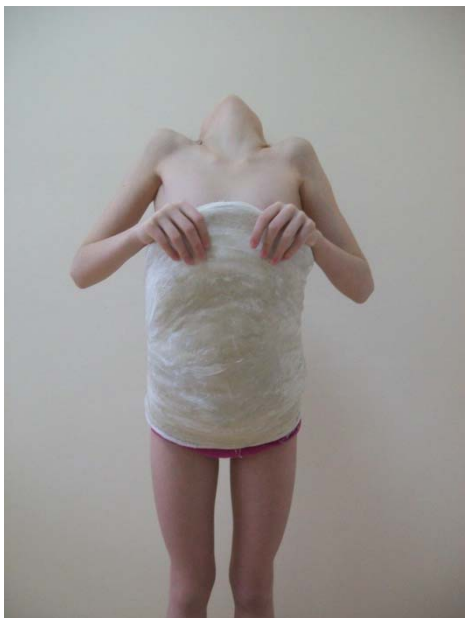
F

g.

1.

Photos patient A., 9 yares (case number 3331). Diagnosis: Compression uncomplicated fracture ThVIII vertebral (the projection spinous process, compressed vertebra marked marker). Kind of girl in a plaster brace front (a), rear (b), side (c).



a)

b)

c)

Fig. 2. Photos patients A., 9 yares (case number 3331). Diagnosis: Compression uncomplicated fracture ThVIII vertebral. Moment physiotherapy standing (a, b) and prone (c)

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The results of the use of the automated system of preventive examinations of children in Yakutsk

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Abstract.
The main tasks of health protection are: rising of effectiveness medical-diagnostics processes on base of improvement medical and information technologies; improvement of statistic analyses and forecasting morbidity; rising of quality of prophylactic measures among population; using effective methods of planning budget of medical institutions. In this work were presented theoptimization scheme of children prophylactic system by using automated system of survey and organization of away medical works.
Keywords: children, automated systems, prophylactic system.

Introduction.
Increasing effectiveness of medical diagnostical processes suppose optimal correlation of results of these processes and labour and financial outlay. Obviously, the effectiveness depend on organization and management of medical diagnostic processes. Poverties of organization and management make serious mistakes on diagnosis and treatment of patients. All these causes tell on results of analyses, forecasting indicators on health conditions of population, effectiveness preventive measures lead to baseless financial outlay. Science substantiated improvement of organization and management medical-diagnostics processes allow to rise on new stage the decision main tasks of health services. Out-patient and policlinic treatment is one of main links of health services,it includes more than 80 per cent. Further successful development of pediatrist depends on correct organization of first-aid. Thespecial sense of preventive treatment, early diagnostic of illness and effective rehabilitation of patients is incontestable [7]. Therefore, rendering of medical aid to children is the main link of domestic health services. There is no doubt of necessity in considered approach to compatible activities of children s doctors, highly specialized doctors and school doctors, making clear co-ordination and continuity of work. Primary development of specialized medical-aid made negative things on organization of doctors work. Doctors work organized irrationally that lead to baseless research and overloading. Investigations (researches) demonstrated that 30-35 per cent of visits were baseless [6-7]. All it reflected on patients' satisfaction by medical aid at hospitals. School education is one of determining and longest period of men's life. That period so decisive for individual success as development of the country.Modernization of school must secure conformity school education purpose overtake development.On a base of these offers there was prepared national educational strategy – «Our new school», new educational standards[1-6].

Aim. To show possibilities of optimization of medical aid to children by using automatically system of prophylactic examination of a patient (ASPONDd-ACDO), on a base of experience of using ASPOND-ACDO at Yakutsk Hospital № 3.

Materials and methods. The room of ASPOND-Д in pediatric hospital № 3 in Yakutsk had been working since 2001 till 2006 consisting of school and had 2 rooms, pediatrist's room and the room of functional diagnostic. Stuff consist of 2 doctors: one nurse, one computer operator. Such a team observed almost 35 person a day, for 20 minutes to everyone.

On the territory of policlinics serving there are 16 kindergartens, 11 schools and school of Tabaga.

Prophylactic examinations on ASPOND program took place commonly in agreement with

instructions of Ministry of health of Russian Federation № 186/272 from 30.06.1992 «Improvement of system of children medical providing in educational establishments».
It is children of 3-4, 5-6, 7-8, 11, 14-15 years old. With the help of ASPONДcomplex 6153 children are examined since 2001-2003 and in 2006.

