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Izranov V.A., Martinovich M.V.

WORKING OUT OF THE LEXICON FOR ULTRASONOGRAPHY OF THE THYROID GLAND

Baltic Federal University of I.Kant (Kaliningrad, RUSSIA)

Key words: thyroid gland ultrasonography; medical ultrasound computer workstation.

This article focuses on standardized terminology (the lexicon) for the thyroid gland ultrasonography developed by the authors to integrate in medical ultrasound computer workstation.

Keywords: medical ultrasound computer workstation, ultrasonography of the thyroid gland, standardized terminology.

Introduction. The introduction of medical ultrasound computer workstation (MUSCW) into clinical practice significantly improves the quality of the diagnostic process. Meanwhile the complete automation process of the preparation and execution of ultrasonography are not implemented at the present time [1]. One of the reasons is the lack of common language providing terminological harmonization of requirements to the protocol of ultrasonography.

In some countries the task of creating a single, unified language (vocabulary) joining the doctors from various specialties in the understanding of pathological processes described in various clinical imaging methods applied to the separate organ - the breast - has been realized [2]. Using of unified vocabulary increased significantly the effectiveness of screening of breast cancer [3]. In Russia, this approach has not been used widely enough.

The purpose of this paper is to develop a lexicon of thyroid ultrasonography and create a single unified terminology environment, followed by integration into MUSCW and implementation of automated inference of echographic diagnosis.

The fragment of the developed lexicon to describe both the echographic picture and the text of ultrasonography protocol of the thyroid gland is defined below.

Basic Terms

Focus - the site of tissue which sonographic structure differs from the surrounding background.

Inclusion - small (up to 5mm) focus

Knot (node, ganglion - a focus 5 mm with clear margins and marked boundary with surrounding tissues, it can be visualized in two projections.

Colloidal knot / inclusion - nodules, which has one of the three types of structures:

- anechoic formation of spheroidal / elliptical shape with a clear outline, homogeneous content, with presence / absence of an eccentrically located hyperechoic inclusions with dorsal acoustic effect of the type "comet tail" (colloidal cystic knot / inclusion);

- spheroidal / ellipsoidal formation with clear margins and mixed content (anechoic cystic components and echogenic tissue components in various ratios);

- hypoechoic spheroid / ellipsoid formation with clear margins of mostly homogeneous structure.

Characteristics of echostructure (lobe/ focus / formation)

Homogeneous echostructure - is characterized by the single-type uniform arrangement of structural components that make up the organ / focus / formation.

Heterogeneous echostructure - is characterized by the non-uniform arrangement of structural components that make up the organ / focus / formation.

Characterization of amount of formation

Single formation - only one formation.

Single formations - formations of up to 3 formations.

Multiple formations - formations of more than 3 units

Descriptive textual characteristics of focal (nodal) formation:

- Single colloidal inclusion in the ... mm, in right / left lobe.
- Single colloidal inclusions in the ... mm, in right / left lobe // in both lobes.
- Multiple colloidal inclusions in the ... mm, in right / left lobe // in both lobes.

- Multiple colloidal inclusions and nodes in the ... mm, in right / left lobe / / in both lobes.

Interpretation of colloidal tissue changes based on the volume of the thyroid gland

Normal thyroid volume (4,4 cc. - 18 cc. for women 18 - 55 years; 8 cc. - 25 cc. for men over 18 years).

Nodular colloid goiter - thyroid volume of more than 18 cc. women and 25 cc. men.

Text formulation of conclusions (ranked by the severity of the pathological process):

- Single colloidal inclusion in the ... mm, in right / left lobe.
- Single colloidal inclusions in the ... mm, in right / left lobe / / in both lobes of the thyroid gland.
- Multiple colloidal inclusions in the right / left lobe / / in both lobes of the thyroid gland with normal thyroid volume.
- Multiple colloidal inclusions and nodes up to ... mm, in right / left lobe / / in both lobes of the thyroid gland with normal thyroid volume.
- Nodular colloid goiter.

Conclusion. The proposed terminology lexicon of ultrasonography of the thyroid gland, and combinations thereof are generic elements designed for integration into the MUSCW. The use of designed lexical items will allow to realize the possibilities of computer diagnostic conclusions using logical function "if ... then ...".

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G.V. Gudanova

APPLICATION OF DATA MINING (DETECTION USEFUL ZNA-NY IN DATABASES) AS THE BASIS OF RESEARCHES AND MANAGEMENT IN THE PUBLIC HEALTH CARE AND HABITAT SPHERE

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This work about application of DATA MINING in medical researches.

Keywords: DATA MINING, health, environment, prophylaxis

So far in Federal service of statistics, funds of information-analytical departments of establishments of health system and social development of Russia considerable volumes of information about health of the population and habitat are saved up. Unfortunately, it is necessary to recognize that their processing, assuming the purpose receiving useful knowledge, is insufficient. Huge databases remain unclaimed while it is essential necessary correct, reasonable administrative decisions are; the analysis and a forecast of health of the population under the influence of habitat are the state functions, in particular Federal service of the Russian Agency for Health and Consumer Rights. The guides to the analysis of the data which have been especially adapted for needs of practitioners of, not enough, program of medical schools of training of specialists on processing of databases don't include, so decisions in the sphere of health care are applied at the best on the basis of results of scientific researches and expert estimates, often the inconsistent.

