

ENGLISH VERSION: ELDERLY PATIENT WITH CHRONIC HEART FAILURE IN THE GENERAL PRACTICE*

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The paper elucidates the peculiarities of heart failure course in elderly patients, as well as issues of pharmacotherapy, chronic heart failure. Features of the pathogenetic therapy of β -blockers and ACE inhibitors, as well as diuretics and cardiac glycosides have been considered.

Keywords: heart failure, β -blockers, ACE inhibitors, digoxin, diuretics.

Findings of the population study show that the average age of patients with chronic heart failure (CHF), residing in the countries with high-income economies, ranges from 70 to 75 years [6,7]. Data from the American Heart Association report about 12-15 million CHF-related outpatient attendances. Almost half of such patients die within 4 years and 25-50% of elderly patients, suffering from the severe CHF die within one year, indicating about the serious prognosis of the clinically manifested CHF. Consequently, CHF is primarily the problem of the elderly and senile people, number of which is tending to increase in the developed countries.

Peculiarity of the CHF in elderly people is its polyetiologic nature; the major etiologic factors of CHF in elderly people are ischemic heart disease (IHD), hypertension and their combination, and Type 2 diabetes mellitus [5]. Likewise, heart valve disease, namely, aortic valve stenosis, senile amyloidosis, atrial fibrillation or kidney failure can be the leading cause for CHF or aggravate it. Specific physiological alterations of the cardiovascular system, as well as other organs and systems which are inherently related to elderly patients can promote the development of CHF. With age the decrease of the total amount of cardiac myocytes and overgrowth of connective tissue in the heart muscle (including accumulation of amyloid) leads to the enhanced stiffness of the myocardium, moderate physiological hypertrophy with the formation of diastolic ventricular dysfunction. Valve fibrosis and calcification, impaired excitability and conductivity occurred in decreased number of functional cells in the sinoatrial node and cardiac conduction system, results in reduced systolic myocardial function. Impairment of excretory function of kidneys is of particular importance in the development of CHF in elderly people. Kidney dysfunction is registered in 20% of elderly patients.

Rarely CHF in elderly people is an isolated pathology and it is often associated with minimum three, and in 25% of patients with six and more concomitant diseases. [2,11].

Notably, the share of CHF patients with left ventricular (LV) systolic dysfunction significantly decreases with age, whereas the share of CHF patients with preserved LV systolic function is increasing. In this regard, some observations show that HF progresses with preserved LV systolic function in 6% of patients under 60 years old and in 40% patients over 70 years [9]. The data is confirmed with the results of the extensive population study made in the USA (National Heart Failure Project (2003)), which shows that CHF with preserved LV systolic function is more common in 50% of women aged over 65 years, and in approximately 1/3 of male population of the same age. Of note, older people with HF experience atrial fibrillation more often. The ATRIA study (2001) showed that nearly 70% of all patients with AF constitute individuals aged

over 65 years, and individuals over 75 years old constitute 50%. In this way the risk for AF in the population of CHF patients accounts for 10 to 30%.

Treatment of older patients with CHF is still aimed at the monitoring of risk factors, lessening of the symptoms, improvement of quality of life, reduction of hospital admissions and improvement of the prognosis, if possible [2,4,5].

Currently, the prolonged drug treatment is based on prescription of medications reducing the neurohumoral activity of renin-angiotensin-aldosterone (RAAS), sympathoadrenal systems, namely, angiotensin-converting enzyme (ACE) inhibitors, beta-blockers (β -AB), mineralocorticoid-receptor antagonists (MRA), as well as Digoxin and diuretics. The existed evidence-based data shows that prescription of the abovementioned agents promotes the improvement of quality of life and increase in life expectancy of CHF patients [1,2,4].

It should be taken into account that such medications as nonsteroidal anti-inflammatory agents, corticosteroids, Class I antidysrhythmic drugs (chinidinum, disopyramidum, ethacyzin, aetmozinum, etc.) are not intended for prescription in elderly with CHF.

