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CLINICAL CHARACTERISTICS OF ACUTE CORONARY SYNDROME

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Annatation

Cardiovascular disease (CVD) is the leading cause of morbidity and mortality worldwide [6]. They account for 31.5 percent of all deaths on the planet and 45 percent of deaths from non-communicable diseases, which is twice the death rate from cancer [7]. OCD is one of the most dangerous variants of IBD because it is the main nosological unit that causes death and disability among all cardiovascular diseases.

Despite the positive changes achieved in recent years, the mortality rate from diseases of the circulatory system in our country and around the world remains high [12]. With the aging of the population, OCD becomes an increasingly common phenomenon [15, 8].

Keyswords

arterial hypertension, brachiocephalic artery, left ventricular hypertrophy, ischemic heart disease, myocardial infarction, urolithiasis, recurve artery, cardiac ejection fraction.

Introduction

Despite significant achievements in the field of diagnosis and treatment of cardiovascular pathology in recent decades, diseases of the circulatory system are the leading cause of death in most countries of the world, including Uzbekistan [1, 2, 6, 9]. According to statistics, approximately 17-18 million people worldwide die of cardiovascular disease each year. [7] In Europe, deaths from STIs account for more than 4 million deaths each year, accounting for 45% of all deaths [9]. According to a study by the National Heart, Lung and Blood Institute, nearly 815,000 Americans die of CKD each year. Each year, the U.S. economy spends $ 420 billion to treat STDs.

Among the main causes of death and disability in the adult population, IUDs from STIs account for the largest share [5]. According to Rosstat, in 2016 alone, YIC caused 481.7 thousand deaths, accounting for 25.5% of the total number of deaths, while MI accounted for 62.9 thousand deaths [17]. Experts from the World Health Organization (WHO) predict a further increase in STIs and, consequently, deaths from these diseases, [8] and estimate that by 2030, deaths from STIs will be around 23.6 million. can form a person [4, 7].

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According to a study by Monica, in central and eastern European countries, the death rate from YIC is high. In some countries in the region, the incidence of STIs has declined slightly, but in western, southern and northern Europe, the rate has not changed much. If we talk about Russia, then despite a slight decline in MI morbidity over the last decade (from 133.3 to 130.6 per 100,000 population) [17], the mortality rate remains high [8]. For example, among men aged 35–65 in Moscow, the mortality rate from ARI in 28 days was 50% higher than in Belfast (UK) or Catalonia (Spain) [5].

Myocardial infarction remains one of the leading causes of early death worldwide [3, 7]. Between 2013 and 2014, the 30-day mortality rate in patients with myocardial infarction ST segment elevation in the UK was 8.1%. In 2003-2004, it was 12.4 percent. Significant reductions in mortality may be associated with improved emergency care, adoption of effective reperfusion strategies, and widespread use of pharmacotherapy for secondary prevention [5]. In Uzbekistan, the MI mortality rate is 12.1%. The high mortality rate from MI in Uzbekistan is explained by a number of reasons: low frequency of infarction-related artery (ISA) revascularization, political, social, economic reasons, lifestyle changes and related risks influence of factors [9]. Experts directly link these differences with the availability of modern treatments [8].

With the aging of the population, OCD has become an increasingly common phenomenon [15]. However, not only elderly patients suffer from this disease, but also young people often experience NS and MI episodes [8]. According to a number of foreign authors, MI occurs in 2% to 10% of young patients. [16] At the same time, young people are more likely to die from STIs. [9]. In Russia in 2014, the overall mortality rate from STIs in people aged 15–29 and 30–44 years was 1.6 times and 1.3 times higher than in 1991, respectively. [8] According to the GRACE study, the incidence of OCD in young people is 6.3%. [7] The Framingham study found that the incidence of MI was 12.9: 1,000 in men aged 30 to 34 years and 5.2: 1,000 in women aged 35 to 44 years over a 10-year period. [13]. In Asia, 9.7% of men and 4.4% of women experience the first episode of myocardial infarction before the age of 40. [12].

