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(REVIEW ARTICLE)



Optimization of management of patients with chronic heart failure taking into account cardiovascular functional status

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Abstract

This review article summarizes the reasons, pathophysiological mechanisms, possible clinical features, and the optimal management strategies of patients with chronic heart failure taking into account cardiovascular functional status. In addition, it shows current situation with chronic heart failure in the world, epidemiological status of the problem as well, risk factors contributing to the development of the disease.

Keywords: Chronic heart failure; Ischemic heart disease; Cardiovascular status

1. Introduction

Chronic heart failure (CHF) is becoming one of the leading problems in modern medicine and is widespread; extremely unfavorable: forecast and high financial costs [1]. Despite the successes achieved in medical and surgical methods of treatment, chronic heart failure (CHF) is still one of the most common, progressive and prognostically unfavorable diseases of the cardiovascular system [2]. It is known that the proportion of heart failure in the structure of cardiovascular diseases (CVD) is on average 40.0-45.0% [3].

The main task of identifying and treating patients with heart failure lies with the doctors of the outpatient service, since it is known that almost 80% of the population begins and ends with examination and treatment in primary health care, and about 83% of patients with heart failure are treated not by cardiologists, but by doctors primary link [4]. However, CHF is still not included in the list of cardiovascular diseases subject to active follow-up.

According to the study "EPOHA-O-CHF" (2002), the purpose of which was to identify patients with heart failure by referring to medical institutions, it turned out that every third patient who comes to the clinic or hospital has signs of heart failure [5]. According to the epidemiological study "EPOCH-O-CHF" conducted in 8 regions of the European part of Russia among the unorganized population, among patients with CHF, patients with initial stages and a functional class (FC) of CHF prevail: the proportion of people with "mild" CHF (I-II FC according to classification The New York Heart Association (NYHA)) is 4 times more - 9.8% than with "severe" (III – IV FC) - 2.5% [6]. Moreover, 84.8% of all patients with "mild" CHF and 37.4% with "severe" seek help at the clinic [7]. Domestic study "EPOCHA" showed that in our country the main medical efforts are not aimed at outpatient treatment of the initial stages of heart failure and the prevention of its progression and complications, but towards ineffective inpatient treatment of terminal stages [8]. A.L.Alyavi et al. [9] believes that an increase in the role of the outpatient unit in the early diagnosis and treatment of outpatients with heart failure will help improve the situation with heart failure.

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In addition, the proportion of those patients in whom CHF develops with a preserved ejection fraction (EF) of the left ventricle (LV) (EF <40%) is constantly increasing. So, according to the EPOHA-O-CHF study (2002), the proportion of patients with preserved PV exceeded 80% for the outpatient cohort [10]. These are cases of diastolic heart failure, which has flow patterns and difficulties in therapy [11].

Recent studies have shown that the work of general practitioners (GPs), or family doctors, is a more effective and economical form of primary health care [12]. However, the problems of diagnosis and management of patients with heart failure among GPs have not yet been studied.

Single studies of foreign and domestic authors have proved that timely diagnosis of heart failure, including clinical heart failure, causes difficulties for primary care doctors, since there are still not enough sensitive and specific subjective criteria for this condition [13]. Therefore, objective evidence of systolic or diastolic LV dysfunctions is required to confirm CHF. In clinical practice, echocardiography (Echocardiography) is the most accessible for determining these functions. However, according to foreign studies, echocardiography is used by doctors when diagnosing heart failure from 36 to 49% of cases [14]; in domestic - in 69.7% of outpatients with heart failure [15]. Therefore, there is a problem of hypo- and overdiagnosis of heart failure [16].

Heart failure” in 2012 there were ESC recommendations for the diagnosis and treatment of heart failure, but the gap between the achievements of modern cardiology, clinical pharmacology and the use of this knowledge in practical medicine is still quite large. Thus, the awareness of primary care physicians about heart failure, as shown by the results of IMPROVEMENT (2000) and SHAPE (2003), is insufficient. And, as a result of this, according to the results of the “EPOHA-O-CHF” study (2002) in Russia, patients with CHF are not “healed” by the main groups of drugs [16].

In addition, the effectiveness of the treatment of heart failure largely depends on how carefully the patient complies with the doctor's recommendations regarding medication and lifestyle changes [17]. Studies of foreign authors have shown that the most common cause of decompensation of heart failure is failure to comply with the recommendations of the attending physician [18]. In Russia, studies that are devoted to the study of adherence to the treatment of patients with heart failure are rare [19]. In addition, the level of self-monitoring of patients with heart failure has not been studied in detail by domestic authors.

Currently, new forms of management and treatment of patients with heart failure have appeared, one of which is structured therapeutic education of patients. Training programs in different regions of our country have differences (forms of training, intensity, number of topics used for training patients with heart failure), and there is still no single program. Most studies on the effectiveness of training have been conducted with patients who, as a rule, have III – IV FC according to NYHA, mainly in large cardiology centers and hospitals. They confirmed that patient education leads to a decrease in the number of repeated hospitalizations, cost savings, a tendency to a decrease in mortality is noted, which made it possible to think about the advisability of introducing the education of patients with heart failure in the conditions of GP work.

The results of the famous Framingham study showed that in the United States in the population of people over 45 years of age, the number of patients with clinically severe heart failure is approximately 2.5%, or 5 million people, in absolute numbers. Every year, this “army” is replenished with another 400,000 patients. In the first chapter of the Recommendations of the European Society of Cardiology for the Diagnosis and Treatment of Heart Failure, published in September 2001; G., indicated, that, the prevalence of symptomatic heart failure in the European population ranges from 0.4 to 2.2%. According to research; held since the 70s; the prevalence of heart failure in the United States and Western Europe is on average from 3 to 20 people per 1000 population and this indicator has been steadily increasing over the course of 30 years [20].

