[Application of immuno-biochemical indices for the identification of the chronic pathology of the upper respiratory tract].

https://arctichealth.org/en/permalink/ahliterature263378

Author: L B Masnavieva
   I V Kudaeva
   N V Efimova
   L A Budarina
   I V Tikhonova

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Publication Type: Article

Keywords: Adolescent
   Air Pollutants - adverse effects - analysis
   Chemotaxis, Leukocyte - drug effects
   Chronic Disease
   Environmental Illness - blood - chemically induced - epidemiology - immunology
   Formaldehyde - pharmacology
   Humans
   Respiratory Tract Diseases - blood - epidemiology - etiology - immunology
   Russia - epidemiology
   Urban Health - standards - statistics & numerical data

Abstract: A comprehensive survey of organized children aged 14-17 years residing in the industrial centers with moderate and high levels of air pollution was performed. On the base of the examination of otorhinolaryngologist in each of cities there was selected the group of schoolchildren with chronic pathology of the upper respiratory tract at the stage of remission. In these groups there was performed the assessment of the informativeness of immuno-biochemical indices for the identification of pathology caused by the impact of man-made factors. The most informative (relative content of autoantibodies to Â?2-glycoprotein-1, the average individual immunoreactivity, erythrocyte sedimentation rate, level of a1-antitrypsin) were used in the mathematical model, on the based of which it was possible to calculate the diagnostic coefficient, allowing to identify in the groups observed by ourselves, chronic pathology of upper respiratory tract, formed under the influence of ambient air pollution. The above approach can be used in the formation groups for health promotion of children exposed to the negative impact.

PubMed ID: 25831945 View in PubMed
[Cholesterol exchange in children and adolescents in the industrial towns of eastern Siberia].

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Author: L A Budarina
        I V Kudaeva

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Publication Type: Article

Keywords: Adolescent
          Age Factors
          Child
          Child, Preschool
          Cholesterol - blood
          Cities - epidemiology
          Environmental health
          Female
          Humans
          Hypercholesterolemia - blood - epidemiology
          Industry
          Male
          Retrospective Studies
          Siberia - epidemiology
          Urban Population

Abstract: A prospective cohort study was conducted to examine lipid metabolic parameters in 5-14-year-old children. A directional trend was established in lipid parameters (a reduction in the level of total cholesterol and a change in its fractional composition: higher levels of high-density lipoprotein cholesterol with a parallel decrease in the concentration of low-density lipoprotein cholesterol), which is due to age-related features. There was a change in the spread of deviations in cholesterol exchange parameters from the standard values with age.

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[CLINICAL AND BIOCHEMICAL CHARACTERISTICS OF DISORDERS OF THE NERVOUS SYSTEM AND THE RISKS OF COMMON PATHOLOGICAL SYNDROMES IN MERCURY PRODUCTION WORKERS].

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Author: I V Kudaeva
        O A Dyakovich
        E V Katamanova
        O V Popkova
        L B Masnavieva