Acute coronary syndrome is a term used to describe a range of conditions associated with sudden, reduced blood flow to the heart.

One such condition is a heart attack (myocardial infarction) — when cell death results in damaged or destroyed heart tissue. Even when acute coronary syndrome causes no cell death, the reduced blood flow changes how your heart works and is a sign of a high risk of heart attack.

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Acute coronary syndrome often causes severe chest pain or discomfort. It is a medical emergency that requires prompt diagnosis and care. The goals of treatment include improving blood flow, treating complications and preventing future problems.

The signs and symptoms of acute coronary syndrome usually begin abruptly. They include:

- Chest pain (angina) or discomfort, often described as aching, pressure, tightness or burning
- Pain spreading from the chest to the shoulders, arms, upper abdomen, back, neck or jaw
- Nausea or vomiting
- Indigestion
- Shortness of breath (dyspnea)
- Sudden, heavy sweating (diaphoresis)
- Lightheadedness, dizziness or fainting
- Unusual or unexplained fatigue
- Feeling restless or apprehensive

Chest pain or discomfort is the most common symptom. However, signs and symptoms may vary significantly depending on your age, sex and other medical conditions. You're more likely to have signs and symptoms without chest pain or discomfort if you're a woman, older adult or have diabetes.

Acute coronary syndrome is a medical emergency. Chest pain or discomfort can be a sign of any number of life-threatening conditions. Get emergency help for a prompt diagnosis and appropriate care. Do not drive yourself to the hospital.

Acute coronary syndrome usually results from the buildup of fatty deposits (plaques) in and on the walls of coronary arteries, the blood vessels delivering oxygen and nutrients to heart muscles.

When a plaque deposit ruptures or splits, a blood clot forms. This clot blocks the flow of blood to heart muscles.

When the supply of oxygen to cells is too low, cells of the heart muscles can die. The death of cells — resulting in damage to muscle tissues — is a heart attack (myocardial infarction).

Even when there is no cell death, the decrease in oxygen still results in heart muscles that don't work the way they should. This change may be temporary or permanent. When acute coronary syndrome doesn't result in cell death, it is called unstable angina.

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The risk factors for acute coronary syndrome are the same as those for other types of heart disease. Acute coronary syndrome risk factors include:

- Aging
- High blood pressure
- High blood cholesterol
- Cigarette smoking
- Lack of physical activity
- Unhealthy diet
- Obesity or overweight
- Diabetes
- Family history of chest pain, heart disease or stroke
- History of high blood pressure, preeclampsia or diabetes during pregnancy
- COVID-19 infection

Acute coronary syndrome (ACS) is a broad term for three types of coronary artery disease that affect millions of people each year. These potentially life-threatening conditions occur when a blockage causes blood flow to your heart to suddenly slow or stop.

People with ACS can experience unstable angina or a heart attack (myocardial infarction). Common signs include chest pain or pressure (angina), shortness of breath (dyspnea) or dizziness.

Acute coronary syndrome is a medical emergency that requires immediate attention. Prompt treatment is important to ease symptoms and prevent complications. If you think you're having a heart attack, take an aspirin and **call 103** immediately.

Acute coronary syndrome involves three types of coronary artery disease that damage or destroy heart tissue. The specific type depends on:

- Where blood flow to your heart is blocked.
- How long the blockage lasts.
- The amount of damage it causes.

Types of ACS are:

- **Unstable angina:** This involves sudden, unexpected chest pain or pressure, even while resting. It's a warning sign of a heart attack and occurs when stable angina worsens.
- **Non-ST-elevation myocardial infarction:** An NSTEMI is a heart attack that providers can detect with blood tests but not with an electrocardiogram (EKG). It means your coronary arteries aren't fully blocked or were blocked for a short amount of time.