Results and discussing.

In results of ASPONДprogram examinations there are 5 stages (table 1):
1 stage are: disease of osseous muscle system;
2 stage are: disease of endocrine system;
3 stage are: disease of digestive system;
4 stage are: disease of nervous system;
5stage are: ophthalmologist desease.

According to information about comparison of medical examination results by specialists since 2006 till 2009 on the 1 stage there are osseous muscle system – 95,6 to 1000 (2006 – 92,0; 2007 – 89,5,0; 2008 – 90,5), the number of revealing disease of osseous muscle system increased because of the orthopedic took part in those examinations. The 2 stage got disease of endocrine system 71,8 to 1000 (2006 – 66,9; 2007 – 70,0; 2008 – 71,0), the number of disease increased because more children have lack of weight, slow physical development and endemic goiter. The 3 stage get disease of digestive system 64,0 – 1000 (2006 – 62,0 2007 – 64,0 2008 – 65,1 2008 – 63,0), the data increased because of the number of children suffering from stomatological disease rise. The 4 stage – disease of nervous system 64,0 – 1000 (2006 – 60,0 2007 – 55,4 2008 – 64,0), in 2009 the number of disease increased. Ophthalmologist disease get 5 stage 60,1 – 1000 (2006 – 68,3 2007 – 67,7 2008 – 59,0). In comparison with previous years these numbers increased because ophthalmologists took part regularly in the medical examinations.

During the analysis of children passed ASPONД and in comparison of dataof children passed deep medical examination with specialist partake, acknowledgement of revealing pathology is 90 per cent and more. Data of medical examinations of schoolchildren and kindergartens children are analyzed by us (table № 2,3).

During the analyses between schools we can find that the pupils of school № 1, 31 have the lowest data of health violation, and pupils of school № 8, 17, 19 have the highest data. The nourishing violation are found among the pupils of school № 3,17,20, the pupils of school № 25,19.31 have more controlled nourishing.

In comparison of kindergarten children's health condition, the children from kindergartens № 21, 51, 75, 102 have the best health. Children of kindergarten № 21 have the lowest data besides immunology. The children of kindergarten № 51suffer from stomatological problems. The children of kindergarten № 52 have immunological status violation. The children of kindergarten № 75 have not bad data of health condition besides logopedia. The children of kindergarten № 89 have the highest data of health condition violation on all types pathology. The nourishing of children is violated in the kindergarten № 89, 102, 40, 42. Violations of nourishing are seldom in the kindergarten № 20, 104, 21, 51, that show quality balanced children nourishing in these kindergartens.

Shortage of ASPOND work in hospital № 3 was that in the results of examinations the conclusions were given in type of pathologic profile, in which should pass the specialists for diagnosis confirmation. Almost 95,5% of children, examined by ASPOND didn't pass the specialists because of a lot of queues coupon system, lack of time, so there was no back connection.

Anonymous questioning of parents living in Yakutsk and districts of Republic Sakha (Yakutia) about medical service was taken. There are 1028 forms. The results of questioning showed that the parents have difficulties during passing the specialists. 82% - lack of specialist, 75% - long queues, 65% - lack of coupons to specialists, lack of time – 56%, 34% - children don't want to miss school.

Advantage of ACDO is that forms the issue «Medical card of prophylactic system of children in Russian Federation» (form № 30).

Conclusion.

It is recommended to organize АСДО in stuff of kindergarten and school department. In results of АСДО to organize clear system of specialized observing in kindergartens and schools and not only give diagnoses but also examine by specialists according the recommendations. According the results of АСДОand after medical examinations the form № 30 is got which will be sent to medical establishment. Having the ready forms № 30 the pediatrs will hold prophylactic works easily. For the health care establishment with a few specialists the system make scrinning-diagnostic functions of the first level of prophylactic work. With the aim of improvement of continuity in the work of medical establishments and improvement of medical services quality to organize clear system of leading the children to specialized examinations. Irrational amount of work of specialists will decrease and data of prophylactic examinations control card № 30 will be better, which has some difficulties on hospitals. Parents will be satisfied that the medical exams with prophylactic system will be organized in the schools.

