

THE COURSE OF CARDIOVASCULAR DISEASES IN PATIENTS DIAGNOSED WITH SCLERODERMA

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Abstract

In patients with systemic scleroderma (TSD), cardiovascular pathology and related complications (heart attack, stroke, sudden coronary death) are among the most common causes of early death in autoimmune rheumatic diseases, despite continuous improvements in diagnosis and treatment. In TSD disease, heart damage occurs in 15-35% of cases. Manifested by heart failure, rhythm disturbances, pain syndrome. In rare cases, mitral heart failure develops including mitral stenosis[19]. Primary heart damage in TSD disease can be accompanied by changes that occur mainly in the myocardium, pericardium, and heart valves. Mortality from cardiovascular complications at TSD is 29%.

Key words: *systemic scleroderma, hypercholesterolemia, rheumatoid factor, s-reactive protein, arterial hypertension, cardiovascular risk.*

The results of the worldwide mortality assessment showed that in 2016, worldwide mortality from non-infectious diseases (NICS) was 41 million, accounting for 71% of total mortality. In most cases, death was the result of four NICS: cardiovascular disease (17.9 million), cancer (9 million), chronic respiratory disease (3.8 million), and diabetes mellitus (1.6 million) [6].

In Russia, 1 million is paid annually. about 200,000 people die from cardiovascular diseases when taken at the expense of the population. And all over the world, this figure is 17-18 million. constitutes [18].

Diseases of the cardiovascular system are the most prevalent worldwide and remain the leading cause of disability and death. According to most experts, this problem is expected to continue in this trend for several more decades. According to experts from the World Health Organization, 31% of all deaths are caused by diseases of the cardiovascular system [13,38].

A large number of studies carried out among the population show that patients with rheumatoid arthritis, seronegative arthropathy (psoriatic arthritis, ankylosing spondyloarthritis) and rheumatological diseases such as systemic lupus erythematosus have a higher risk of death from cardiovascular diseases and other complications of internal organ diseases [8].

Changes in the cardiovascular system in rheumatological diseases-early Atherothrombosis, arterial hypertension (AG) and the resulting complications (stroke and myocardial infarction) determine the course and prognosis of these diseases. In most RK, the main cause of death is due

to the contribution of cardiovascular pathologies. It has been found that atherosclerosis and AG in the development of SLE are not only associated with the risk factors that lead to them, but also with the immune-inflammatory mechanisms in the disease [20].

In TSD disease, heart damage is considered the most significant of all visceral lesions in terms of importance and occurrence, and is also the main cause of sudden death. The results of the examination show that heart damage in this disease is 70-90%, which is mainly due to damage to the myocardium and pericardium, as well as cases associated with impaired myocardial excitability and conduction activity are common [15]. In some cases, heart damage in TSD patients develops in a secondary manner after acute sclerodermic renal and pulmonary arterial hypertension. In TSD, vasculopathy is characterized by a progressive restructuring of microcirculation, which leads to the development of various signs of cardiovascular damage. Endothelial dysfunction specific to TSD and hemorrheological disorders in TSD serve as risk factors for the early development of atherosclerosis. Several authors speculate that TSD and atherosclerosis have a common pathogenetic mechanism in vascular damage, and that this process leads to macro and microvascular lesions of different manifestations of MYOCARDIAL INFARCTION in TSD disease [2,3,26,33].

Zhu S.Yu. and research of other hammuallifs (2013) found that immunosuppressor therapy (glucocorticosteroids, D-penicillamine, cyclophosphamide, methotrexate, azathioprine, cyclosporine) conducted in such patients in combination with a higher risk of developing acute myocardial infarction in TSD patients did not reduce the risk of developing myocardial infarction [22]

Recently, it has been found that there is a role of cytokines in the development of cardiovascular diseases in SLE. SRO is said to be a link between inflammation in the vessels, coagulation, and thrombosis. SRO has been found to have a direct proatherogenic effect on the vascular wall, stimulating the production of cytokines and adhesion molecules. The purpose of this study is to study myocardial pathology and its relationship to the activity of the process in systemic lupus erythematosus (SLE) and systemic sclerosis [20].

Thus, patients with systemic sclerosis have been found to be associated with higher mortality rates from cardiovascular disease, higher frequency of cardiovascular risk factors (especially YUIK, hypertriglyceridemia), presence of subclinical atherosclerosis, activity of the Atherosclerosis process, contributing factors to disease activity (increased levels of reactive proteins in the blood, IL-2, IL-6, presence of anti-topoisomerase-1, anti-centromere antibodies). However, the extent to which risk factors occur, their characteristics in patients with TSD, the presence of subclinical atherosclerosis and its apparent manifestation remain highly inaccurate and sometimes contradictory.

The importance of endothelial dysfunction and various cardiovascular risk factors in the formation of atherosclerosis.

Research in recent years has shown that the leading cause of life expectancy in rheumatological diseases is cardiovascular complications associated with atherosclerotic vascular lesions. According to a large number of studies, patients with rheumatoid arthritis and systemic sclerosis have a much more frequent form of atherosclerosis until clinical signs appear than general populace [14]. These conditions provide the basis for studying the [7] relationship of cardiovascular and autoimmune pathology. However, in systemic sclerosis, Vascular Pathology occupies the leading place. And the mechanisms of damage to the cardiovascular system and associated complications remain insufficiently studied [1]. Together with this, analyzes carried out in 2015 showed that this pathology is at a high risk of death from

vascular damage [19]. These data represent how important it is to study the clinical features of cardiovascular disease in TSD.

The results of the study show that patients with TSD have a high mortality rate from vascular damage against the background of the development of atherosclerosis, and accounted for 28% of all deaths in TSD (3rd among all deaths) [10].