As a way of the solution of this problem technologies of the intellectual analysis of data – Data Mining and Knowledge Discovery in Databases (DM&KDD) are offered. Data Mining is a process of detection in crude data (row data) early unknown, the uncommon, almost useful knowledge (regularities) available to

interpretation necessary for decision-making in various spheres of human activity (G. Pyatetsky-Shapiro). In the DM&KDD technologies various mathematical methods and algorithms are used: classification, clustering, regression, forecasting of temporary ranks, association, sequence. To intellectual means of DM&KDD neural networks, trees of decisions, inductive conclusions, reasoning methods on analogies, indistinct logic conclusions, genetic algorithms, algorithms of definition of associations and sequences, the analysis treat with selective action, logic regression, evolutionary programming, visualization of data. The useful knowledge received during Data mining, can be presented in the form of regularities, rules, forecasts, communications between elements of data, etc. [1, 2].

In our opinion, Data mining is that now it is necessary to master, adapt actively for tasks and possibilities interested in an assessment of health of the population of departments and to introduce in their routine work. Especially it is necessary to use them in scientific researches of health of the population and habitat. We undertook a number of attempts in this direction. We used the separate Data mining methods in the scientific researches [3-12], and also in the methodical development adapted for needs of social and hygienic monitoring and other experts, carrying out researches in the field of medicine [14–16].

With application of the separate elements Data mining, more often during the klasterny and regression analysis a number of knowledge which can be carried, in our opinion, to new and almost useful was received, namely – medico-geographical consistent patterns of formation of health of the population living in different territories of Russia are determined. Essential heterogeneity in this regard takes place in scales not only the countries, but even the separate region. So, according to 1990-2002 the European and Asian main types of an invalidizatsiya of children in the country are revealed: beyond Ural growth of disability of children caused by traumas, infectious pathology and mental disorders while in the European regions of Russia it is noted high indicators of disability of children owing to new growths and endocrine pathology is noted. The main reasons for noted distinctions of indicators of disability of children are a sotsi-alno-economic condition of the region in a combination to

features of the organization of the medico-social help to the population, decrease in a preventive component of activity of bodies of health care is basic of which. In a number of territories of the European part of the country and in economically developed regions of the Urals and Siberia lower level of disability is justified by an economic situation, the organization of activity and quality of work of bodies of health care. The quantitative dependences are received, allowing to estimate influence of this or that factor on an invalidizatsiya of children and to predict a situation at hypothetical its (factor) change [3]. Similar results were received concerning diseases of eyes at children in regions of Russia [4], estimates of health of the population in regions of the Omsk region [5], incidences of anemias of the children's population of Russia [6], professional incidence in regions of Russia [7, 10, 12], incidences of syphilis and gonorrhoea of children [8, 9, 11]. From the received results two conclusions follow, in our opinion: 1) about need of stronger, than now, studying and the accounting of local features of formation of health of the population under the influence of habitat during any justification of preventive programs, target indicators, etc. and 2) the organization in each region of the analytical centers generalizing information from any sources on the basis of Data Mining (it is possible, it will be the Data-centers). Besides, need of training of specialists is obvious to work in such centers able not only to carry out the most difficult types of the analysis, but, the main thing to interpret results, to formulate them in cogitable the majority to a form and to prepare on their basis administrative decisions.

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**CURRENT ISSUES IN REHABILITATION OF CHILDREN IN THE
COUNTRY HEALTH CENTERS**

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Comprehensive physical rehabilitation of children of primary and secondary school children in a specialized nursing home country improves indices of physical development, musculoskeletal and functional reserve of the respiratory system.

Keywords: comprehensive physical rehabilitation, young and middle-school age, special vacation resort, indicators of physical development, the functional reserve of the respiratory system, and power endurance.

Introduction

Currently, efficient and cost-effective is the use of complex rehabilitation in a nursing home country. Preference is given to improvement in the local climate zone with an emphasis on a comprehensive physical rehabilitation and individual approach [1,3].

Doctors tend to use non-pharmacological treatment, which is based on physiological, do not cause allergic reactions methods. Among them, a decent place is therapeutic exercise (exercise therapy) - a method of reflex effects on various organs and systems, as well as the whole organism, in which the use of physical exercises for the correction of morphological and functional abnormalities caused by disease (or) their consequences, based on the focus of these exercises, their frequency and a gradual increase in load [2].

Human health is determined by the harmony of his physical development, adequate functional condition of the body, primarily cardiorespiratory reserve capacity of the system and the musculoskeletal system [1,4].

Indicators of the functional state of the musculoskeletal system are the carpal dynamometry, power endurance of back muscles and abdominals. According to the dynamics of these indicators can be seen to increase or decrease in muscle strength, the level of adaptation of children to physical activity [5,6].

The development of back muscles and abdominal muscles is important for assessing the physical development and health of children and also has a significant impact on the efficiency of the cardiorespiratory system [1].

Long back muscles improve the mobility of the chest and increase the efficiency of inhalation and exhalation. Friendly work the abdominal muscles increases the

mobility of the diaphragm and increase ventilation. Physical exercises for abdominal muscles contribute to the change in intra-abdominal pressure, increasing blood flow to the organs of the abdomen and pelvis. Regular physical exercise provide the adaptation of individual systems and the whole body of the child to the increasing physical activity, improve the correlation between the physiological mechanisms that increase the functional adaptation of [4].