The results of using automated system of prophylactic examination of children in Yakutsk

Table 1

Data of revealed pathology during the prophylactic exams on the ASPONД program in the period since 2001 to 2003 and 2006

Profiles of pathology	**2001**	**2002**	**1 period 2003**	**2006**
The amount of examined children of 4-15 years old	947	3645	1100	461
Violation of osseous muscle system	68,0	76,0	78,0	74,0
Violation ofnervous system	50,0	56,0	56,0	51,0
Violation of psychiatric and nervous system				24,0
Dental violation	45,0	50,0	55,0	32,0
Digestive system violations	43,0	59,0	64,0	58,0
Ophthalmological violations	33,0	40,0	36,0	51,0
Physical developments violations	22,0	19,0	18,0	16,0
Violation of nourishing	12,0	30,0	26,0	21,0
Violations of stomach system	24,0	28,0	29,0	31,0
Vasocardiology	17,0	21,0	26,0	40,0
Process activity				19,0
Logaoedic violation	21,0	12,0	8,0	2,0

Table 2

Comparative analyses of health condition of the pupils of Yakutsk school according the data of ASPONД (%)

Profiles of pathology	Sch. №1	Sch. №3	Sch. №14	Sch. №17	Sch. №8	Sch. №18	Sch. №19	Sch. №20	Sch. №25	Sch. №31
Orthopedic	69	81	70	87	82	70	83	80	81	78
Endocrinology	64	62	61	61	62	65	65	65	66	62
Nervous system	44	63	48	62	63	55	66	56	53	55
Cardiology	55	51	57	55	57	56	61	53	55	54
Ophthalmological	38	35	41	52	48	52	48	42	38	39
Dental	58	48	54	54	47	49	35	55	49	51
Physiatrist	6	6	7	7	7	12	0	6	12	8
Genetics	25	35	34	45	42	31	42	35	36	38
Stomach system	20	34	27	34	32	29	16	28	36	29
Nourishing	27	39	30	40	31	31	29	40	24	29
Physical development	14	22	16	21	28	14	31	19	18	15

Table 3

Comparative analyses of health condition of the children attending the kindergartens of Yakutsk according the data of ASPOND (%)

Profiles of pathology	K/g 20	K/g 21	K/g 40	K/g 42	K/g 51	K/g 52	K/g 75	K/g 88	K/g 89	K/g 96	K/g 102	K/g 104
Orthopedic	69	46	55	74	52	54	65	66	74	81	59	71
Nervous system	53	38	43	57	34	46	52	34	65	52	61	59
Cardiology	58	55	55	57	46	44	38	46	62	46	53	57
Logaoedic	47	20	29	38	36	23	42	24	43	34	39	27
Dental	38	41	49	45	67	48	38	55	41	61	39	46
Ophthalmological	9	40	8	21	13	30	12	49	42	27	27	46
Nourishing	3	4	14	14	5	10	10	8	18	6	16	3
Physiatrist	12	8	20	21	8	15	13	21	18	13	10	9
Лор	19	16	12	29	18	19	15	18	25	30	12	20
Physical developmen	51	19	31	19	16	21	23	29	19	19	20	12
Genetics	17	22	16	38	15	31	21	33	43	27	31	31
Stomach system	12	22	22	26	20	23	19	18	29	25	22	24
Immunology	8	15	2	10	2	19	2	8	7	16	2	4
Endocrinology	22	29	55	33	34	31	29	36	45	34	24	40

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DOPPLER EXAMINATION AT HEPATOPANCREASBILIARY ZONE DISEASES

Abstract

Results of ultrasonic research of hepatic haemodynamics are presented at diseases of a hepatopankcreatobiliarny zone (GPBZ) in152 patients. The reliable increase in arterial inflow on A. hepatica communis system, than venous is proved; especially indigenous persons at early stages have diseases. Further there is qualitatively new sign - delay of venous return of blood that is at the bottom of increase of volume sizes of blood circulation of a liver and a sign of the compensatory and adaptive mechanism. At radical persons the qualitative characteristic of hepatic blood circulation at early stages of a disease is higher, than at persons of not radical group for 7-8%.

Keywords: hepatic hemodynamics, cholecystitis, ultrasonography, Doppler, pancreatitis.