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• **ST-elevation myocardial infarction:** A STEMI is a much more severe heart attack that providers can detect with blood tests and EKG. It occurs when blood flow to your heart is fully blocked for a long time, affecting a large part of your heart

Who gets acute coronary syndrome?

Acute coronary syndrome can affect anyone. However, certain risk factors raise the likelihood of developing ACS.

Age and lifestyle:

• Age (people assigned male at birth who are over 45 years of age or people assigned female at birth who have completed menopause).

• Having overweight/obesity.

• Cocaine use.

• Lack of physical activity.

• Smoking.

• Unhealthy diet.

Conditions you have (or had) and family history:

• COVID-19.

• Diabetes.

• Family history of chest pain, heart disease or stroke.

• High blood cholesterol.

• High blood pressure (hypertension).

• High blood pressure, preeclampsia or diabetes during pregnancy.

Other conditions can cause non-cardiac chest pain and symptoms resembling acute coronary syndrome. Get prompt medical care so you can get an accurate diagnosis and the right treatment. Conditions similar to ACS include:

• Aortic stenosis (narrowing of your aortic valve).

• Asthma.

• Blood clot in your lung (pulmonary embolism).

• Indigestion, chronic acid reflux (GERD) or esophageal spasms.

• Inflammation of the pericardium (pericarditis).

• Muscle or bone problems.

• Rib fractures.

• Pneumonia.

• Stomach issues, such as ulcers.

• Stress, anxiety or depression.

Coronary artery disease (CAD) is the most common heart disease in the U.S. and the leading cause of death. Acute coronary syndrome, a type of CAD, causes

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almost 400,000 deaths every year, most often among people assigned male at birth and those with underlying coronary heart disease.

Your heart is a muscle that needs a constant flow of oxygen-rich blood to work properly. Coronary arteries and their smaller vessels supply this blood.

Sometimes, a gradual buildup of fat and cholesterol (plaque) hardens and narrows your arteries (atherosclerosis). Acute coronary syndrome can occur suddenly when this plaque tears or splits open.

It should be noted that patients under the age of 45 who were hospitalized with MI were almost never observed by physicians before [12]. Foreign studies have shown that only 24% of young patients sought medical attention in connection with angina pectoris before the onset of true coronary pathology, while 69% of patients under 45 years of age had no previous chest pain. [5]. In many young patients, the duration of angina was observed over several days, and signs of myocardial injury on the electrocardiogram (ECG) were detected immediately after the onset of pain [10].

According to the results of coronary angiography in patients with myocardial infarction, coronary pathology is less common in young patients than in elderly patients [9, 11, 19]. Similar data were obtained from Ricci B. et al. (2017) reiterated that coronary artery calcification is less common in young people [5]. According to R.V. Zeynalov et al. (2016), single-vessel injuries or uninjured coronary arteries were found more frequently in young patients than in the 50-year-old group, while multi-vessel injuries were statistically significantly lower in younger patients with biliary arteries. lesions were detected at the same frequency in both groups [20, 26].

Numerous studies have shown that in young patients, the pathological lesion is often observed in the anterior descending artery. [4, 8, 13]. According to the KAG study, in people aged 40 and younger, 56-80% of cases have OTA, 15.6-39% have right coronary artery disease, and 14-26% have concussion. Left coronary artery injury is less common in younger patients than in older patients [30]. Left coronary artery stenosis is 0.9–2.1% in young patients with IBD and higher in women than in men: 7.7% and 2.2%, respectively. [14, 16, 20, 24, 36]. In women, three arterial injuries are much higher than in men [6, 9].

However, no obstructive coronary artery injury was detected in 5% of patients who died of myocardial infarction. In their study, Zimmerman et al found that 16% of young men and 21% of young women had normal coronary arteries. Intact and non-atherosclerotic lesions of a single coronary artery have been found to be higher in young women than in young men. [35, 40]. For comparison, only 2% of older men and 11% of older women have normal coronary arteries [109, 129]. These data

are also confirmed by the studies of Maroszyńska-Dmoch E.M., Wożakowska-Kapłon B. (2016), that is, nonobstructive damage to the coronary arteries is more common in the young population (especially women) (in their study, chronic ischemic heart disease observed in 32.7% of patients and 16.9% of patients with OCD) [8]. In some data, thrombophilia and vasospasm have been observed in 76% of patients under 30 years of age with a diagnosis of MI [21].

