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CHRONIC HEART FAILURE: FEATURES CLINICAL MANIFESTATIONS IN THE ELDERLY

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Abstract: The article is devoted to chronic heart failure in the elderly. The prevalence of the disease, risk factors, features of the clinical picture and diagnosis of heart failure in the elderly are highlighted. Despite the developed effective treatment regimens for diseases and a wide range of effective medications, there is a low effectiveness of treatment, and the problem of polymorbidity of the elderly remains unresolved. Recently, special attention has been paid to studies proving the dependence of the success of therapy on patients' adherence to treatment, which remains as low as ever. According to literature data, from 20 to 50% of elderly outpatient patients do not follow the recommendations. It is necessary to study the factors affecting the adherence of elderly and senile patients to pharmacotherapy. Increasing adherence will increase the effectiveness of therapy and, perhaps, in the future will be the first step towards solving the issue of polymorbidity.

Keywords: chronic heart failure, old age, ischemic heart disease, arterial hypertension, heart failure with preserved ejection fraction.

Introduction. Chronic heart failure is detected in 23 million people in the world. In our country, clinically expressed CHF I-II functional class (FC) is found in 5.1 million people, III-IV FC - in 2.4 million people [1-3]. Installed and putative risk factors for development CHF are presented in table. one. Age is the most important factor risk of developing CHF. The disease occurs in 8.4% of people aged ?75 years and in 0.7% aged 45 to 54 years. In the European parts of the Russian Federation 65.5% of patients with CHF are persons aged 60 to 79 years. For the share of persons this age accounts for 68.1% of cases CHF III-IV FC among all patients with this disease. By 2016, compared with 1996, an increase in the absolute number of patients suffering from CHF, more than half of the age of 65 to 75 years and even more so in individuals over 75 years old [1].

The aging of the population and the formation of CHF are closely interrelated, since with age the cardiovascular system undergoes involutive changes, predisposing to the development of cardiac dysfunction. Thickening of the intima, hypertrophy of the internal elastic membrane, an increase in the amount of collagen in the vascular wall are accompanied by a progressive loss of elasticity of large arteries, which leads to an increase in systolic and pulse arterial pressure (BP), increased afterload and systolic vascular stress. Decreased myocardial functional reserves in older people makes them more vulnerable to the development of CHF (both with and without myocardial damage) in various clinical situations (anemia, infections, arrhythmias, arterial hypertension (AH), myocardial infarction, cerebrovascular accident, diabetes mellitus, kidney failure). When examining elderly patients, pathological changes in various organs and systems are revealed, due to many causes and age-related changes [3].

Features of CHF in the elderly is the presence of several etiological factors leading to its development.

The main causes of CHF in people of this age group are hypertension, coronary heart disease and their combination, as well as diabetes mellitus and obesity in combination with cardiovascular pathology [7].

Symptomatic heart failure in the elderly often occurs with preserved ejection fraction, especially in women with hypertension, including isolated systolic hypertension, which is closely associated with the onset of CHF. The Framingham study made it possible to identify predictors of the occurrence CHF with preserved left ventricular (LV) ejection fraction, which turned out to be: female (odds ratio (OR) 2.29; 95% confidence interval (CI) 1.35-3.90), systolic BP (OR 1.13 per 10 mmHg; 95% CI 1.04-1.22) and atrial fibrillation (OR 4, 23;95% CI 2.38 -7.52) [2].

Unlike younger people, CHF does not occur in the elderly as an isolated disease and is always accompanied by other diseases and conditions to be taken into account. The simultaneous presence of many diseases changes the clinical picture, thereby making it difficult diagnosis and selection of optimal and safe treatment (Table 2).

In addition to polymorbidity, elderly patients are characterized by asymptomatic CHF, which practically does not disturb patients, with a minimum of complaints, since comorbidities often hide or mask the main symptoms and signs of the disease [4].

Table 1. Established and proposed risk factors for developing CHF

Major clinical risk factors
Age, male sex, arterial hypertension,
LV hypertrophy, myocardial infarction, valvular
heart disease, diabetes
Minor clinical risk factors
Smoking, dyslipidemia, chronic disease
kidneys, albuminuria, sleep apnea syndrome,
anemia, increased heart rate
contractions, sedentary lifestyle,
nutrition, low socioeconomic
status, psychological stress
immune-mediated
Peripartum cardiomyopathy
infections
Viral, parasitic (Chagas disease),
bacterial
Toxic effects
Chemotherapy (anthracyclines, cyclophosphamide,
5-fluorouracil), anticancer therapy
(trastuzumab, tyrosine kinase inhibitors),
cocaine, non-steroidal anti-inflammatory
drugs, thiazolidinediones, doxazosin,
alcohol
Genetic Predictors
SNP, family history, birth defects
hearts
Morphological predictors
Increase in LV end-diastolic size,
increase in LV myocardial mass, asymptomatic
LV dysfunction, LV diastolic dysfunction

Biomarkers
immune activation (tumor necrosis factor,
interleukin-6, C-reactive protein,
insulin-like growth factor)
natriuretic peptides,
highly sensitive cardiac troponin
Designations: LV, left ventricle; SNP, single nucleotide polymorphism.

