

A COMBINED STUDY OF THE LIPID SPECTRUM AND CYTOKINE PROFILE IN SILICOSIS CORONARY HEART DISEASE AND ARTERIAL HYPERTENSION

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ABSTRACT

Occupational disease of workers-mining remains the highest national average. Obtaining and monitoring information about the Republic of Uzbekistan is one of the most important tasks facing the management of the Republic of Uzbekistan and the health care system. As for the death and disability of the working-age population, vascular diseases take the main place, and arterial hypertension is the most widespread. It has been collected by many people in different countries and people. Reasons for the exacerbation of the disease arterial hypertension (AH) and related to it are diverse. For this, in order to come up with the most effective methods of combating them, it is necessary to take them in connection with various things, ethnic means, and professions. Thus, high-loading blue load as strong labor workers and miners (Bodarev OI, Bugaeva MS, 2015). We discuss in this narrative review a number of biochemical (lipid spectrum) and pro- and anti-inflammatory cytokines (TNF (tumour necrosis factor- α), IL-8 (interleukin-8)) biomarkers that have great potential for use in the management of silicosis. Research has indicated that the aforementioned markers hold great promise in assessing the advancement of early diagnosis in silicosis and are a viable substitute for radiography. Lipid spectrum biochemistry in silicosis Cardiovascular disorders play a major role in predicting development risk. In order to assess the accuracy of the biomarkers that have been provided, we believe that a multicentric investigation including large subject populations is required to assess these biomarkers in relation to work history, histological examination, imaging signals, and pulmonary function tests.



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1. INTRODUCTION

Currently, direct health, cardiovascular disease (CVD) physical condition, and health problems in learning. This combination of professional interactions is especially helpful.

An increasing number of epidemiological investigations have shown that exposure to atmospheric particles is a causal factor for cardiovascular diseases (CVD). The health effects of long-term, cumulative exposure to silica dust are a growing public concern worldwide. The latter shows that the long-term treatment of inhalation of silica is associated with mortality from both respiratory diseases and diseases, but also from cumulative exposure to silica dust and cardiovascular diseases. reveals secret-answer relationships [1]. These three findings raise the need to improve cardiovascular mortality in patients with pneumoconiosis. Due to the fact that many cardiovascular diseases can be prevented, early detection and detection is a serious problem, especially in atherosclerosis. to our knowledge, none have been conducted in patients with pneumoconiosis.

Cardiovascular disease (CVD) and hypertension are the most common causes among mining workers. This has been a recent trend toward growth and rejuvenation [2].

Arterial hypertensive cardiovascular disease is one of the biggest diseases, besides being a serious disease, it is one of the most important diseases for cardiovascular diseases, cardiovascular diseases. It has been proven that there is an increase in the level above the level of systolic load of about 140 mm H. [3].

M.K. Toshmuhamedov shows that the frequency of support for mining industry production and the effect of product production on production capacity depends on age and production capacity. An increase in hypertension was observed in people with more than 10 years of work and over 40 years of age, when analyzing the individual development of coronary artery diseases, it shows that angina pectoris was between 2.5% and 7.8% of the surveyed workers. The author confirmed that due to the disease, the age of the patient with IHD and the harmful work effort increase. Thus, in 40-49.8% of examined cases, IHD was preserved in 4.7-8%, and in 15.8-23.5% in those over 50 years of age [4].

Study of worker mortality and workplace air pollution effects on coronary artery disease. The mechanisms are not fully understood, but "particulate air pollution causes an increase in the production and production of anti-cytokines in the past pulmonary inflammatory response. can release blood diseases" [5].

In addition, there is a connection between air pollution with fibrogenic dust and cardiovascular and autonomic nervous diseases. Thus, due to long-term exposure to coal dust, miners develop lipid-mediated lipid accumulation [6] and are prone to heart attacks [7]. Aldehydes, such as acrolein, are any type of pollution found in car exhaust, cigarettes, wood, and coal smoke. Oral exposure to acrolein may cause or worsen dyslipidemia, increasing plasma cholesterol and triglyceride levels, and thereby producing CVD [8]. Several researchers have reported on the suppression of heart rate changes associated with environmental particulate pollution [9]. Acute exposure to particulate air pollution appears to cause ST-segment depression in patients with CAD [10].

Inhaled silica particles can initiate vascular disease—either through direct exposure to fine particles that travel from the pulmonary epithelium to the cardiovascular system [11] or indirectly through an inflammatory response.

