CHRONIC HEART FAILURE WITH PRESERVED EJECTION FRACTION IN THE BACKGROUND OF PREDIABETICS

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Annotation.

Chronic heart failure is the most common pathology of the cardiovascular system. The urgency of the problem is determined by the high frequency of diseases of the population, the impact on work and life expectancy. According to G. Mancia, approximately 40% of the elderly European population has a blood pressure (BP) level of more than 140/90 mm Hg. 50% or more of people over the age of 65 have hypertension. In addition, over the past 5 years, the incidence of older patients has increased significantly.

Despite the efforts of scientists, doctors and health authorities, arterial hypertension (AG) remains one of the most important medical and social problems in Uzbekistan, which in many ways increases the mortality rate from cardiovascular diseases. increases. The reason is the prevalence of this pathology (39.5% of the elderly population has high blood pressure, but only 77.9% of them know about their disease) and the occurrence of hypertension, cardiovascular diseases, myocardial infarction and stroke. is a risk factor in the arrival and mainly determines the high level of death in the country.

Key words: : chronic heart failure with preserved ejection fraction, epicardial fat, premesenteric fat,

Introduction

Due to the increase in life expectancy, the increasing prevalence of obesity, insulin resistance and the use of cytotoxic drugs, multiple effects of other metabolic factors on the myocardium, and the growing incidence of cardiovascular

diseases (CVD), the problems of chronic heart failure (CHF) as the final stage of the cardiorenometabolic continuum are becoming increasingly important [1, 2]. In recent years, special attention has been paid to the study of CHF with preserved ejection fraction (CHFpEF), which is due to both the high prevalence and the difficulties in diagnosing and treating this condition [3]. Compared with patients suffering from CHF with reduced ejection fraction, patients with CHFpEF are more often hospitalized not for decompensated heart failure, but because of concomitant diseases (obesity, hypertension, type 2 diabetes mellitus) [4]. Data from studies devoted to the study of the features of humoral and structural-functional characteristics of patients with CHFpEF , prediabetes and abdominal obesity (AO) are limited.

Material and methods

The study included 32 people (12 of whom were men).

Inclusion criteria : male or female individuals aged 45–60 years; prediabetes and CHF I–III functional class (FC) according to the New York Heart Association (NYHA) classification, established at least 3 months before screening [1, 2] ; left ventricular (LV) ejection fraction (EF) ≥50% according to echocardiography (EchoCG) during the screening period or within 12 months before it; structural heart disease — left atrium (LA) enlargement (defined by at least one of the following values: LA width (diameter) ≥3.8 cm, or LA length ≥5.0 cm, or LA area ≥20 cm2 , or LA volume ≥55 ml, or LA volume index ≥29 ml/m2 echocardiography results during screening or within 12 months prior to study entry; N-terminal pro-brain natriuretic peptide (NT- proBNP) concentration ≥125 pg /ml (for patients with atrial fibrillation NT- proBNP >365 pg /ml); AO (waist circumference >80 cm for women and >94 cm for men); office blood pressure (BP) ≤140/85 mmHg, including against the background of optimal antihypertensive therapy; use of optimally selected treatment for CHF for at least 3 months before screening.

Exclusion criteria : metformin intolerance ; glomerular filtration rate (GFR) <45 ml/min/1.73 m2 ; endocrinopathies other than prediabetes ; history of acute coronary syndrome, stroke, or cardiac intervention (coronary artery bypass grafting, percutaneous coronary angioplasty , or valvuloplasty); symptoms of acute decompensated CHF with NT- proBNP levels ≥900 pg /ml at the time of examination or in the last 3 months; use of dietary supplements, hypoglycemic drugs, drugs for the treatment of obesity within 6 months before inclusion and/or during the study; pregnancy, lactation; frequent alcohol consumption/alcoholism (defined as consuming more than 10 units of alcohol per week [1 unit = 200 ml of dry wine, 500 ml of beer, or 50 ml of 40% alcoholic beverage]); drug addiction; The initial examination of patients included an analysis of demographic characteristics and anamnesis data. A general clinical examination and standard anthropometry were performed .

Research results

Men and women were comparable in age, NYHA functional class of CHF, systolic and diastolic blood pressure, heart rate, lipid and carbohydrate metabolism parameters, alanine aminotransferase , aspartate aminotransferase , and hsCRP levels in the blood serum (Table 1). The values of all three indices used to assess insulin resistance indicated its presence in both men and women. The classic picture of metabolic dyslipidemia — high TG levels combined with low HDL-C concentrations — was not revealed in our study, which is probably due to the use of statins by every 5th patient. Among men, the proportion of smokers and former smokers (smoking cessation >12 months ago) was higher. Body weight values were expectedly higher in men than in women (p = 0.036) in the absence of differences in body mass index (BMI).

It is known that impaired glomerular filtration leads to an increase in the concentration of NT - proBNP , since the excretion of this peptide is carried out by the kidneys. In our study, despite the fact that the SCF values in women were lower than in men, the NT- proBNP values in women were lower than in men.

The structure of concomitant pathology and the treatment received are presented in Figures 1 and 2.

Discussion

It has been reported that estrogens stimulate the formation of NP, while androgens, on the contrary, inhibit it, although there is currently no description of the exact mechanisms of these interactions [3]. In our study, the level of NT-proBNP in men was higher than in women, which can be explained by the age of the patients included in the study, most of whom were postmenopausal, as well as by greater activation of the neurohumoral systems in men with CHFpEF , prediabetes and AO. It is also necessary to note the tendency (which did not reach statistical significance, which may be associated with the small number of observations) to a higher frequency of CHF III FC (NYHA) in men, which could affect the NT- proBNP values . The men we examined were more likely to have smoked in the past or to smoke currently. The effect of smoking on NT- proBNP levels in CHF has not been studied; currently, there are only data obtained from samples of patients without CHF, demonstrating an independent positive relationship between NT- proBNP levels ≥125 pg /ml and smoking.

Conclusion

The first stage of the study gives reason to assume the absence of a standard humoral response in the form of an increase in NT- proBNP in patients with CHFpEF , prediabetes and AO aged 45–60 years. Almost half (47.5%) of the examined patients of both sexes with symptoms and clinical signs of CHF, as well as with structural heart disease, had NT- proBNP levels <125 pg /ml. In men included in the study, body weight, estimated SCF values, and NT- proBNP levels in blood plasma were higher than in women. At the same time, in men with morbid obesity, the NT- proBNP levels were minimal.

References

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