The aim of this work - to examine the influence of the complex of physical rehabilitation on the performance of functional reserves of the respiratory system, strength endurance and physical development of young children and secondary school age during the stay in a suburban nursing home.

Material and methods

The work was performed on the basis of a specialized children's sanatorium "Spark." The survey was conducted at the beginning and end of spa treatment. We observed 137 children, 61 of them - the boys (45%), 76 - the girls (55%).

The average age of the children examined was $12 \pm 1,27$ years. In the group of boys, mean age was $12,2 \pm 1,35$ years, girls' average age was $11,8 \pm 1,17$ years.

In 137 children the disease bronchopulmonary system are as follows: asthma of mild to moderate severity was diagnosed in 30 children (22%), obstructive bronchitis - in 8 children (6%).

Diseases of upper respiratory tract are as follows: chronic tonsillitis - 25 (18%), chronic pharyngitis - 2 (1%), sinusitis - 2 (1%), chronic adenoids - 11 (8%), rhinitis - 0, 7%.

Allergy among children examined presented as follows: allergic rhinitis - 19 children (14%), hay fever - 1 (0.7%), atopic dermatitis - 6 (4%).

Diseases of the musculoskeletal system are as follows: disturbance of posture - 50 (36%), scoliosis spinal deformity - 7 (5%), flat feet - 5 (4%), hip dysplasia - 1 (0.7%), the state after fracture of the spine - 1 (0.7%).

Diseases of the organs of vision: myopia - 46 (34%), astigmatism - 7 (5%).

Among the diseases of children admitted for treatment in a sanatorium, were identified gastro - 21 (15%), obesity - 4 (3%), dystonia - 12 (9%), nephropathy - 2

(1%), pyelonephritis - 6 (4%), Nephroptosis - 1 (0.7%), endemic goiter - 1 (0.7%), biliary dyskinesia - 1 (0.7%), stuttering - 1 (0.7%), tubinfitsirovannye - 5 (4%).

To account for the efficacy and safety of complex physical rehabilitation, we used the following control methods: Clinical characteristics of patients, the definition of the functional reserves of the respiratory system using respiratory-load function tests, and StangeGenci, peak flow, evaluation of dynamics of physical development with the calculation of body surface area and body mass index, identifying indicators of strength endurance (carpal dynamometry, the strength of back muscles and abdominals).

Statistical processing of the study made on IBMPC compatible computer using the software STATISTICA (Data analysis software system, StatSoft, Inc. In 2008) version 8.0.

At the sanatorium stage of rehabilitation is widely used various means and forms of physical therapy: physical activity, morning hygienic gymnastics, physiotherapy procedures, dosed walking, walking, hiking, water gymnastics, therapeutic swimming, massage, natural factors of nature.

Results of the study

Measurement of growth in 137 children at admission to the sanatorium, and in 117 children after treatment revealed the following: pre-treatment average growth was $148,1 \pm 9,9$ cm, and after treatment - $148,0 \pm 10,3$ cm, body weight before treatment was $41,3 \pm 11,03$ kg, after treatment - $40,0 \pm 10,7$ kg.

As a respiratory-stress tests the children were asked to perform holding your breath at inspiration (sample Stange) and breath holding at expiration (sample Genci).

In 135 children in the early sanatorium average sample Stange was $27,9 \pm 9,9$ sec. At the end of treatment in a sanatorium in 115 children median sample Stange was $32,2 \pm 11,8$ sec. In 135 children at the beginning of the spa treatment Genci average sample was $18,2 \pm 7,7$ sec. At the end of treatment in a sanatorium in 116 children Genci sample average was $23,3 \pm 14,1$ sec.

The dynamics of peak flow data (PFM) on the basis of spa treatment: before treatment in 114 children peak flow was $318,18 \pm 62,13$ l / min after treatment - $330,13 \pm 58,21$ l / min.

Dynamics of carpal dynamometry data on the results of treatment in a sanatorium as follows: before treatment $18,4 \pm 6,2$ kg, after treatment $19,1 \pm 6,1$ kg.

To assess the strength endurance of back muscles do the children offered a sample of "swallow." Dynamics of power endurance of back muscles as a result of treatment were as follows: before treatment $45,0 \pm 26,9$ sec after treatment $59,9 \pm 33,0$ sec.

To assess the strength endurance of the abdominal muscles do the children offered a sample of "holding the legs straight at an angle of 45 degrees in the initial supine position." Dynamics of power endurance of abdominal muscles on the results of treatment were as follows: before treatment $20,8 \pm 17,4$ sec after treatment $29,2 \pm 21,7$ sec.

Discussion

It is unlikely that one would expect a significant change in growth rates on the results of sanatorium treatment, as treatment duration is only 21 days. At the same time, changes in body mass index was significant ($p < 0.05$).

According to the results of anthropometric measurements were calculated rates of body surface area and body mass index. Before treatment, body surface area index was $1,29 \pm 0,19$ m²; after treatment - $1,28 \pm 0,19$ m², changes in the rate of body surface area were valid character ($p < 0.05$).

Changes in body mass index based on the results of sanatorium treatment was also significant: before treatment - $18,36 \pm 3,14$ kg / m²; after treatment - $17,98 \pm 3,04$ kg / m² ($p < 0.05$).

Changes in respiratory function tests, load and StangeGenci on the results of treatment in the sanatorium were positive and had a valid character ($p < 0.05$).