J.S Lee et al. In Korean subjects, high serum IL-8 levels were associated with pneumoconiosis, and serum tumor necrosis factor- α levels were associated with the development of pneumoconiosis at 1-year follow-up [12], [15], but not at 3-year follow-up [13], [16]. Prolonged exposure to silica dust can reactivate the disease. Although the hypothesis needs to be supported by the power of a large prospective cohort.

2. RESEARCH OBJECTIVE

Study the characteristics of combined lipid spectrum and cytokine profile in silicosis coronary heart disease and arterial hypertension.

3. RESEARCH MATERIALS AND METHODS

The prospective object of research stages I, II, III of silicosis was determined in 126 patients who worked in the mining industry and were treated at the clinic of the Sanitation, Hygiene and Scientific Research Institute. professional ministry of Health of the Republic of Uzbekistan. The average age of patients is 39.6 ± 1.2 years, work experience is more than 10 years.

Comparison of the obtained data with 20 healthy workers who were not in contact with the production of the production system and its labor activities, without damage to the respiratory, cardiovascular and immune systems. was listened to. comprehensive user.

In addition to the general clinical and instrumental examination, a number of methods were used for the diagnosis of coronary artery disease and hypertensive patients in the professional clinic. of hemodynamics: biochemical lipid spectrum (AT, CK-MB), study of cytokine profile indicators (IL-8, TNF- α).

62 patients with X-ray first stage of silicosis (interstitial form) - group 1, 37 patients with stage (nodular form) - group II, 27 patients with development of pulmonary fibrosis (nodular form) were selected for the study. III - the combined group with coronary heart disease and arterial hypertension.

Enzyme immunosorbent assay was carried out on Rayto TNF-a, Interleukin-8 analyzer with the help of Vector Best (Russia). A biochemical study of creatinine phosphokinase (cardiac fraction) and lipid profile was performed on a Mindray BS-380 automatic biochemical analyzer using HUMAN (Germany) reagents.

4. RESEARCH RESULTS

It was determined: physical effects - noise, vibration, movement of silicon-induced fibrogenic dust; biological - disordered eating, switching off climatic conditions, night work; medical - neu-emotional extremes, work under time, risk.

Table 1.

No/p	Profession	Sick silicosis	harmful prof factor
1	Miners (miners)	55	Dust (fibrogenic dust-silica) Noise Vibration Unfavorable microclimate At the neuromuscular level
2	Bombers	15	Dust Noise
3	Locksmiths	10	Dust participation
4	Electric locomotive drivers	13	Noise Dust
5	Drilling machine operators	17	Noise Dust
6	Fasteners	9	Dust
7	The deliver	7	Dust
	Total	126	

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extremes, work under time, risk.

Able now in miners age, the incidence of hypertension is 1.5 times higher than coronary heart disease, IHD is 48%, and AH - 69% (Fig. 1).

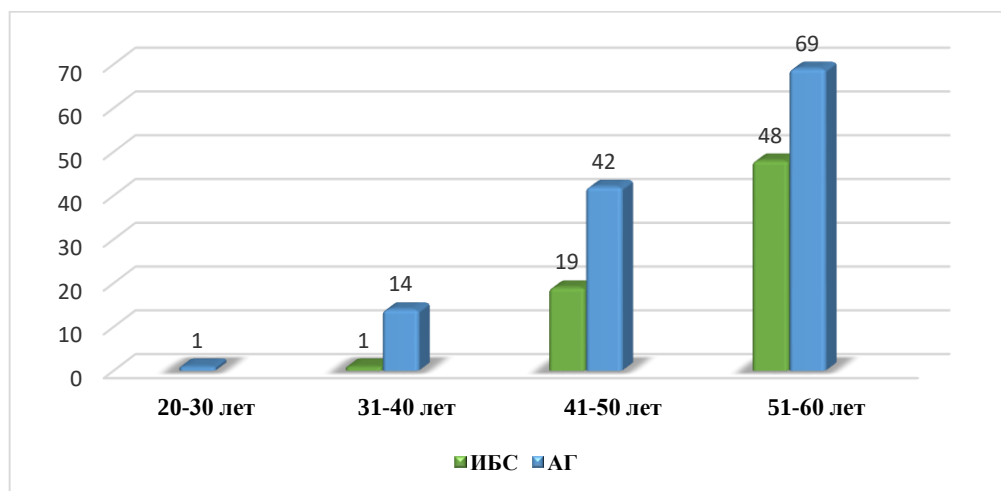


Figure 1. Distribution of cardiovascular diseases by age (%).

