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ATHEROTHROMBOTIC CEREBRAL STROKES AND MULTIFOCAL ATHEROSCLEROSIS

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Abstract: In this scientific research, information is presented about the role, importance, quantitative indicators of tissue microelements in the formation of atherothrombotic stroke and multifocal atherosclerosis, the appearance of various manifestations of atheromatous plaques,the relationship of the indicator of misbatan fault to each other, as well as quantitative changes. To clarify this style of information, the results of scientific research conducted by scientists around the world over the past 10-20 years have been discussed. It turns out that an increase in the amount of iron in the tissue is a risk factor for cardiovascular diseases. Iron has a negative effect on the cells involved in the process of atherosclerosis through the immune system, reduces the pro-inflammatory and anti-inflammatory function of macrophages. The accumulation of iron in atherosclerotic plaques depends on the fact that its double-valence manifestation cannot turn into 3 valences. An increase in copper in the tissue and a decrease in zinc serve as a risk factor for atherosclerosis and ischemic heart disease.Selenium models inflammation, protects the endothelium, inhibits the oxidation process, and protects vascular cells from apoptosis and calcification. The negative effects of cadmium on atherogenesis are associated with increased oxidative stress, inflammation, endothelial dysfunction, lipid metabolism, molecule adgezia, prostatin dysbalance, and glycosaminglicans synthesis.

Keywords:atherothrombotic stroke,multifocal atherosclerosis, atherocalcinosis, microelements, iron, copper, zinc, selenium, cadmium.

The relevance of the problem, the degree of study. Vascular atherosclerosis is a systemic disease that causes all blood vessels involved in pathological prosess caused by substance exchange disorders.It is noteworthy that the large and medium caliber vessels are divided into atheromatous and into species salts, according to the literature, mainly in connection with the location of calcium and phosphate salts, atherocalcinosis(ASVD) plaques are formed.They hemodynamic achaemia cause stenosis thromboembolism calls and in this vascular region ischemia,tissue necrosis develops when circulation is not restored.If two-thirds of the strokes are ischemic prosess,then half of them are atherothrombotic stroke. In general, non-stable ASVD and hypercoagulological, as well as rheological disorders are atherothrombotic, thromboembolic, cardioembolic processes. ASVD' s in aorta, side head artery urological (excitation disorders, erectile dysfunction, gynecological, practological...) problems call, sleep artery strokes and coronary vessels cute infarction, lung artery thromboembolism brings "premature" and "accidental " death , and such diseases have unfortunately been experienced in recent years. Another pity is that multifocal atherosclerosis is observed in combination with osteoporosis disease, which is observed simultaneously in bone tissue. ASDV is a composed of endothelium, fibrosis tissue, cholesterol, ulcers, inflammatory cells and calcium phosphate salts, while osteoporosis depends on the functional state of osteoblast, osteoclasts.The literature has already declared that the pathogenesis of atherosclerosis and osteoporosis are inextricably linked.Also parathyroid hormone levels, calcium, estrogen, testosterone,

ASVD and osteoporosis levels in the blood and tissue are known to be interconnected.

In Uzbekistan, circulatory diseases account for two-thirds of all mortality rates, more precisely ,61.7% of deaths as a result of them, oncology among our people calling for more and more panicky shows that 7.8%, 5.2% injuries, 4.1% gastrointestinal, 3.1% infectious,18.1% other diseases are the cause (State Statistics Committee, 2021) state, government, Minister of Health system and of course science are an absolute leader in rotational diseases, the main cause of which is multifocal atherocalcinosis (ASVD). ASVDs first call thrombosis, thromboembolism in the arteries in the aorta, (kidney) then iliac (disorders of the pubescence, erictil dysfunction), then sleep (stroke), then coronary (myocardial infarction). The role of the state of diselementosis in the development of circulatory diseases in recent years is said to be large - scale, since macro-and microelements are included in the composition of enzymes, hormones and proteins that are involved in all functions of the cardiovascular system[1, 2]. It is important to study these diseases due to the fact that trace elements involved in chemical reactions that take place in the structure of development mechanisms are contained in the blood and directly in the tissue of internal organs. Therefore, the creation of a base on the micronutrient composition of biological tissues is a new perspective direction in the field of circulatory diseases [3].. The study of the interaction of trace elements associated with structural-functional disorders of the properties of the cell membrane and the oxidation process, which leads to damage to the vascular endothelium, provides new information for the incidence of atherosclerosis pathogenesis. It turns out that the dysbalance of chemical elements occupies an important place in the development of vascular pathologies. Of the microelements, mainly calcium has been studied, information about other elements is in a state opposite to each other [4, 5].. At the same time, it is important to study the issue of atherosclerotic plaque, in particular trace elements that determine the composition, size and development of complications of ASDV. Especially when conservative and surgical removal of calcinosis deposits in the composition of pilachas, it is imperative to know their micronutrient composition. Therefore, scientific research in order to determine the concentration and location of chemical elements in atherosclerotic plaques is highly recommended.