The positive dynamics of the sample Stange was the result of increasing the number of children with these samples Stange below average from 23% to 58%, with

high rates of from 0.7% to 3.5%, and reduce children with low test Stange from 72% up to 35%.

The positive dynamics of the sample Genci is due to increase in the number of children with these samples Genci higher than the average of 8% to 22%, and reduce the number of children with low test Genci from 32% to 25%.

Changes in peak flow data were valid character ($p < 0.05$). The positive dynamics of indicators of peak flow occurred due to increase in the number of children with a peak flow data below the average from 44.7% to 55.2%, the birth of children with high rates of peak flow (0.9%), as well as reducing children with low peak flow of 12 3% to 0.9%.

The positive dynamics of the carpal dynamometry data occurred due to increase in the number of children with average dynamometry (from 77/56, 6 to 87% / 75%), and also due to the decrease of children with low (14/10, 3% to 5/4 3%) and lower than average rates (from 37/27, 2% to 19/16, 4%).

The positive dynamics of these power endurance of back muscles occurred by increasing the number of children with high (1/0, 9%) and higher than average rates (from 2/1, 5% to 15/12, 9%), as well as by reducing children's low (from 83/61, 5% to 60/51, 7%) and averages (from 29/21, 4% to 10/8, 6%).

The positive dynamics of these power endurance of abdominal muscles has occurred, mainly due to reduction of the number of children with low levels (to 82/60, 7% to 65/56%).

The positive dynamics of the sample Stange was the result of increasing the number of children with these samples Stange below average from 23% to 58%, with high rates of from 0.7% to 3.5%, and reduce children with low test Stange from 72% up to 35%.

The positive dynamics of the sample Genci is due to increase in the number of children with these samples Genci higher than the average of 8% to 22%, and reduce the number of children with low test Genci from 32% to 25%.

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The positive dynamics of these power endurance of abdominal muscles has occurred, mainly due to reduction of the number of children with low levels (to 82/60, 7% to 65/56%).

Conclusion

Thus, a comprehensive physical rehabilitation of children of primary and secondary school age in a specialized nursing home country improves the performance of the functional reserve of the respiratory system, hand dynamometry, indicators of strength endurance of back muscles and abdominals, and some anthropometric parameters (body weight, BSA, BMI, etc. .) Since the duration sanatorium treatment is only 21 days, the proposed indicators can be used as criteria for evaluating the effectiveness of the sanatorium stage of rehabilitation.

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FEATURES OF INTENSIVE METHODS PHYSIOTHERAPY WITH STATIC PHASE POSTGOSPITALNOM COMPONENTS ON THE REHABILITATION OF PATIENTS AFTER MYOCARDIAL INFARCTION

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A technique of intensive physiotherapy with a static component to the medical physical rehabilitation of patients after myocardial infarction. Rehabilitation postgospitalnom on stage.

Key words: myocardial infarction, postgospitalny stage, intensive physiotherapy with a static component.

Introduction

Effect of exercise on cardiovascular system with \rightarrow sudistuyu multifaceted and closely related to the change in respiratory function \rightarrow nenyami, nervous, endocrine and motor systems [6,7,8]. Changes in the body under the influ-yaniem physical training phase are immediate and long-term adaptation [2]. Numerous studies have shown that physical training (PT) is \rightarrow are the main method of rehabilitation of patients carrying the re-myocardial infarction (MI) [9]. FT help to increase physical

performance (FRS), improved hemodynamics, lipid profile, the clinical course of disease [1,10,11]. Recovery of such patients poststationary stage in outpatient should be comprehensive and also drug therapy should include measures of physical rehabilitation [4,5].

Tasks poststationary stages of rehabilitation: the restoration of cardiovascular function in B \rightarrow tem by including mechanisms to compensate for cardiac and extracardiac nature; \rightarrow vyshenie on exercise tolerance, secondary prevention of coronary heart disease, domestic, social and vocational rehabilitation, the creation of conditions to reduce the doses of drugs, improving quality of life of patients with coronary artery disease [3]. The value of the functional treatment of patients after MI in the present conditions remain relevant in connection with the development of hypodynamic syndrome against a background of reduced physical activity and poor tolerance to static loads.

Objective: To develop a methodology of active physiotherapy with a static component in patients with acute coronary syndrome on posthospital stage of physical rehabilitation.

The technique of intensive physiotherapy with a static component (ILGSDR) solves the following specific objectives:

1. Normalizatsiya of the central and autonomic nervous system.
2. Removal of muscle imbalance.
3. Improving the functional status of the cardiovascular system by improving the coronary and peripheral blood flow, increasing myocardial contractility, normalize vascular tone, activation of anticoagulant blood systems.
4. Improved lung function by increasing the mobility of the diaphragm, chest, joints, spine, respiratory muscle strength, increased respiratory excursion and lung-setting of normal ventilation-perfusion relationships [4].

ILGSDR rehabilitation included a number of specially selected exercises that improve the cardiovascular system and respiratory system: learning to breathe properly, the use of breathing exercises with a short breath holding at inspiration, the

implementation of dynamic exercises with short-term static stress of large muscle groups (upper body, pelvic area, the muscles of the lower limbs).

