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CLINICAL AND PHARMACOLOGICAL APPROACH TO THE USE OF ANTIARRHYTHMIC DRUGS IN CHRONIC HEART FAILURE

Resume: As a result of the work carried out, the indications were clarified, the possibilities were evaluated and limitations were revealed when using traditional (dobutamine) and new (levosimendan) means of inotropic stimulation, external counterpulsation, as well as various combinations of these therapeutic approaches.

The developed diagnostic and therapeutic algorithms can be included in the standards of medical care for this complex category of patients.

The main provisions of the work are of undoubted interest for practical healthcare and are designed for a wide range of specialists involved in the field of cardiology, intensive and general therapy, cardiac surgery.

Keywords: heart failure, antiarrhythmic drug, pharmacological approach.

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КЛИНИКО-ФАРМАКОЛОГИЧЕСКИЙ ПОДХОД К ПРИМЕНЕНИЮ АНТИАРИТМИЧЕСКИХ ПРЕПАРАТОВ ПРИ ХРОНИЧЕСКОЙ СЕРДЕЧНОЙ НЕДОСТАТОЧНОСТИ

Резюме: В результате проведенной работы уточнены показания, оценены возможности и выявлены ограничения при использовании традиционных (добутамин) и новых (левосимендан) средств инотропной

стимуляции, наружной контрпульсации, а также различных комбинаций данных терапевтических подходов.

Разработанные диагностические и лечебные алгоритмы могут быть включены в стандарты медицинской помощи у этой сложной категории пациентов.

Основные положения работы представляют несомненный интерес для практического здравоохранения и рассчитаны на широкий круг специалистов, задействованных в сфере кардиологии, интенсивной и общей терапии, кардиохирургии.

Ключевая слова: сердечная недостаточность, антиаритмический препарат, фармакологический подход.

Introduction. Chronic heart failure (CHF) is a syndrome that develops as a result of various diseases of the cardiovascular system, characterized by the inability of the heart to provide blood circulation corresponding to the metabolic needs of the body, a decrease in the pumping function of the myocardium, chronic hyperactivation of neurohormonal systems, and manifested by shortness of breath, palpitations, increased fatigue, limited physical activity and excessive fluid retention in the body[1,3].

The attention of clinicians around the world to this problem is associated with a steady increase in the number of cases of CHF. Among people over 65 years of age, the incidence of CHF increases to 6-10% and decompensation becomes the most common cause of hospitalization of elderly patients[4]. The costs associated with hospitalization range from 2/3 to 3/4 of all expenses for the treatment of patients with CHF[5]. After the appearance of its first symptoms, less than half of patients live for more than 5 years, and with the development of stage III CHF, about half of patients die within a year[6]. The risk of sudden death in patients with CHF is 5 times higher than in the population[2].

The aim of the study was to develop criteria for standardization of approaches to the use of modern means of inotropic support and non-invasive method of auxiliary circulation of external counterpulsation in the treatment of chronic heart failure in patients with coronary heart disease.

The main causes of CHF, accounting for more than half of all cases, are ischemic (coronary) heart disease (CHD) and arterial hypertension (AH) or a combination of these diseases. Among the diseases that cause CHF, valvular heart defects are in third place, and cardiomyopathy is in fourth place.

Research methods. In this paper, a comparative analysis of the effectiveness of the classical inotropic agent dobutamine and a new non-glycoside agent for inotropic support - levosimendan in patients with coronary heart disease complicated by chronic heart failure was carried out.

Based on the data obtained, the advantages of the latter in influencing the clinical manifestations of the disease, myocardial function and the main parameters of central and peripheral hemodynamics are demonstrated. Already at the earliest stage of the disease, the dynamic balance of the sympathetic-adrenal and renin-angiotensin-aldosterone systems, endothelin, vasopressin, and, having the opposite effect, the systems of natriuretic peptides, bradykinin, vasodilating prostanoids, nitric oxide and some others changes.

Activation of local or tissue neurohormones promotes the activation of compensatory mechanisms (tachycardia, Frank-Starling mechanism, constriction of peripheral vessels) to maintain normal cardiac output.