The concept of an impending epidemic: CHF was “calculated” on a simulation model of the development of the disease: by 2010 on the example of the Netherlands (Woppeich L. e1 a1., 1994). In absolute terms, an increase in CHF prevalence of 70% is predicted. This growth will clearly increase as the population ages [21].

The general “aging” of the population [22], the improvement of early diagnosis (the appearance of ultrasound in cardiology) and the improvement of therapeutic and surgical methods of treatment, mainly IHD, as well as dilated cardiomyopathy and heart defects, are an objective reason for the increase in the prevalence of cardiac insufficiency. One must be prepared for the fact that every 10 or 3 patients after visiting a cardiologist (or therapist) will leave his office with this diagnosis in 10-20 years [23].

In addition to widespread, heart failure is characterized by a high level of disability, mortality. Suffice it to say that 70% of men and 63% of women diagnosed with CHF die within a few years after the first clinical signs of the disease appear, and up to half of all deaths occur in the first year of the disease [24]. It is paradoxical that the prognosis of patients with heart failure is often worse than that of many cancer patients [25]. According to the data of an epidemiological study completed in <2003 in the Russian Federation, EPOXA-XGH, the prevalence of clinically expressed CHF in the Uzbekistan population is 5.5%, which is 3-10 times higher than in the West. If we take into account patients with asymptomatic left ventricular dysfunction, then we can talk about 11.7% of the population, or about 16 million people [26]. According to the latest updated data, the prevalence of CHF in the European part of the Russian Federation in accordance with criteria corresponding to CHF I-IV FC was 12.3% [27]. The study showed that poorly treated arterial hypertension (AH) is the main cause of heart failure in Russia, as in Europe.

Patients with cardiovascular disease and concomitant heart failure (HF) are extremely difficult to manage in the category of patients. One of the main problems that a doctor encounters in treating such a patient is a high risk of thrombotic complications of various localization, associated with both the underlying disease (atherosclerosis, arterial hypertension) and the presence of heart failure [28].

Today, there is no doubt that people with diagnosed diseases of the cardiovascular system (coronary heart disease (CHD), cerebral and peripheral arteriosclerosis, arterial hypertension) belong to the category of patients with a high and very high risk of acute vascular events [12, 4]. However, one should not forget that heart failure is also a proven independent predictor of acute vascular events in both cardiac and cerebral localization [10]. In particular, it was found that a decrease in the ejection fraction of the left ventricle (LVEF) for every 5% is accompanied by an increase in the risk of thrombotic complications by 18%.

It should be noted that patients with chronic heart failure (CHF) have a high risk of developing acute vascular events, regardless of the primary pathological process, since the absence of an adequate LV systole leads to a total slowdown in blood flow, sludge and blood stasis in microvessels, local and systemic activation of thrombosis, an increase in blood viscosity, the progression of endothelial dysfunction. As a result of this, the likelihood of developing both local ischemic events and systemic thromboembolic complications significantly increases [29].

Considering that a prolonged course of CHF leads to a significant depletion of reserve abilities of the endothelium as the main factor in maintaining the stability of hemovascular homeostasis that impedes the development of parietal thrombosis, effective stabilization of endothelial-platelet interaction is of particular importance for the implementation of antithrombotic prophylaxis [30].

Accordingly, the conduct of antithrombotic prophylaxis in CHF should include both antiplatelet and endothelioprotective drugs [31]. It should be remembered that the stimulation of eNOS to activate the synthesis of nitric oxide (NO) in patients with heart failure may be unsuccessful due to the long course of the pathological process, depleting the reserves of the substrate for the synthesis of NO L-arginine, activation of local inflammation and free radical oxidation, and the whole a number of other reasons leading to a change in the structure of eNOS [32].

In this regard, for the correction of endothelial dysfunction in patients with heart failure, along with standard drugs with a pleiotropic endothelioprotective effect (ACE inhibitors, beta-blockers with additional properties, statins), it is necessary to use drugs that replenish the deficiency of the precursor NO L-arginine, the reserves of which are conditions of prolonged (including pharmacological) stimulation of the endothelium and impaired amino acid resynthesis in the liver and distal tubules of the kidneys are depleted.

Studies have shown that periodic administration of L-arginine in patients with heart failure helps to improve the functional state of the endothelium, increase the duration of the test with 6 minutes of walking, improve the quality of life of patients, in addition, data were obtained on the positive effect of this amino acid on central hemodynamics, inflammatory activity processes and peroxidation processes [33].

Also, in order to “facilitate” the work of eNOS, drugs activating the release of prostacyclin, an alternative endothelial vasodilator, should be used. Triflusal, which, unlike acetylsalicylic acid (ASA), increases the synthesis of prostacyclin by endothelium, can be recommended as such a drug, while it has the additional ability (by increasing the level of cGMP) to increase the synthesis of endothelium NO and also has a double antiplatelet effect: it selectively blocks platelet cyclooxygenase-1 (COX-1), which disrupts the synthesis of thromboxane and reduces the activity of phosphodiesterase, as a result of which calcium-dependent platelet aggregation is blocked [34].

2. Conclusion

Thus, the subpopulation of patients with chronic heart failure more advanced FC against the background of IHD is characterized by severe clinical, paraclinical and morphofunctional disorders. The quality of life of patients is reduced, which is mainly due to manifest manifestations of pathology and limitations of physical activity.

Compliance with ethical standards

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Disclosure of conflict of interest

None

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