Introduction

In the early stages of the GPBZ disease, when clinical researches and biochemical tests do not detect functional changes in the liver and pancreas, dopplerographic indicators are already altered, indicating that early poor circulation in parenchymal organs of the area. Such research on geodynamics of different organs, especially the liver, and holekinetik indicators of liver function due to other diseases are very few. [1-3,6,9-13]. For various diseases of the digestive tract liver hemodynamic changes. [4,7]. So when bile hypertension, research A.I.Mosunova, Y.V.Zulina with co - author. [5] have shown an increase in arterial blood flow by A.hepatica communis system and reduced inflow by V.porta as compensatory – adaptive mechanism. The author determined the absolute norm defense within 2000mill/min. Research results of many authors extremely contradictory. As the results of experimental researches, aborigines have been found higher levels of peripheral blood flow and a higher rate of blood flow during cooling than the residents and visitors of the population living in the mid – latitudes. [8].

A purpose of the research is the study of indicators of hepatic hemodynamics in indigenous patients with chronic calculous cholecystitis, chronic biliary pancreatitis and postcholecystectomy state compared to some patients in the early stages of the disease, living in Yakutia at least 5 years.

The materials and methods of research. To count the flow rate of hepatic blood flow was used modified Ardrana formula, adapted for duplex scanning abdominal vessels research by A.I.Mosunov with co - author, (2000) [5], $V = 4710 \cdot D^2 \cdot C$ int., где: V = volume rate of flow (mill/min). *D* =

inner diameter of the vessel cm.C int = average (integral) flow m/sec. Total hepatic blood flow (DIC) can be determined the amount of blood flow to the liver by A.hepatica communis (AP) and inflow venous flow by V.porta (VP). V опк = V ap + V vp (mill/min). For the qualitative characteristics of hepatic blood flow notion of 'Arterio – venous ratio' (AVR), counted as proportion of arterial and venous flow to the body as a percentage: ABC = Vап : Vопк x 100%/ Vvp : Vопк x 100%.

To assess the impact of various diseases and organs ZHVP GDZ on liver function in 152 patients performed hemodynamic study by the method of ultrasonographic duplex scanning abdominal vessels, abdominal segment of the aorta, truncus coeliacus, a. Lienalis, a.hepatica communis subhepatic segment V. Cava inferior, V Porta и V Lienalis. All patients were divided into: 1) indigenous patients were born in the far north and visiting with experience living in the north for more than 5 years; 2) non – indigenous patients - caucasians – with northern experience residence less than 5 years.

First group consisted of patients biliary pancreatitis: indigenous – 10 (mean ages 38.8 years), non – indigenous – 23 (mean age 46.3 years). The second group consisted of patients with PHES after cholecystectomy, the most thorough survey is not allowed to reveal the cause of suffering, except chronic colonic stasis; indigenous – 21 (mean age 50.6 years), non – indigenous – 16 (mean age 50.6 years). The third group consisted of patients with chronic calculous cholecystitis – 59 people. Indigenous of them – 45 (mean age 43 years), non – indigenous – 14 (mean age 49.1 years). There were 129 patients of both groups. The control group included indigenous volunteers – 23 men (mean age 35.6 years). Duration of disease in the three groups consists of 1 to 3 years.

Results and discussions. By comparing the results with published information revealed a high degree of conformity. It should be noted that differences of hemodynamic parameters in indigenous and non – indigenous groups, the subjects were in the range of variation within the group, where there are some significant differences between the individual indicators. ($p < 0,05$). For example in the picture shows a diagram of ratio (%) hemodynamic parameters in in indigenous and non – indigenous patients with chronic biliary pancreatitis to the corresponding values of healthy (Arctic Group). Patients with chronic pancreatitis and indigenous groups ABC_a ,C_v, and V_v are less by 8% and 12% than in the non – indigenous group.

ABC _arteriovenous ratio as a qualitative characteristic of hepatic blood flow is higher in indigenous following indicators – 108 against 95 in some. In the second group is similar in patients with chronic calculous cholecystitis indicator V_a is less by 26% and D_a, C_a and V_v are less by 10% on the indigenous people. ABC _ arteriovenous ratio is higher than 13%. And in patients with radical groups PSEH figures ABC_a, C_a are more by 7% and V_a by 13%, than in the non – indigenous group.

Analysis of the Doppler research of hepatic hemodynamics in patients with various diseases (chronic calculous cholecystitis, chronic biliary pancreatitis, PHES) showed the presence of changes in the parameters of the arterial and venous blood flow in the liver in the early stages of the disease.

Conclusion.

1. In the early stages of the disease hepatopancre atobiliary dopplerographic zone indicators are already changed, indicating that early vascular disturbances in parenchymal organs of the zone.