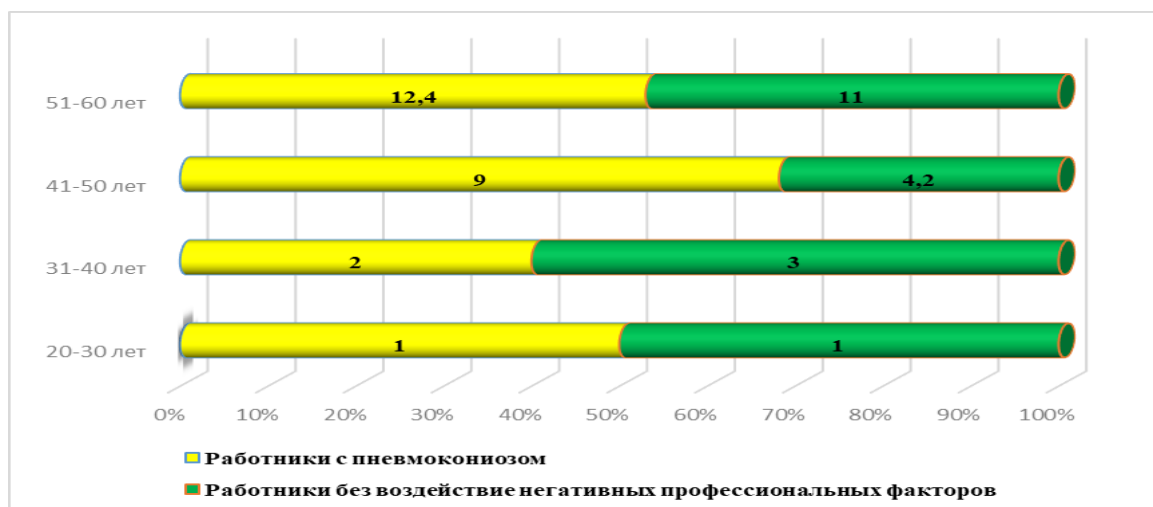


Figure 2. Frequency of occurrence Cardiovascular diseases (%) among workers with and without occupational exposure to pneumonia..

Digital statistical data after we completed a medical examination indicate that 40-60 years old with pneumoconiosis during the initial medical examination, 21.4% had cardiovascular pathology. For comparison, data from the same age group of people who were not exposed to negative occupational factors are presented; they had cardiovascular diseases (CVD) in 11.2%. This indicates that when exposed to harmful production factors, the risk of developing cardiovascular diseases more than doubles (Fig.2)

The relationship between dust etiology and pulmonary fibrosis was evaluated with cytokines and lipid spectrum closely related to ischemic heart disease and hypertension (Table 2).

Table 2. Enzyme immunosorbent assay for silicosis with IHD and AH.

Groups	TNF-a pg/ml	IL-8 pg/ml
Control group n=20	4.58±0.36	7.05±0.68

I st (n=62)	5.09±0.19	7.78±0.43
II st (n=37)	7.61±0.19*	17.92±0.51*
III st (n=27)	11.67±0.58*	31.8±2.08*