The pathogenesis of myocardial infarction in patients with normal coronary arteries has been found to be mainly associated with vasospasm in CAG. This is most often seen after drug use (cocaine, amphetamines) or alcohol abuse. In other cases, the causes of "pure" arterial myocardial infarction may be hypercoagulability associated with the presence of pregnancy and the postpartum period, sarcoidosis, and muscle spasms [14].

Tweet M.S. et al. (2012) described a case of spontaneous separation of coronary arteries in a group of young patients with an average age of 43 years [31]. In the postpartum period, most women are prone to this pathology. Often the OTA is involved in this process separately, but there is evidence that multiple vascular injuries can be observed. The cause of dissection can be said to be atherosclerotic plaque, as the pathophysiological aspects of this condition have not yet been adequately studied [18]. Microvascular endothelial dysfunction has been shown to be high in women [32, 36].

Specific serotypes of coronary artery disease in young patients with IBD are associated with congenital aneurysms in 5–8% of cases, often with undiagnosed Kawasaki disease in children, and in some cases with collagenoses (systemic vasculitis) [39]. Hamamichi Y. and b. (2000) observed that the cause of myocardial infarction in young people may be abnormal development of the left coronary artery, for example, acute angular outflow and compression of this artery [30].

In the patient group, the predominance of the number of patients aged 30–35 years and younger with unchanged coronary arteries, a separate lesion of a single coronary artery, a high incidence of cases with MI ST segment elevation / MI ST segment elevation, and NS , less follow-up of aggressive transient CKD, in some cases clinically unstable hemodynamics / shock, development of a post-infarction aneurysm of the left ventricle [40].

The results of a study by Kitalwatta I. D., Pollanen M. S. (2015) show that coronary artery thrombosis is more common in young patients with myocardial infarction than in older patients (47% and 11%) [34].

According to Maroszyńska-Dmoch E. M. and Wożakowska-Kapłon B. (2016), young patients are more likely to have MI ST segment elevation, followed by NS

and MI ST segment elevation without flour [15]. In turn, other evidence suggests that in more than 80% of cases in young patients, there is a predominance of OCS from IUs, i.e., with elevation of the previously localized MI ST segment (67% or more), MI ST without segment elevation, T (up to 20%), NS (up to 14%) can be noted [21, 34]. According to the Framingham study, in women, IBD often manifests itself in the form of angina (47%), MI (32%), NS (7%), or sudden cardiac death (14%). In women, OCD is often observed without ST-segment elevation, which develops small focal MI. [34, 37].

The results of a comparative analysis of young patients with MI ST segment elevation and without MI ST segment elevation showed that in patients with MI ST segment elevation, single vascular injury was more common, and in patients without MI ST segment elevation, vascular injury has been identified [17].

According to the observations of RV Zeynalov and others. (2016), myocardial infarction often causes complications in young patients [5]. Acute heart failure was observed in young patients in 41% of cases. This figure is 54% in the middle-aged and 71% in the elderly. Supraventricular arrhythmias were reported in 11% of young patients, 20% of middle-aged, and 38% of the elderly. Postoperative fibrillation was observed in 5% of young patients after MI, ventricular tachycardia in 30% of cases, and acute left ventricular aneurysm as a complication [10]. Of the 789 hospitalized patients under 40 years of age and 63,057 patients over 40 years of age (Polish Registry of Acute Coronary Syndromes, 2014), cardiogenic shock developed in 2.8 and 7% of cases, respectively [14]. Complications such as heart failure [4, 13] and stroke [11] are more common in women.

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