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MODERN ASPECT TO PROBLEM OF CRITICAL LIMB ISCHEMIA CAUSED BY MULTIFOCAL ATHEROSCLEROSIS

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Abstract
Chronic obliterating diseases of the arteries of the lower extremities (CVD) account for more than 20% of all CVD types, which corresponds to 2–3% of the total population [9,17,25]. The incidence of diseases increases significantly in the elderly and senile: 0.3% of people aged 30 to 40 years, 1% of people aged 40 to 50 years, 2-3% of people aged 50 to 60 years, and 5-7% of people aged 70 and older [22,27]. According to authoritative publications and the results of modern large population-based studies (PANDORA, 2012; Russian Consensus Document, 2016), the prevalence of peripheral arterial disease varies from 5.8% in the United States and 7% in Russia, respectively, to 12.2% and 22.9% in France and Italy. In the United States [7,11], about 10% of people over 55 years of age have an asymptomatic form of CLD, and symptoms of intermittent claudication are noted in 5% of individuals.

Keywords: Lower limb critical ischemia, multifocal atherosclerosis, staged interventions.

Introduction

According to official statistics, this figure is even higher in Russia: from 15 to 30% of the population over 65 years of age have signs of obliterating diseases of the arteries of the lower extremities [2,8,14]. According to the clinical guidelines of the Russian Federation, in 2016, the number of people hospitalized with COSANC per 100 thousand population was 159 [2,13,21]. The "State Report on the Health of the Population of the Russian Federation" noted that the total incidence of diseases of the circulatory system in 2016 increased by 4.7%, while this figure increased most significantly in patients with chronic circulatory diseases – by 5.8% compared to the previous year [7].

The main feature of obliterating arteriopathy is a steadily progressive course, characterized by an increase in the severity of intermittent claudication and its transition to permanent pain syndrome or gangrene, which occurs in 15-20% of patients [2,3,10,12,24]. The most formidable outcome of chronic arterial insufficiency is CLI [9,20,23]. The natural course of peripheral arterial disease of the extremities leads to the development of critical ischemia in only 1/4 of cases, however, according to the Transatlantic Consensus [23], this number is 500-1000 per 1 million population per year.

The term "chronic critical ischaemia of the lower extremities" was adopted to distinguish a group of patients with resting pain, trophic ulcers and distal necrosis of limb tissues, who would be at

risk of amputation in the near future without performing a revascularization procedure. At the same time, the potential reversibility of ischemic disorders was emphasized, when, after a significant improvement in blood supply, there is a hope to save the limb. or limit yourself to a minor amputation.

The term was first coined in a paper developed by a working group and published in the British Journal of Surgery in the 19th century [16]. In fact, critical ischaemia combined degrees III and IV of ischaemia in the Fontaine and Pokrovsky classifications [11] or stages IV, V and VI in the Rutherford classification. At that time, the definition included an important addition: the ankle pressure level in patients with pain at rest had to be below 40 mm Hg. and in those with trophic disorders - below 60 mm Hg. The Society for Vascular Surgery (SVS) and the North American Branch of the International Society for Cardiovascular Surgery (ISCVS) have developed and published Recommended Standards for Reporting Lower Limb Ischemia, in which, to the above definition, the ability to measure digital blood pressure has been added, which should be below 30 mm Hg in patients with ischemic pain at rest and below 40 mm Hg in individuals with trophic disorders.

The most up-to-date document that comprehensively regulates the state of the problem is the Intersocietal Consensus Document on the Management of Patients with Peripheral Arterial Disease [23,25]. As indicated in this document, the only credible population-based study on critical ischaemia mentions 220 new cases of critical ischaemia per 1 million population per year. indirect evidence, for example, on the frequency of reconstructive operations and amputations. According to some population-based studies, in Europe or North America, the incidence of CLI is about 500-1000 new cases per 1 million population per year [12,15,22]. M. Catalano [6,8,9,18] gives the following figures for Northern Italy: from 112 to 172 cases per 1,000,000 population per year. The Society of Vascular Surgeons of Great Britain and Ireland testifies to 20 thousand patients with CLLI, i.e. 400 cases per 1 million population per year, with death and amputation rates of 13.5 and 21.5%, respectively [13,24,27].

When summing up the number of amputations and reconstructive vascular operations performed in Norway for severe forms of ischemia, it turns out that the number of such operated patients is approximately 400 per 1 million inhabitants. In the United States, this figure is 600 per 1 million [15,16,20]. In the Transatlantic Consensus of 2000 [14,22], it was calculated that if 3% of the population suffers from intermittent claudication and 5% of them develop critical ischemia within 5 years, then its frequency is 300 per 1 million population per year. If we take into account the fact that 90% of all non-traumatic amputations are performed for severe lower limb ischemia and 25% of patients with critical ischemia will require amputation of the lower leg or thigh, then the number of cases of critical ischemia is equal to 500-1000 per 1 million population per year.

According to the statistics of Russian researchers, CLI in the structure of the CHOSANC is 15-20% [5,6,25,26], and among elderly and senile patients with obliterating arteriopathy, severe ischemia develops in 25-30% [9,20,21,24]. Critical limb ischaemia in the structure of nosocomial morbidity was registered in 56.2% of cases [2,7,9,14]. In 2013, a new revision of the Russian National Guidelines for the Management of patients with peripheral arterial disease [10,20,21]. Despite the lack of complete statistical data, this document states that the estimated number of people suffering from this disease, based on the prevalence (0.9-7% of the population, depending on the age group) in Russia, is at least 1.5 million, which means that 100 thousand citizens are

diagnosed with the terminal (critical) form of the disease, which annually leads to 20-40 thousand amputations for this indication alone.

Despite the successes of modern angiosurgery, clinical studies conducted in leading vascular centers have not revealed a decrease in the number of high limb amputations and have not established an inverse correlation between the frequency of arterial reconstructions and the frequency of major amputations [8,9,12,15]. According to the National Amputee Statistical Database, the number of lower limb amputations caused by their ischemia rose from 56% in 1998/99 to 75% (NASDAB). In Russia, about 11-12 thousand high amputations of the lower extremities are performed annually, which is relatively more than in other countries [5, 7, 11, 12]. Critical limb ischaemia is an important condition in the general population with severe social consequences [4,13,17]; the prevalence of CLI in the population aged 60-90 years is estimated to be 1% (0.5-1.2%) [2, 14, 21, 25] with a male-to-female ratio of approximately 3:1. 5-10% of patients with asymptomatic peripheral arterial disease, or their claudication will progress to CLI within 5 years. that more than 50% of patients with CLI do not have any symptoms of PAD in the 6 months prior to the onset of CLI [3,16,18]. The main risk factors for PAD are smoking, hyperlipidemia, hypertension, and for the development of CLI diabetes. People with diabetes are at least 5 times more likely to develop CLI than people without diabetes. CLI is the end-stage of PAD and macrovascular lesions that can cause a decrease in distal perfusion.

A feature of atherosclerosis as a systemic disease, first of all, is the multifocality of occlusive-stenotic damage, that is, the presence of arterial lesions in different anatomical and functional basins. According to summary statistics, the incidence of AF varies from 18 to 54% [1, 9, 24,27]. Thus, the promotion of a healthy lifestyle should aim to reduce the risk of cardiovascular events (AHA, 2013). Secondary prevention involves screening for diseases before they have had an impact on a person. An example of secondary prevention is the search for high-risk patients with diabetes mellitus, chronic cerebrovascular insufficiency, coronary artery disease and arterial hypertension who are asymptomatic for PAD. The ultimate goal of prevention is to influence the prevalence of the disease.

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