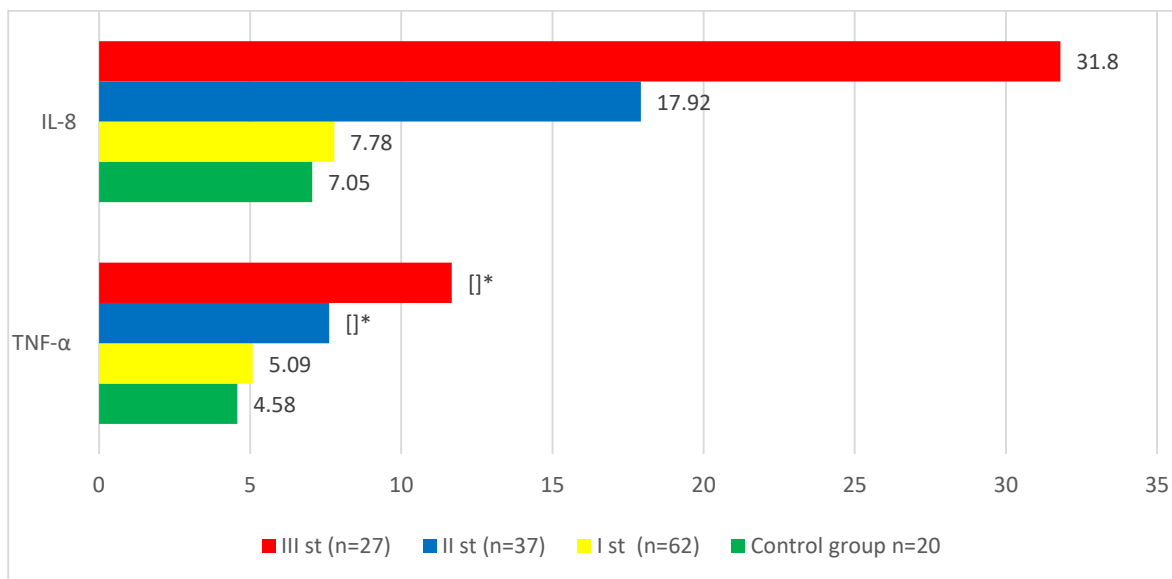


Figure 3. Deactivation (pg) of cytokine parameters in silicosis patients with coronary artery disease and hypertension.

Cytokine profile in patients with silicosis is increased at the level of file number when studying in combination with ischemic disease and hypertension. TNF-α and IL-8 ($P<0.05$) (Figure 3).

In patients with silicosis, changes in lipid metabolism close to coronary artery disease and hypertension were observed in the spectrum of lipid indicators: a general increase was observed: in total cholesterol (TC), triglycerides, HDL-C, LDL-C, AT, pathway, CK-MB (cardiac fraction) ($P<0.05$) (Figure 4).

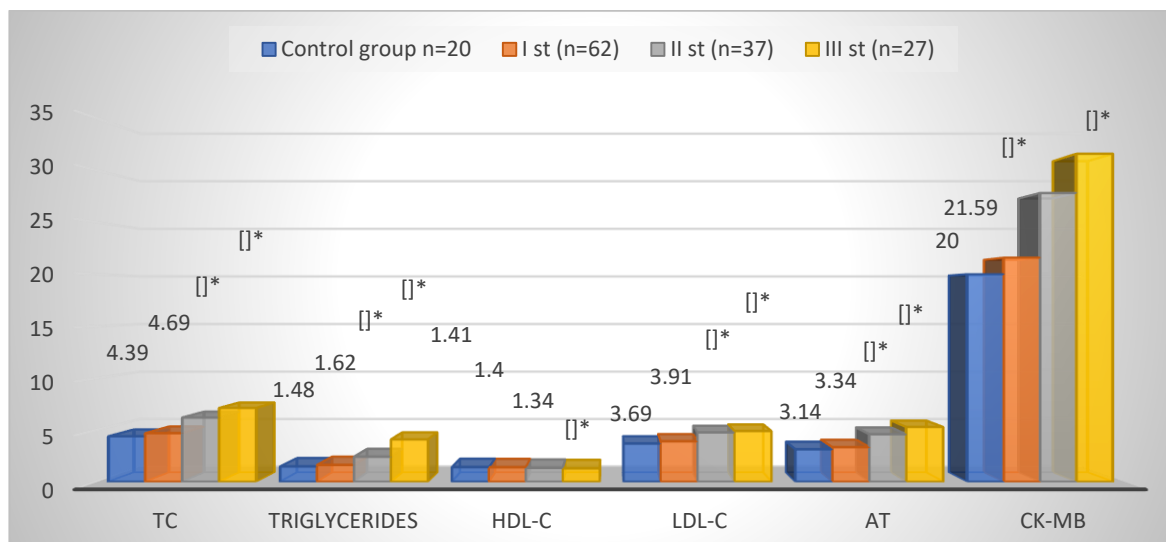


Figure 4. CPK-MB transmission parameters of lipid metabolism in patients with cirrhosis with IHD and AH.

In patients with silicosis, severe damage to the nearby blood wall was observed with IHD and AH, TNF-α, IL-8 damage the endothelium, which causes inflammation and additional fibrosis from the cell, which

reduces the elasticity of the tissue, which leads to the release of its own harmful protease and produces cardiovascular production.

The most common CVD among mining workers are IHD and AH. Recently, it has become more and more youthful. Hypertension is a disease of the ischemic heart and its growth is often observed in people over 40 years old. In the study eligible age group of 4 years (41–55 years), IHD confirms a higher estimate than IHD among miners. In addition, the work in this field is solid for 10 years or more.

It was found that hypertension is diagnosed in underground miners at a young age - 30-39 years, and in surface workers, it appears later (Fig. 5).