The classic symptoms of heart deficiencies are shortness of breath, peripheral edema and fatigue. Shortness of breath, as one of the early symptoms of the disease, initially occurs only with physical exertion and passes after its termination [6]. Often in the initial stages of the disease during exercise, it is not easy to detect shortness of breath, since some elderly patients leading sedentary lifestyle, do not notice her appearance. In the future, as the disease progresses, shortness of breath appears with light exertion, and then at rest. Cause of this symptom due to stagnation of blood in the venous bed small circle of blood circulation, leading to a decrease in gas exchange in the lungs and irritation of the respiratory center. Appearance shortness of breath in the position of the patient with a low head (orthopnea) and a decrease in the sitting position indicates a significantly severe hemodynamic disturbance in small circle of blood circulation.

Table 2. Polymorbidity - "redundancy of pathology"; ≥4 diseases in 80% of elderly patients with CHF.

Condition	**Consequences**
Kidney dysfunction	Worse with diuretics, ACE inhibitors
Anemia	Worsening of clinical symptoms
Chronic lung disease	Diagnostic errors
Orthostatic hypotension	Worse with CHF treatment, risk of falls
Pathology of the musculoskeletal system	NSAIDs worsen clinical symptoms, antagonism with ACE inhibitors
Urinary incontinence Worse with diuretics	ACE inhibitors (cough) Weakening of cognitive function
hearing loss, visual impairment	Decreased adherence to treatment

Along with shortness of breath, patients are often concerned about an unproductive cough that appears in a horizontal position, in mostly at night, or after exercise. Its occurrence is explained by stagnation of blood in the lungs, swelling of the bronchial mucosa and irritation corresponding cough receptors.

Among the early complaints is a sensation of palpitations that appears when exercise and then at rest. Palpitations resulting from sinus tachycardia are due to activation sympathoadrenal system. Edema on the legs, which in the early stages of the disease are localized in the area feet, ankles and appear in the second half a day, are also often

disturbed patients with CHF. Causes edematous syndrome are diverse, but in they are primarily due to sodium and water retention in the body, stagnation blood in the venous system of the great circle blood circulation and increased hydrostatic pressure in the capillary bed.Peripheral edemais usually absent in properly treated patients even if they have severe systolic myocardial dysfunction [8].

Often with heart failure, nocturia occurs, which occurs relatively early. Cause of nocturia is an increase in renal blood flow, glomerular filtration rate and natriuretic peptide levels, which contribute to increased urination. A decrease in blood flow in the abdominal organs and an increase in venous pressure lead to a decrease in hepatic blood flow and liver damage, based on which are morphological and functional changes. mechanisms, leading to liver hypoxia in CHF, are passive venous congestion ischemia (decreased cardiac output) and arterial hypoxemia. To the clinical forms of liver damage in CHF include congestive hepatopathy, ischemic hepatitis, cardiac fibrosis, and cirrhosis of the liver. More often in old age ischemic hepatitis occurs development of which is associated with progressive decreased LV systolic function and increase in symptoms of cardiac decompensation. Provoking factors development of this condition are rhythm disturbances, acute myocardial infarction, pulmonary embolism. Transient increase in aminotransferases (up to 10-20 or more norms), coagulopathy and impaired renal function suggest the diagnosis [1].

An elderly patient with dyspnea, fatigue, or peripheral edemacan not only be due to debut of CHF, but also serve as a manifestation other diseases and pathological conditions such as chronic obstructive pulmonary disease, obesity, anemia, depression, cognitive disorders. In elderly patients with CHF, such manifestations of the disease, such as nocturnal attacks of suffocation (paroxysmal shortness of breath accompanied by cough, agitation, fear) and orthopnea, are relatively rare. It must be remembered that peripheral edemanot always due to heart failure.Increase hydrostatic pressure is the leading pathogenetic mechanism for the formation of edematous syndrome not only in CHF, but also in diseases that occur with primary water and sodium retention: endocrine diseases - diabetes mellitus, hypothyroidism; nephritic syndrome; acute renal failure. Early manifestations of CHF may be fatigue, muscle weakness, heaviness in the legs, often manifested during time of normal daily physical loads (washing, making the bed) and not always correlated with the severity of shortness of breath and edematous syndrome. It must be taken into account that patients with this age group restrictions in the performance of physical activity usually occur more slowly than in patients other age groups as they usually deliberately change lifestyle in such a way as to reduce the severity of the clinical manifestations of cardiac decompensation. In addition, diseases of the musculoskeletal system and a decrease in the level of fitness, as well as the presence of cerebrovascular pathology in many of them, do not allow to achieve patients of the level of physical activity at which shortness of breath appears [2].