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Abstract: The occupational factors are assigned one out of main parts to the development of occupational and comorbid pathology. At the same time the social aspects of labor relations act as the most important factors influencing on the workers' self-assessment of health status. Quantitative risk assessment of the common pathological syndromes has identified the excess of share of persons with a minimum level of risk over the medium and high. In the structure of risks of common pathological syndromes there are prevailed risks for disorders of the cardiovascular and nervous systems and borderline mental disorders, which is a response to the impact of not only industrial, but also psychosocial factors. The results of self-assessment of health status and clinical examination of employees in conditions of mercury exposure show the similarity of the structure of diseases in these cases. In either event there are dominated diseases of the nervous and mental sphere, and from the comorbid pathology disorders of the cardiovascular system are prove to be important. Clinical manifestations of the mercury exposure, ranging from pre-clinical manifestations to marked changes from the side of the nervous system in toxic encephalopathy, are characterized by the presence of hyperkinetic syndrome. For pre-clinical and early forms of mercury poisoning there is also typical the presence of asthenic (emotional lability) disorders with autonomic dysfunction. Comorbidities in an internship working was manifested primarily by diseases of visual organs, cardiovascular system and diseases of the musculoskeletal system. Observed disorders of the nervous system and psycho-emotional sphere are caused, inter alia disturbances of the balance of catecholamines (the rise of norepinephrine in dynamics with a concomitant increase in the coefficient reflecting the degree of its metabolism: norepinephrine/epinephrine and norepinephrine/(adrenaline + Normetanephrine)) in the body.
There are many harmful factors that possess a damaging impact on the body of employees at aluminum production. It leads to the development of bronchial asthma (BA), chronic nonobstructive bronchitis (CNB) and chronic obstructive pulmonary disease (COPD). The pathogenesis of these disorders, as well as sensitizing effect of fluorine in the aluminum production is not fully understood. The purpose of this work was to study the characteristics of laboratory indices in patients with occupational diseases of the respiratory system. In workers of aluminum production with the diagnosis of occupational diseases of respiratory system (15 patients with a diagnosis of asthma, 30 CNB cases, 20 COPD patients) we evaluated the content of total protein, total cholesterol, high density lipoprotein cholesterol (HDLC), total calcium, phosphorus, ceruloplasmin, hematological indices and performed emigration of leukocytes braking test (TTEEL). Clinical and biochemical profile of persons with occupational asthma was characterized by a low level of total calcium and ceruloplasmin, a high concentration of phosphorus in the blood serum and inhibition of leukocyte emigration in the test with sodium fluoride. For aluminum production CNB workers characteristic active proatherogenic process was pronounced by a decrease in the HDLC level and an increase in atherogenic index; higher hematocrit value and concentration of erythrocytes, and more than 50% of cases of sensitization to the presence of sodium fluoride. COPD cases had occupational lower average concentration of hemoglobin in the erythrocyte, total protein in serum, as well as polymorphic variant response to sodium fluoride in the form of a depression and activation of leucocytes emigration.
Currently available methods for diagnosis of chronic mercury intoxication (CMI) are applied at any stage of the disease. Changes in these indices sometimes have no the specificity for any CMI stage, and a conclusion on them has the descriptive character. In addition, the above mentioned methods possess not sufficiently high accuracy in the diagnosis of intoxication at early stages of the development of the disease. The purpose of the research is the development of the method permitting to make the differential diagnosis between the initial symptoms of mercury poisoning and its first degree. 118 men who work/worked in the contact with mercury vapor were examined. There were evaluated electroencephalogram, long-latency auditory and cognitive evoked potentials, cerebral hemodynamics, noradrenaline (NA) content in the blood plasma. Statistical processing was performed with the use of «Statistica 6.0» software. The levels of NA in the development of CMI were shown to increase, by the time of the shaping of this disease the noted change was decompensated in the nature. The study of reactivity of cerebral vessels revealed the presence of abnormal responses during hypercapnic load in 14 - 24% of examined cases. In the analysis of auditory evoked potentials there was established the change in indices of latency and amplitude of the V- wave, which pronounced in the prolong response time, significant elongation in the P1 peak latency and the gain in the latency of N1 peak. There was established the presence of the wave-like change in the index of the latency of P300. In workers without an occupational disease, there was noted the marked elongation of the latent period of cognitive potential, while in patients with the newly made diagnosis the latency of P300 corresponded to standard values, and in the long term there was observed a sharp deterioration in this index. With the aid of the discriminant analysis with the calculation of canonical value there were revealed the most informative neurobiochemical indices, reoencephalogric ones and evoked potentials. The developed method of diagnosis allows to distinguish between the initial symptoms of mercury intoxication and the first stage of the disease.
Aluminum production can be referred to the category of industries of the increased health hazard for the workers. During technological process of receiving aluminum the air of a working zone is polluted by a large number of harmful substances. Workers are exposed to the complex of toxicants possessing a polytropic impact on the body. The most significant consequences are violations of different types of metabolism in the organism, including lipid metabolism. The purpose of the study is the investigation of the state of lipid metabolism in persons working in the production of aluminum. The object of research was 108 male workers of aluminum production suffering from occupational pathology of airways. The group of comparison was consisted of 103 men, apparently healthy, not exposed to toxicants. There was determined the content of the total cholesterol (TC), high and low density lipoprotein cholesterol (HDLC and LDLC), triglycerides (TG), phospholipids (PL), atherogenic index (AI). Statistical processing was performed with the use of software «Statistica 6.0». There were established statistically significant differences of indices of lipid exchange in the persons occupied in aluminum production when related to the group of comparison. IA values in persons from the study group proved to be higher than in the comparison group, due to elevated levels of TC and LDLC. The TG and PL level was also higher. The values of IA, TC and TG in workers of aluminum production in more than 50% cases exceeded the reference values. The average concentration of HDL cholesterol in both groups did not differ, and was above the lower reference boundary. Established features of lipid metabolism in workers of aluminum allow us to suggest the distinction in mechanisms of developing proatherogenic disorders from previously established ones for workers exposed to other chemicals. One of the causes of the shaping of these disorders can be oxidative stress, which in turn serves as a response to the exposure of complex of toxic substances to workers.