2. Increased inflow of arterial blood in A.hepatica communis system and reduced inflow by V.porta especially pronounced among indigenous people with chronic calculous cholecystitis, chronic biliary pancreatitis (increased ABC_a and Va in 1.63, and venous flow is reduced by 12%.

3. Patients with PSEH (chronic colonic stasis) with disease duration of 1 year quality indicators of liver blood supply undergo less pronounced changes.

4. Analyses of the Doppler research revealed the presence of hepatic hemodynamic parameters of the linear dependence of the arterial and venous blood flow in the liver of the dwell time at low temperatures. In this research in patient with non – indigenous groups living in Yakutia period for 5 years there is a decrease of hepatic vascular component compensatory – adaptive mechanism, which is higher in the early stages of indigenous diseases of GPBZ organs.

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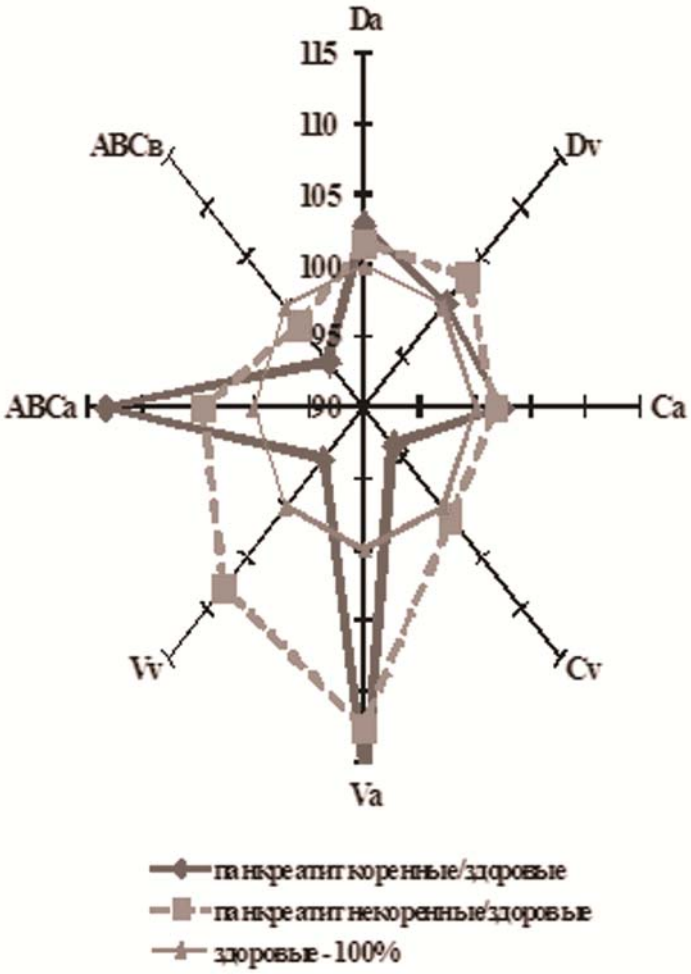

Рис.1. Диаграмма печеночной гемодинамики у больных с хроническим билиарным панкреатитом

Picture.1. Chart hepatic hemodynamics in patients with chronic biliary pancreatitis.

Pancreatitis indigenous/healthy

Pancreatitis non – indigenous/healthy

Healthy – 100%

Table

Indicators of hepatic hemodynamics in healthy volunteers from the Arctic zone.

	Da	Dv	Ca	Cv*	Va	Vv*	ABCa	ABCв	Возр
M	0,51	1,14	0,46	0,22	529,80	1346,45	28,60	71,38	33,85
σ	0,02	0,10	0,06	0,03	117,19	305,73	5,31	5,32	11,51

Ishutina N.A.

Saturated fatty acids of umbilical cord blood at herpes - viral infection

The paper presents the study of the composition of erythrocytes membranes lipids of saturated fatty acids of the umbilical cord of newborns from mothers who have had gestational exacerbation of herpes viral infection. It was revealed that the studied composition of those born from mothers who have had acute herpes virus infection with antibody titer IgG to herpes simplex virus type 1 as 1:12800, was characterized by an increase in the concentration of myristic, pentadecanoic, palmitic, margaric and stearic fatty acids.

Keywords: herpes virus infection, umbilical cord blood, saturated fatty acids.

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