Pathology of the musculoskeletal system (arthritis, arthrosis), chronic venous and lymphatic insufficiency often mask the appearance of edema of cardiac origin. Patients of the older age group, in addition to the above symptoms, complain of headache, dizziness, syncope, poor mood, irritability, sleep disturbance [3].

Identify symptoms in history taking it is often difficult due to concomitant cognitive disorders present in 38% of elderly patients with CHF. Patients with cognitive disorders find it difficult to imagine history data, unable to comply with the regimen and recommendations of the doctor, may do not remember symptoms or do not treat special attention to the ongoing changes in well-being until their condition will not significantly worsen, up to the development of pulmonary edema [5].

Chronic heart failure significantly impairs the quality of life patients, limiting their

full existence. on the quality of life of patients, especially in old age, depression, anxiety, social isolation affect. clinical depression, which is often underdiagnosed in 20% of elderly patients with CHF and significantly reduces the FC of CHF, increases the number and duration of hospitalizations, and negatively affects the life expectancy of patients.

Diagnosis of CHF in the elderly, as well as at a younger age, is based on the evaluation of complaints, history, clinical manifestations during exercise and at rest, objective and instrumental research. When collecting anamnesis, attention should be paid to the presence of cardiovascular diseases: coronary heart disease, angina pectoris, myocardial infarction, cardiac arrhythmias, hypertension, arrhythmia episodes. In a family history, it is necessary to determine the presence of hypertrophic or dilated cardiomyopathy, sudden death, implantation of an artificial pacemaker, as well as diseases of the skeletal muscles that are indicative of genetic cause of heart failure. Some concomitant diseases of the lungs, kidneys, liver, anemia can have symptoms similar to those heart failure, which is important in diagnosis and assessment of FC CHF.

Of interest is the work of I. Oudejans et al. (2011), the purpose of which was to determine independent indicators indicating the presence of CHF in elderly patients. According to the results of the analysis they were: male gender, older age, loss of appetite, absence of wheezing, low body mass index, nocturnal orthopnea. Algorithm for diagnosing CHF in old age, which also includes determination of natriuretic peptide [6].

In addition to symptoms, it is important to consider clinical signs of heart failure, which the doctor determines independently, without the use of special equipment.So, LV dilatation is manifested signs of cardiomegaly (displacement of the apical impulse; an increase in the boundaries of cardiac dullness; the appearance of a third tone); fluid retention in the body - congestive symptoms (edema of different localization, more often on the legs, which, as a rule, symmetrical; hepatomegaly; swollen neck veins; small bubbling rales); neuroendocrine activation - increased tone of the sympathetic nervous system (tachycardia). With an objective examination of the patient, it is necessary to take into account the fact that the nature and the degree of expression of his clinical manifestations depend from the severity of heart failure.

Strongholds when setting CHF diagnoses are:

1) characteristic symptoms of heart failure (shortness of breath, fatigue and limitation of physical activity, edema) at rest or during exercise or complaints sick;

2) physical examination data (inspection, palpation, auscultation) or Clinical signs;

3) data of objective (instrumental) examination methods.

It should be remembered that none of the classic symptoms of CHF - shortness of breath, swelling of the ankles, fatigue - in isolation can be used to make a diagnosis. The attending physician, taking into account the available history data, clinical symptoms and signs of the disease, can diagnose heart failure.

Thus, patients of older age groups are characterized by polymorbidity, and heart failure is multisystem character.Shortness of breath, fatigue, and peripheral edemacan be caused by many non-cardiogenic factors and not always indicate that the patient has heart failure. The doctor should always suggest cardiovascular causes of the patient's malaise and carry out diagnostic search for heart disease and hypervolemia.

Conclusion. Chronic heart failure (CHF) is a syndrome with a complex of characteristic symptoms (shortness of breath, fatigue, decreased physical activity, edema) and clinical signs (enlargement of the neck veins, fine bubbling rales in the lungs, displacement of the apex beat to the left). The root cause is violation of the structure or function of the heart, as a result of which it is unable meet the needs of the body oxygen at normal

filling pressure of the heart (this is only possible with increasing the filling pressure of the chambers hearts).

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