During the subclinical period of atherosclerosis, a thickening of the sleep artery intima media complex (IMK) was observed when Doppler examination of vessels was performed in patients with TSD, and the presence of atherosclerotic plaque in the sleep artery of such patients was found, and this is significant for early detection of the disease and its prognosis [23].

Nordin A. and others [2013] in a study conducted in Stockholm [Sweden] found that the risk of developing atherosclerosis in the YUIK and peripheral arteries was high. It has also been found that a group of TSD li patients with positive centromere antibodies in the body has the highest risk of signs of subclinical atherosclerosis and cardiovascular complications [35]. In Australia, Ngian G.S. and his co-authors' research in 2012 found that TSD li patients had a high probability of co-occurrence of pulmonary hypertension and YUIK, and that the incidence of cardiovascular risk factors such as obesity, hypercholesterinemia, diabetes mellitus did not differ significantly from patients in the control group [34].

In patients with TSD and subclinical atherosclerosis, it is conspicuous that literature data on intima media thickening in the sleeping artery contradicts each other. Masedo R. and other hammuallifes (2012), however, found intima media thickening in the sleeping artery in patients with TSD, but found no Canday correlation between intima media thickening in the sleeping artery and the severity of the disease [31] recent research results provide information on the presence of subclinical atherosclerosis in patients with TSD [11]. Frerichs M. in a study by others [2014], the presence of atherosclerotic plaque in patients with systemic scleroderma and systemic lupus erythematosus in an unobserved state of sleep artery intima media thickness was found in a sleep artery ultrasound examination and provided information about the presence of subclinical atherosclerosis. [25] Schiopu E. and his co-authors found in their research that patients with TSD had higher levels of atheroscleroetic plaques in the sleep artery compared to those in the control guru. There is an atherosclerotic plaque, patients with TSD have high serum levels of inflammatory proteins (il-2, il-6, s reactive protein, plasminogen - 1 activator inhibitors, endoglin, etc. at the level, and these are involved in the pathogenesis of fibrosis and vasculopathy [30].

In the blood of patients with infectious diseases, enzymes such as superoxididismutase [SOD] and glutathioneductase are detected at high values. An increase in the amount of antibodies to these enzymes provides information about the presence of cardiovascular damage in patients with TSD [5].

Determination of sleep artery intima –media thickness, perceived as a "new" cardiovascular risk factor [28]. Research data shows that an increase in the thickness of the sleep artery intima - media determines the prospect of the occurrence of atherosclerosis-related complications of the cardiovascular system (heart attack, stroke) [27].

Pathological changes in the vascular nucleus begin with the activation of endothelial cells, the expression of adgesion molecules followed by capillary necrosis, and their apaptosis, proliferation of the intima wall, occlusion of the vascular nucleus, and finally organ ischemia [9]. Determination of the thickness of the wall of the sleeping artery and the size of the atherosclerotic plaque in it through the UTT examination in the diagnosis of cardiovascular risk is of great importance in predicting cardiovascular disease [30].

TSD li has been found to increase the risk of the origin of cardiovascular disease in different groups of the population due to the hardening of the arterial wall in patients, precisely due to the deposition of calcium in the coronary vessel wall [29].

Arterial hypertension as a risk factor for cardiovascular disease in recurrent scleroderma

According to many studies, cardiovascular disease in TSD increases the mortality rate from cardiovascular complications. Including arterial hypertension (AG) is observed much more often when taken compared to the general population. At the same time, one of the factors for the formation of cardiac pathology in the autoimmune process was found to be chronic inflammation, and the increase in signs of inflammation is associated with classic cardiovascular risk factors, in particular hypertension. It should be noted that despite the fact that TSD is one of the autoimmune systemic diseases, the pathogenesis of nosology, its complications and comorbid states have significant differences. In TSD, classic inflammation plays less of a role than rheumatoid arthritis and systemic lupus erythematosus, and in the first place are connective tissue fibrosis, microvascular injuries and vasospasm. Meanwhile, there are very few studies dedicated to studying the relationship between hypertension and inflammation of the "Scleroderma".

Despite the fact that there are not many works dedicated to assessing risk factors in patients with TSD, and the information obtained does not always have one meaning, cardiovascular diseases in this pathology are more common than in the general population and are detected in young patients. Thus, one of the largest analyzes of 168 scientific studies on traditional and non-traditional risk factors in various autoimmune diseases found that AG is much more common in TSD and that chronic inflammation is associated with the formation of cardiovascular pathology.. Considering that cardiovascular pathology is one of the main causes of death in TSD, the relationship between cardiovascular risk factors associated with the traditional cardiovascular risk factor, namely hypertension vatsd, is extremely difficult. The study showed that patients with arterial hypertension have a longer duration of TSD, as well as a correlation between hypertension and TSD activity, specifically with the prevalence of skin injury and increased SRO. This fact can be considered as the pathogenetic basis of the relationship between two diseases –TSD and AG. The data obtained have scientific and practical potential in understanding the processes of formation of cardiovascular pathology at TSD and the therapeutic possibilities of their correction [16, 17].

Due to the rapid development of atherosclerosis in RK, high risk of complications of infection, especially AG, it is good to identify endothelial activation in them in the early stages of the disease. One of the leading methods for determining AG is daily monitoring of blood pressure. Disruption of microcirculation in TSD and the development of fibrosis processes cause visceral lesions, in particular sclerodermic cardiopathy. Determination of cardiac rhythm regularity is a noninvasive informational method of assessing the state of the mechanisms of neurohumoral regulation of the heart, and is an muxim for determining and preventing the risk of developing infectious complications [21].

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