All patients tolerated the procedure ILGSDR not marked fatigue, a feeling of "lightness" of breathing. LH allows multiple load cycles without risk of fatigue and overwork. In this succession of dynamic and static exercise has a positive influence every subsequent exercise. This helps achieve a high degree of fitness of patients after MI.

It should be noted that the proposed reduction option ILGSDR designed with the traditional methods of physiotherapy, based on the therapeutic effect of stress on the basic life-support systems: cardiovascular and respiratory, which enhances physical performance of patients after myocardial infarction.

The whole course of physical rehabilitation consisted of three consecutive stages, each of which lasted a month and had its own objectives, content, tools and techniques of physical culture.

In the first phase of physical rehabilitation patients were taught the proper exercise. Of great importance was the creation of psycho-emotional conditions for further self-study, to develop a working understanding of the importance of ongoing studies, the impact of their health status and level of performance.

In the second phase was carried out a gradual expansion of motor activity by increasing the volume and intensity of physical activity. This phase of rehabilitation provided an introduction to the active load due to an increase in muscle strength and endurance, improve the functioning of the cardiorespiratory system. Was an increase in physical performance.

In the third stage the main task consisted in the gradual transition to self-employment according to our scheme of physical rehabilitation to preserve the positive developments achieved by the functional status of patients and their overall health.

Bicycle training conducted in the mode of gradually increasing power load, preventing fatigue symptoms of moderate severity. The initial power load 25 - 30W (150-180kg/min) for 5 min., With a speed of 60 revolutions per minute. Every two

days, the power load increases by 14 Tues By the end of the duration of the rehabilitation exercise was 20 minutes (80W).

The use of breathing exercises between different loads during physical exercise improves myocardial adaptation to ischemia and exercise tolerance to the second and third approach. This is due to improved myocardial perfusion and myocardial adaptation to ischemia. Coaching is determined and the effect of improving the mechanisms of extracardiac circulation. Restoration of physiologically correct breathing improves oxygenation of the blood with oxygen, increasing the ability to exercise tolerance [6,8,6].

Conclusion

1. The proposed rehabilitation complex ILGSDR developed to meet the traditional methods of physiotherapy, enhances the therapeutic effect, greatly increases the physical performance of patients after myocardial infarction.

2. The proposed program of physical rehabilitation helps to eliminate the weakness of the muscles, increase muscle strength to improve the efficiency of extracardiac factors circulation.

3. Rehabilitation program has improved the effectiveness of rehabilitation after myocardial infarction in the postgospitalnom stage.

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PROPHYLAXIS OF GESTATIONAL COMPLICATIONS AT OBESITY AND METABOLIC SYNDROME FOR PREGNANT.

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The analysis of gestational complications is conducted for patients with obesity and metabolic syndrome. It is found out that heavy obstetric complications

(preeclampsia, placenta insufficiency) develop for pregnant with hyperproducts in the serum of blood of autoantibodies to insulin and insulin receptors. Tactics of conduct of patients are offered with a metabolic syndrome the stages with the use of medical ozone and preparations, settled in obstetric practice, that allowed to bring down frequency of complications of pregnancy: preeclampsia - in 1,9 time; to chronic fetoplacental insufficiency - in 1,8 times.

Keywords: pregnancy, metabolic syndrome, autoantibodies, complications.

Presently considerably interest of scientists of the whole world grew in intercommunication of metabolic violations with obesity. Obesity and diabetes mellitus 2 types are confessed by World Health Organization (WHO) by the uninfected epidemics of our time in connection with wide prevalence among a population [1, 6, 9]. In 1999 of WHO the criteria of diagnostics of metabolic syndrome (MS) were set, and thereafter one of his basic components obesity is considered [10]. It is shown in epidemiology researches, that on a background obesity women have menstrual disorder, sterility often [5, 7]. There are works in researches of accoucheurs, sanctified to influence of obesity on the flow of pregnancy and luing-ins [3, 4, 8]. At the same time in works of home scientists all more often the questions of immunological aspects come into question MS. Autoantibodies to insulin and insulin receptors are damaging factors influencing on development of all functional systems of fruit, first of all, nervous, that stipulates weight of the state new-born [2]. However in accessible literature there are the works sanctified to the prophylaxis of gestational complications for pregnant with obesity and metabolic syndrome.

Research aim - to study frequency of metabolic syndrome for women with obesity, influence of him on the flow of pregnancy and luing-ins and to set the possible ways of prophylaxis of gestational complications.

Material and methods

415 is inspected pregnant woman (I basic group). At 212 (51,1 %) from them was diagnosed MS (group I A). 203 pregnant with obesity without other constituents MS made a group I B. Control group was made by 25 healthy pregnant.

Conducted all patients general examination, including the parameters of height, body weight, the index of Quetelet (attitude of body weight toward a height in m^2) was calculated, here the increase of body weight for pregnancy was not taken into account. With the purpose of estimation of lipid spectrum of blood determined maintenance of general cholesterol, triglycerides. For the calculation of index of Caro (relation of concentration of glucose in blood to the level of insulin) determined the level of glucose and insulin in plasma of blood. For the inspection of the state of fruit the fetal monitoring, ultrasonic fetometry were used.