Over time, short-term compensatory activation of tissue neurohormonal systems turns into its opposite - chronic hyperactivation. The latter contributes to the development of myocardial remodeling, systolic and diastolic dysfunction of the left ventricle. Progression of CHF is accompanied by a decrease in cardiac output and retention of sodium and excess fluid in the body.

Neurohormonal shifts and stagnant changes are the cause of damage not only to the heart, but also to other target organs (kidneys, peripheral vessels, skeletal muscles).

The modern concept of treatment of CHF is associated with understanding the need to protect target organs in order to slow the progression of the disease. Patients with a detailed picture of decompensation, stagnation - this is only the visible part of the iceberg, which makes up no more than a quarter of all patients with CHF. In this regard, it is necessary to start pharmacotherapy early, even before the onset of decompensation symptoms.

Rational therapy of HF is based on the analysis of clinical manifestations of this condition, which served as the basis of the classifications used.

According to the classification of N.D.Strazhesko and V.H.Vasilenko (1935), there are three stages in the development of CHF

Stage	Clinical signs
I	Signs of circulatory insufficiency (shortness of breath, tachycardia, cyanosis) are absent at rest and appear only with physical exertion
II	Signs take place at rest
III	Signs of stagnation are noted in one circle of blood circulation - insufficiency can be left ventricular (dyspnea, cyanosis, tachycardia, attacks of cardiac asthma, especially at night, "stagnant" wheezing in the lungs) or right ventricular (dyspnea, cyanosis, tachycardia, swelling of the cervical veins, hepatomegaly, peripheral and abdominal edema)
IV	Total heart failure with stagnation in both circulatory circles
V	It is characterized by the constant presence of symptoms of heart failure and dystrophic changes in organs and tissues. Clinical

	manifestations of the latter are jaundice, ascites, cachexia, trophic skin changes (pigmentation, ulcers)
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In recent years, the classification of CHF by the New York Heart Association (NYHA), consisting of four functional classes (FC), has become widespread:

Functional class	Clinical characteristics
I	No physical activity restrictions; normal physical activity does not cause symptoms of heart failure
II	Slight restriction of physical activity; normal physical activity causes fatigue, palpitations or shortness of breath
III	Marked restriction of physical activity, but there are no signs at rest; physical activity less than usual causes fatigue, palpitations or shortness of breath
IV	Symptoms of heart failure are present at rest, increasing with physical exertion

The concept of a "functional class" of heart failure is dynamic and under the influence of adequate therapy, its change for the better is possible.

Goals of treatment of heart failure:

1. Elimination or reduction of the causal factor.
2. Relief of symptoms of the disease - shortness of breath, palpitations, increased fatigue and fluid retention in the body.
3. Protection of target organs from damage (brain, heart, kidneys, blood vessels, musculature).
4. Improving the quality of life.
5. Reducing the number of hospitalizations.
6. Improvement of prognosis (prolongation of life).

Large-scale randomized studies performed in the 90s made it possible to clarify the place of various drugs in the drug therapy of patients with CHF due to systolic dysfunction of the left ventricle.

Currently, it is recommended to use 4 groups of medications as the main means for the long-term treatment of patients with CHF:

1. ACE inhibitors.
2. Loop and thiazide diuretics.
3. Beta-blockers.
4. Cardiac glycosides.

Additionally, aldosterone receptor blockers, AT II receptor blockers, some direct vasodilators and non-glycosidic agents are used for special indications.

Effects of the main means of treatment of CHF:

Indicator	ACE	Diuretics	Glycosides	BA B<
Clinic	**	**	*	0 *
Quality of life	**	-	0	0 *
Morbidity	**	?	*	*
Survival rate	**	?	0	* *

Conclusion. The study is aimed at evaluating the effectiveness of using non-invasive strategies in the treatment of patients with heart failure that complicated the course of coronary artery disease. As a result of the work carried out, the indications were clarified, the possibilities were evaluated and limitations were revealed when using traditional (dobutamine) and new (levosimendan) means of inotropic stimulation, external counterpulsation, as well as various combinations of these therapeutic approaches.

The developed diagnostic and therapeutic algorithms can be included in the standards of medical care for this complex category of patients. The main provisions of the work are of undoubted interest for practical healthcare and are designed for a wide range of specialists involved in the field of cardiology, intensive and general therapy, cardiac surgery.

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