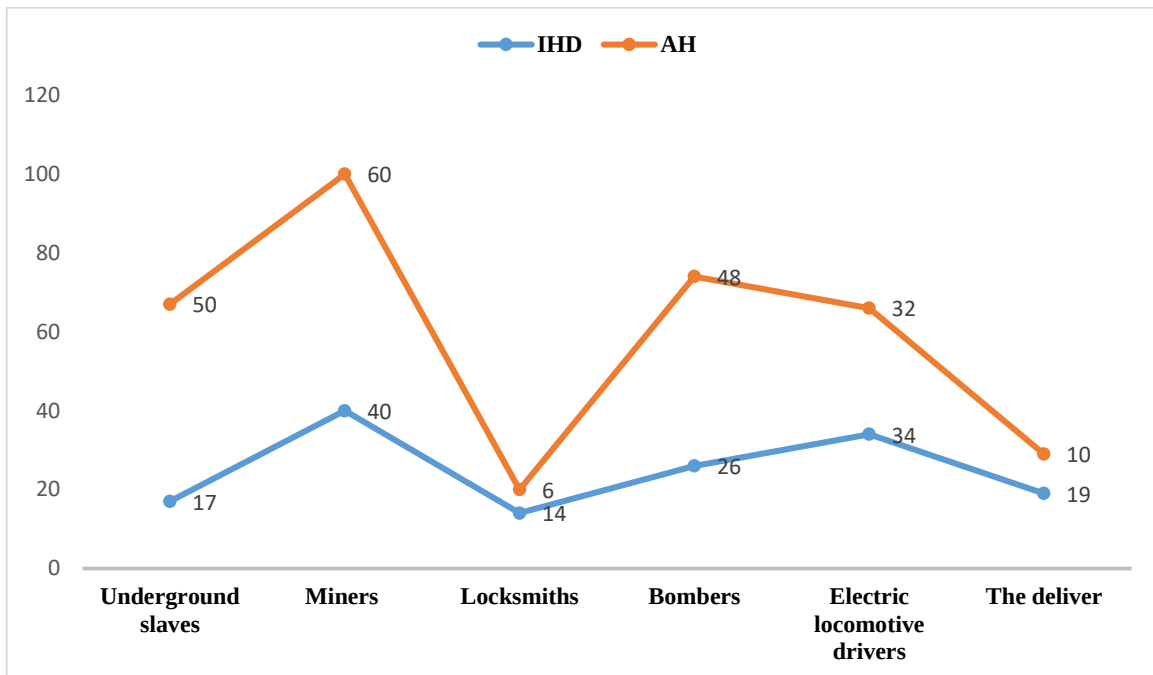


Figure 5. Distribution of workers diagnosed with IHD and AH by occupation (%).

Increased hemocirculation, which is enhanced by the presence of hypertension, is a predictor of production, which leads to severe hemodynamic derivatives, which leads to a healthy weight, development and disappearance of occupational diseases.

In patients with silicosis, along with ischemic heart disease and hypertension, we observed a change in the lipid spectrum and found that the appropriate cytokines - interleukin-8, and $\text{TNF-}\alpha$, determine the size of the load, increased atherogenicity, creatine kinase (cardiac fraction) ($P < 0.05$)

When increasing lipid infection along with coronary artery disease and hypertension in patients with silicosis, we determined to determine the level of atherogenicity, creatine kinase (cardiac fraction) - TC, Tr, HDL-C, LDL-lipid spectrum. C, VLDL-C, AT and CK- MB.

5. CONCLUSIONS

A study of blood serum in pneumoconiosis (silicosis caused by exposure to silica dust) revealed. In patients suffering from silicosis with hypertension, severe damage to the vascular wall was manifested by high levels of $\text{TNF-}\alpha$, and IL-8 in the blood of patients, which causes damage to the endothelium, increases the damage processes and the secretion of additional proteases from the cells. showed '. fibrosis leads to the effect of the elastic development of blood formation and as a result, the production of cardiac blood product increases.

We can come to independent production for the development of IHD and hypertension. Treatment of hypertension and coronary artery disease It is necessary to treat the disease that caused the development of hypertension and coronary artery disease or worsened its course. It is necessary to take a differentiated approach to the study of working conditions in the mining industry, based on real production, using a wide range of medical and biological indicators to determine the health status of workers. the impact of the working environment on the health of this sector network.

The presence of professional production in mining metallurgy, ensuring the high quality of medical care, early diagnosis, health promotion and prevention. possible through.

6. References

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