Results and discussion

Among the inspected women of basic group 314 patients (75,7 %) had one or another complications of pregnancy. In a group I A (pregnant with different combinations of symptoms MS) gestational complications are registered for 180 patients (84,9 %). By basic clinical symptoms in the dynamics of supervision of pregnant with obesity were threatening breaking of pregnancy, that took place at 81,3 % pregnant of I A groups and at 37,9 % pregnant of I B groups (in the group of control the indicated index was 32,0 %) and gestosis of different degree of weight, that took place at 81,1 % inspected I A groups, at 37,9 % - in I B group. For pregnant of basic group the gestosis of heavy degree is educed for 13 patients (3,1 %), middle degree - at 22 (5,3 %). We are educe the early beginning of gestosis for pregnant with MS - at 68,3 % already the edemata of shins registered oneself in 26-27 weeks, and a proteinuria and hypertension joined afterwards. At ultrasonic research the syndrome of delay of fetation is diagnosed for 147 (69,3 %) patients with MS, thus for certain more often ($p < 0,05$) what for pregnant with obesity without MS. Syndrome of delay of fetation in 100 % supervisions accompanied joining of gestosis, and only in 10,4 % cases was educed without the presence of symptoms of gestosis for a mother.

The most new-born from mothers with MS, had body of a 2600,0-3000,0 g (below in comparison with the analogical index of control group on 15 %) weight. Swingeing majority of new-born basic groups (80,7 %) at an estimation on the scale of Apgar had in the 1th minute 7 points and below, from them 22,2 % in the 5th minute had also a subzero estimation on Apgar. In a grave condition were born 4

new-born. Weight of their state was conditioned in three cases - prematurely bornness (pre-schedule delivery in connection with the presence of gestosis of heavy degree for a mother) and in one case - by the making progress hypoxia of fruit in lung-ins.

The obtained data testified that MS is an enhanceable risk of perinatal and maternal morbidity factor, and high-frequency of met MS in populations and high percent of complications of pregnancy and lung-ins require development and perfection of tactics of conduct of pregnant, determination of complex prophylactic measures.

Supposing the nosotropic role of maternal autoantibodies to insulin and to the cages of small islands of Langergans in genesis of gestational and perinatal complications, we plugged in the complex of inspection of pregnant of basic group the immunoferment analysis of serum of blood for the exposure of autoantibodies to insulin and to the cages of small islands of Langergans. Appeared, that at 74 (34,9 %) pregnant with MS (group I A) the hyperproducts of the indicated antibodies are educed in blood, for patients with obesity (group I B) - at 4,43 % (9 pregnant). At the analysis of cross-correlation dependence of gestosis and level of circulation of autoantibodies to insulin connection of middle force ($r_s=0,72$) is educed.

Results undertaken studies served basis of perfection of organization of medical and preventive help to this contingent of pregnant with an accent on strengthening of role of woman consultation and Municipal Center of extragenital pathology of pregnant. The group of comparison (II group), that was made by 25 patients with MS with the hyperproducts of autoantibodies to insulin and to the cages of small islands of Langergans, was created for this purpose.

In a term 20-22 and 32-34 нед pregnancies of patient with MS hospitalized in Center of extragenital pathology, where the course of prophylactic therapy. As a result of the conducted curatively-organizational measures in the group of comparison the reliable decline of frequency of gestosis is marked in 1,9 time (from 63,1 % to 32,0 %) and chronic fetoplacental insufficiency in 1,8 time (from 66,0 % to 36,0 %) as compared to analogical indexes in the group of woman giving births of

basic group ($p < 0,05$). In the group of comparison also it is not marked cases of the threatening breaking of pregnancy and premature luing-ins.

Considerably ends became better for a fruit and new-born from mothers with MS, the complex of the medical and preventive measures offered by us was conducted that. All children were born in time and the new-born are written on a 3-4 twenty-four hours. More heavy defeats of the central nervous system, oligotrophies at new-born are not registered.

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**Tishina A.M., Plotnikova N.A., Kemaykin S.P.,
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**CARDIOPROTECTING PROPERTIES OF MELATONIN IN
EXPERIMENTAL IN THE CONTINUOUS TUMOR GROWS**

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In the experimental transplantable Lewi's carcinoma in the treatment of anthracycline antibiotic developed the phenomenon of cardiotoxicity. In the experiment there studied the effect of melatonin on the dynamics of subacute myocardial damage during therapy with doxorubicin.

Key words: anthracycline antibiotic's cardiotoxicity, melatonin, transplantable Lewis carcinoma.

It is known is the ability of anticancer drugs as a damaging effect, manifested with the development of toxic changes in the tissues of internal organs.

The cardiac muscle is composed of cardiomyocytes, non-cell proliferation and limited intracellular regenerative potential, which leads to the development, as a rule, of persistent toxicity. The largest damaging effects on the cardiovascular system are caused by anthracycline antibiotics.

The main indirect mechanism of cardiotoxicity of anthracycline antibiotics is the formation of reactive free radicals. The myocardial tissue has increased sensitivity to the action of oxygen radicals as a result of a low glutathione content in it, catalase and superoxide dismutase, that is, enzymes that reduce the concentration of peroxide and superoxide.

Due to the use of anthracycline antibiotics, cardiotoxicity can occur acutely, subacutely, and chronically.

In clinical practice, the use of anthracycline cardiotoxicity risk can manifest itself in the period of treatment, as well as in more distant periods. In this context, it becomes highly relevant the search of drugs capable of korregirovat cardiotoxic effects of the above drugs.

For the sake of cardioprotector we investigated the hormone melatonin, which has a wide range of biorhythmological properties, and is one of the most powerful endogenous antioxidant.