Iron. High levels of iron in the blood and tissues are a risk factor for diseases of the cardiovascular system. The role of iron in the pathogenesis of atherosclerosis, oxygen catalyzes the formation of active radicals, oxidizes the lipoprotein fraction of blood.In addition, iron acts on all cells involved in the process of atherosclerosis, participating in the immune response. The activity of macrophages with proinflammatory and anti-inflammatory function decreases under the influence of the labile appearance of iron on the wall of the arteries. At the same time, the correlation of plasma ferritin in the blood and labil ferritin in the cell with each other has not been studied.

An increase in the amount of iron in the tissue is a risk factor for cardiovascular diseases. Iron has a negative effect on the cells involved in the process of atherosclerosis through the immune system, reduces the pro-inflammatory and anti-inflammatory function of macrophages. The accumulation of iron in atherosclerotic plaques depends on the fact that the double-valence view cannot turn into 3 valence.

Ji J, et al. According to data from (2015), the accumulation of iron in an atherosclerotic furnace was found to be much higher than in MEUR. In this case, a large accumulation of iron was associated with a decrease in the expression of tseruloplasmin and haptoglobin in the tissue. The authors assume that the accumulation of iron in atherosclerotic plaque, as we said above, depends on the inability of a two-valence iron oxide to turn into a three-valence. Wang Q, et al. (2016) showed that the accumulation of iron in foamy cells is associated with the protein tseruloplasmin in blood plasma, since 95-97% of copper

in the blood is a contributing factor to the release of intracellular iron. This reduction in protein expression resists the release of iron and accelerates the accumulation of lipids in macrophages in the formation of foamy cells, which is a clear factor that indicates the replacement of iron in the pathogenesis of atherosclerosis.

It was observed that the concentration of iron in moddelized experimental atherosclerosis in the rabbit aorta was relatively high, with an inverse correlation with calcium content. Iron aggravates atherosclerotic damage, while calcium reduces it. According to the authors, liming is a protective mechanism against atherosclerotic progression. Iron and calcium atheroskrotic process in developing tissue, lipid substances are substances that control conductive transport channels (Rajendran R, Minqin R, Ronald JA, et al, 2012). Tasic NM, et al. (2015) studied the amount of iron in the blood plasma and in the artery wall of the thigh at different periods of atherosclerosis and showed that iron is the cause of the development of atherosclerosis and its complications. Aspects of iron dependence on lipid metabolism have been identified.A positive correlation of iron with copper has been detected in the blood plexus, which can take place in the tendency of the plaques to burst.

Copper and zinc.Tasic NM, et al. A study conducted by (2015) on the study of atherosclerotic plaques and concentrations of copper and zinc in blood plasma showed that high levels of copper and decreased zinc can occur as a risk factor in the development of Atherosclerosis Disease. According to the author's data, it is indicated that there is a side of the connection of these elements with lipid exchange markers.The blood plasma shows that copper and iron have a positive correlation. Rozikhodjaeva G. He. and so on. (2015) who received results similar to the above data, it was observed that in the outbreak of atherosclerosis, the amount of zinc in the blood plasma was reduced in the increase in the thickness of the artery wall intima and Medea, which indicates that atherosclerosis is associated with a decrease in zinc.

Bekenyova D. Z. and so on. (2014) has shown in his research that the amount of copper and zinc is essential in the development of acute coronary syndrome. Complications of myocardial infarction have been shown to depend on higher copper levels and a decrease in zinc levels. It has been concluded that in acute myocardial infarction, cardiomyocytes have been shown to be able to increase their antioxidant protection by the amount of copper. It has been confirmed that the decrease in the amount of zinc is due to a decrease in the demand for metalloproteins, which reduces the peroxide oxidation of lipids in the tissue.At the same time, patients with myocardial infarction are shown a decrease in the amount of zinc, an increase in the amount of copper (Uezshm, etc.). (2016, 2017].