The experiment was conducted with transplanted Lewis carcinoma white mice (60 mice).

Animals were divided into 3 groups.

- The first group of mice was administered with doxorubicin at a dose of 4mg/kg, twice at 7 and 12 days of the experiment, in order to correct the tumor growth.
- In the second experimental group there investigated the effect of melatonin at a dose of 0.05 mg / kg on the myocardium of mice after the correction of transplantable Lewis carcinoma doxorubicin.
- The third group consisted of animals with carcinoma of the Lewis, without subsequent pharmacological correction.

The experimental animals were sacrificed within 22 days, followed by histological examination of myocardial tissue.

For morphological assessment of the primary tumor site of untreated animals with transplanted Lewis carcinoma there observed the infiltrative tumor growth. At the same time its own connective tissue capsule of the tumor site was absent, parenchyma tumor was represented by large polymorphic cells. The proliferative activity of cells in experimental neoplasia was morphologically manifested by a large number of typical and atypical mitoses.

At pathologic study of 2 groups of mice infarction in cardiomyocytes there revealed the parenchymal protein dystrophy type of a granular and hyaline droplet. At the same time there observed the lysis of active intercalary discs anastomoses,

myofibrils, accompanied by a decrease of the striated striation myocytes. Also in the vessels of the microvasculature there observed phenomena of plethora and stasis.

The mice in the group with the correction of anthracycline myocardial injury by melatonin in the Lewis lung carcinoma morphological manifestations of subacute heart muscle damage were less pronounced. In cardiomyocytes there revealed the parenchymal protein of dystrophy granular type, preserved striated striation, effects decreased interstitial edema and hyperemia. Foci of stromal infiltration limfogistiotsitarnoy infarction occurred in isolated cases.

Thus, melatonin reduces the severity of anthracycline cardiotoxicity in experimental transplantable tumor growth.

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"PERCENTILE-PROFILE", AS A WAY OF COMPARISON OF HARD TO COMPARABLE INDICATORS OF MEDICAL DATABASES

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This article describes how to use the author's method of comparison (analysis) indicators based on statistical profiles of building standards by the method of percentiles of the Excel in Microsoft - "percentile-profile." The method allows to compare performance with significant differences in the level and characteristics of

the different units of measure, followed by the identification of risk indicators for each element of the set (the territory, the patient, laboratory animal).

Keywords: analysis of databases, "percentile-profile", the socio-hygienic monitoring, risk factors, prevention.

At present, more and more importance in the work and researchers and practitioners in medicine and health care becomes an analysis of databases is quite large. It can be a database of the Federal Fund Statistics (morbidity, disability population, etc.), clinical and laboratory findings, and so on. The objectives of the study may also be a scientific work, and perform public functions, such as socio-hygienic monitoring system Rospotrebnadzor. However, the level of skills, database analysis from the authors, according to the publications, is very low. The training programs of students in medical schools do not include ways of analyzing databases, knowledge of modern methods of statistical analysis and application packages such as STATISTICA. This, in many ways, and explains the current problems in the development of medical science and practice of health care and social development in terms of decision-making.

As one of the possible, it is enough available for the understanding and application of methods of analysis database offers author's method of "percentile-profile" [1]. The method involves a comparison of indicators based on statistical profiles of building standards by the method of percentiles of the Excel in Microsoft, you can compare rates with significant differences in the level and characteristics of the different units of measure, followed by the identification of risk indicators for each element of the set (the territory, the patient, laboratory animal) .

As an example, this paper presents the results of using the technique "percentile-profile" in the study of occupational diseases in the Omsk region of thirteen-year period and its impact on medical care, a number of environmental and socio-economic factors (this is one of the typical tasks of socio-hygienic monitoring) [2, 3]. Analysis of the problem solved quickly because of the visibility of information in the analysis is facilitated by the formulation of hypotheses to identify risk factors in a particular area.

The analysis is carried out in several stages: 1) reduction of attribute values for each region as a percentage of the median as 100%, which ensures comparability of data, 2) determining the boundaries of statistical standards by percentiles in the range of P25 - P75 (interquartile range, as recommended by many authors), and 3) to determine the relative spacing of the norm (in% of median), and 4) a graphical analysis (construction of scatter plot with drawing the boundaries of statistical standards and relative values of the regions).

The method allows, first, to compare the performance limits of statistical standards - the vertical strokes in Figures 1 and 2, which is itself a subject of reflection. In this case, as seen in Figure 1, is marked by a rather pronounced variations in the boundaries of statistical indicators of standards of occupational morbidity in Russian regions, especially at the beginning of the period. This is due to significant fluctuations in labor conditions, health care, socio-economic factors, the literacy rate in respect of the rights of social protection in the loss of health, changes in federal law regarding the definition of occupational disease, etc.

Second, the method allows us to see the position of each element of the target population (database) on the borders of the statistical norm in this population. In this case, the values of occupational diseases in the Omsk region included within the boundaries of the national average statistical norm (P25-P75) for the entire thirteen-year period studied (Fig. 1).

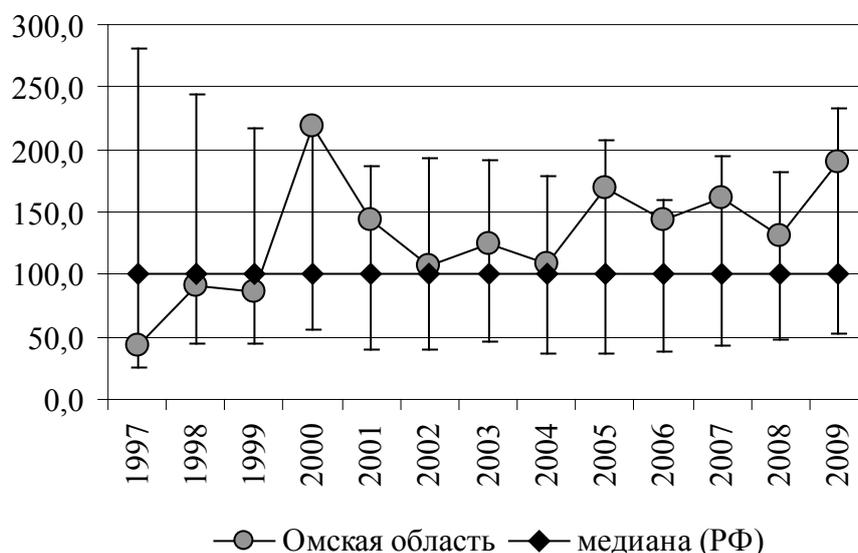


Fig. 1. Characteristics of the Omsk region positions relative to the boundaries of statistical standards in the Russian regions on indicators of occupational diseases for the period 1997-2009 gg. ("Percentile-profile"). Legend: the y-axis - standardized rates interquartile range (P25 - P75) relative to the average of the median taken as 100% on the x axis - the period of observation

Third, the method allows us to formulate hypotheses further analysis. In this case it is necessary to determine the possible impact on the incidence of occupational environmental factors, namely health care, a number of indicators of environmental and socio-economic situation in the Omsk region (Fig. 2).

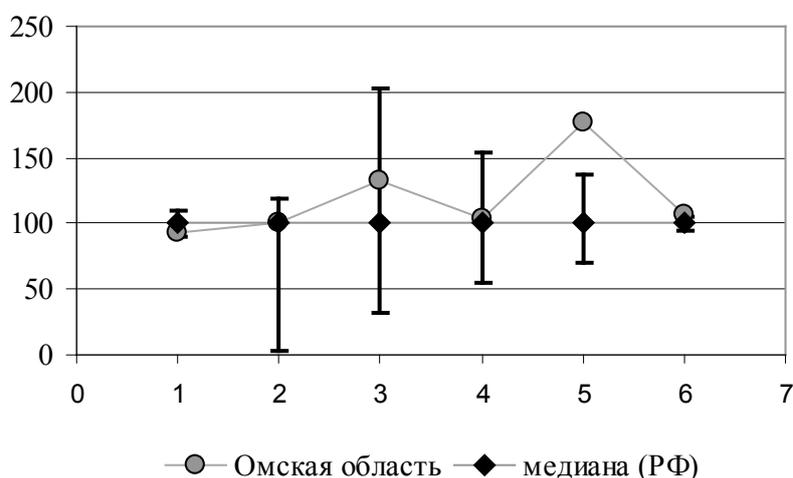


Fig. 2. "Percentile-profile" characteristics of health care, environmental and socio-economic indicators in the Omsk region in Russia on average. Legend of the y-axis - standardized rates interquartile range (P25 - P75) relative to the average of the median taken as 100%. Legend of the x-axis: 1 - Power of outpatient clinics, and 2 - the proportion of diagnoses of chronic occupational diseases, established centers of Pathology, 3 - emissions of pollutants into the air from stationary sources, thousand tons for 1 person per year, 4 - discharge of polluted wastewater into surface water bodies, metrov3 thousand per 1 square kilometers of territory, 5 - share expenses on the budgetary system of funding for housing and communal services, 6 - the Gini coefficient

In studies percentile-profile figures of the "professional disease - habitat" (Fig. 2) attention is drawn to the values expressed by the difference oscillation characteristics (statistical limits of normal), namely indicators: the proportion of diagnoses of chronic occupational diseases, occupational diseases established centers that once again confirms the potential impact on the identification and registration of occupational diseases, availability of medical specialist care (position 2 in Fig. 2), emissions of pollutants into the air from stationary sources (thousand tons for 1 person per year) and wastewater discharge in the surface water bodies (in thousands metro³ on 1 square km. territory) (position 3, 4, Fig. 2). As can be seen from Fig. 2, in the Omsk region figures for positions 1-3 did not differ from the national average: Omsk region is in the range of statistical norms of these traits in the Russian regions.

However, the analysis of the percentile-profile in Fig. 2 observed entering the Omsk region in the range of above average socio-economic indicators: the proportion of expenditure on the budgetary system of funding for housing and communal services (item 5, Fig. 2) and the Gini coefficient (position 6, Fig. 2). That is, in the Omsk region marked by a greater than 75% of Russia's regions, the weight of the budgetary system of expenses for activities related to housing and communal services, and yet, most uneven income distribution (Gini coefficient in terms of area included in the risk zone .) Consequently, we can assume the reason for the financial treatment of active work in the Omsk region over the loss of their health.

Thus, on the basis of the method of "percentile-profile" identified a number of new, useful knowledge about the occupational morbidity in Russian regions and in the Omsk region, as well as formulate hypotheses for further inquiry.

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