Selenium.Liu H, et al. (2017) in his taxlilium article, i.e. in a study devoted to the role of selenium in the development of atherosclerosis and the mechanism of action, he commented that selenium resists the development of experimental atherosclerosis. It is known that in the development of atherosclerosis, the role of selenium proteins is great, that is, glutathione-peroxidase, thioeredoxynreductase 1, R selenprotein and S selenprotein are of great importance. The mechanism of action of selenium is as follows, it models inflammation, reduces endothelial function, inhibits the oxidation process and protects vascular cells from apoptosis and calcification (Liu H, Hu H, Huang K., 2017). Ren H, et al. (2016) observed in his research that selenium homocysteine protects against induced endothelial dysfunction . The authors believe that selenium increases the life of endothelial cells, inhibits apoptosis. The effects of selenium on the endothelium act as protection, especially in the presence of homocysteine (Ren H, Mu J, Ma J, et al, 2016).

Radchenko I. N. and so on. (2015) reduced selenium levels in blood plasma in patients

with myocardial infarction. As the author found out, there is a side of the connection of the following substances with Selenium: the content of kratinfosfokinase, lipoprotein of high densities, potassium ions, with body Index, as well as electrocardiography indicators, the degree of necrosis in the myocardiography, with echocardiography data, these are the remodeling of the myocardium and the reperative process Bilir will be described (Radchenko EN, Nizov AA, Ivanova AYu, et al., 2015). Alehagen he, et al. (2016) studied the effects of selenium and Q coenzyme on death from diseases of the cardiovascular system. It is found that elderly patients who died from cardiovascular diseases have low selenium concentrations (<65 mcg/L), in this group food additives have shown a protective effect. Selenium concentration the effect of food additives in high patients was not felt.

Cadmium.An analysis of data from scientific literature showed that the element cadmium has an aspect of the prevalence of cardiovascular diseases and dependence on the indicator of death from them. Experimental and clinical studies show that the effect of cadmium on atherogenesis is determined by its participation in the mechanism of the following processes: oxidative stress, inflammation, endothelial dysfunction, lipid metabolism, molecule adgheization, prostatin dysbalance and altered synthesis of giligozaminglicans.AioepaTB, e! A1.(2019) when cadmium-induced apolipoprotein E inanimate in mice, the appearance of plaques in the aorta accelerated 3 times, increased endothelial damage, increased cholesterol levels, as a result of which early development of atherosclerosis was observed.

A large number of studies confirm that in Atherosclerosis Disease, the presence of various trace elements in the blood in different quantities has been studied (Gorbachev IA, Sycheva YA, Shabak PS, et al., 2014; Gorbachev I. A., Sicheva Yu. A., Branch P.S., I Dr., 2014).The average concentration of copper, iron, cadmium, chromium and manganese can influence micronutrient homestasis as a starting factor for cardiovascular disease (Elijah a, Shah MH, 2015). Low blood plasma magnesium concentrations and high phosphorus and calcium concentrations can increase the risk of heart failure (Lutsey PL, Alonso a, Michos ED, et al., 2014). Morphological studies have shown that natitjas have shown a significant change in the content of sodium, silicon, magnesium, calcium and potassium on the surface of the plaque, that is, in the composition of the fibrosis shell.

Conclusions:

An increase in the amount of iron in the tissue is a risk factor for circulatory diseases. Iron has a negative effect on the cells involved in the process of atherosclerosis through the immune system, reduces the pro-inflammatory and anti-inflammatory function of macrophages. The accumulation of iron in atherosclerotic plaques is due to the fact that the two-valence view cannot turn into 3 valence.

An increase in copper in the tissue and a decrease in zinc serve as a risk factor for atherosclerosis and ischemic heart disease.

Selenium models inflammation, protects the endothelium, inhibits the oxidation process, and protects vascular cells from apoptosis and calcification. .

The negative effect of cadmium on atherogenesis is determined by its participation in the mechanism of the following processes: oxidative stress, inflammation, endothelial dysfunction, lipid metabolism, molecule adgesiation, prostatin dysbalance and enhances the synthesis of giligozaminglicans.

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