ACE inhibitors have been extensively used in treatment of CHF in older people. Positive effect of the ACE inhibitors in CHF has been proved in numerous extensive placebo-controlled trials (CONSENSUS, SOLVD SAVE, and others) that verified the properties of this group of drugs not only to improve the clinical condition but to prolong the life expectancy of patients with CHF. At the same time the number of cases of occurrence of ACE inhibitors-associated postural hypotension and especially azotaemia and hyperpotassemia is increasing with age. Therefore, in titration of ACE inhibitors doses elderly patients should be undergone more thorough monitoring of blood pressure and corresponding laboratory indices. Treatment should be started with minimal doses: enalapril at 2.5 mg twice a day, quinapril at 2.5 mg twice daily, perindoprilum at 2 mg once daily, ramiprilum at 2.5 mg once daily. Doses should be doubled every 3-7 days. The rate of titration can be increased or decreased, if necessary. ACE inhibitors, supplemented with β -AB, are indicated to all patients (unless there are contraindications) with clinical manifestations of CHF (NYHA II-IV), with left ventricular ejection fraction < 40-45%.

Angiotensin II receptor blockers (ARBs), supplemented with β -AB and MRA, are indicated to all patients with ACE inhibitors intolerance due to cough or angioneurotic edema. Currently, medical treatment of CHF patients with lowered ejection fraction can involve candesartan, valsartan. Titration of doses of sartans is made in the similar way to titration of doses for ACE inhibitors. Elderly patients with CHF are less commonly managed to achieve the target doses of ACE inhibitors as compared with

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younger patients. Before start of ACE inhibitors or ARBs prescription a severe anemia (hemoglobin < 70 g/L), hyperpotassemia (potassium > 5.5 mmol/L), kidney failure (creatinine > 300 μ mol/L) and renal artery stenosis of both renal arteries should be excluded in elderly patients with arterial hypertension.

β -blockers (β -AB). Currently, the prescription of β -AB, supplemented with ACE inhibitors and diuretics, is recommended to all patients with persistent Functional Class II - IV CHF, unless there are contraindications. Such β -AB, as bisoprololol, carvedilolol, metoprolol succinate CR/XL and nebivolololol can be used in CHF with LV systolic dysfunction [4,9]. Carvedilolol has the most convincing evidence as to its effectiveness in patients with significantly lowered (< 25%) left ventricular ejection fraction, and in postinfarction patients with left ventricular ejection fraction < 40%. However, the practice shows that a fair amount of doctors do not adhere to the recommendations; only 1/3 of patients with HF are prescribed with β -AB, whereas ACE inhibitors are prescribed to 2/3 of patients. It is recommended to prescribe β -blockers after a patient's condition has stabilized with gradual increase of the dose to the recommended target level. It is 10 mg/daily for bisoprololol, 50 mg/daily for carvedilolol, 200 mg/daily for metoprolol and 10 mg/daily for nebivolololol. In case when, under some circumstances, it is not possible to reach the target dose while prescribing the medication one should stop at the reached dose but on no condition refuse to be prescribed with β -AB [3,4,7]. Importantly, the titration of β -AB dose is a very individual process and each patient has its own optimum dose.

We have established that tolerance of β -AB therapy depends on the duration of the titration period. A great majority of patients with severe CHF requires prolongation of the period of titration to 6 months that makes it easy to reach the target dose of the medication and enables to reduce the frequency of side effects [3]. The results of the SENIORS study were the noteworthy evidence for positive effect of β -AB on survival and clinical aftermath in elderly patients, including patients with preserved left ventricular ejection fraction.

Diuretics. The use of diuretics can cause certain clinical problems in older people. There is a higher risk for the development of hypotension and azotemia associated with active diuresis, caused by the use of loop diuretics that requires start of treatment with low doses and thorough monitoring of blood pressure and plasma creatinine. Thiazides are less effective in glomerular filtration rate (GFR) less than 30 ml/min, and considering the age-related physiological lowering of GFR, their use in elderly patients as a monotherapy is less reasonable. Urinary incontinence that involves the possibility of bladder catheterization during the most active diuretic therapy is observed in 1/3 of patients. In prolonged use of diuretics, the elderly patients with CHF can develop adipsia to them.

Mineralocorticoid-receptor antagonists (MRA) (spironolactone, eplerenone), supplemented with ACE inhibitors (in case of intolerance of the latter, with ARBs) and β -AB, are indicated to all patients with clinical manifestations of CHF (NYHA II-IV) with left ventricular ejection fraction < 35%, unless hyperpotassemia and severe renal dysfunction is presented.

In CHF geriatric practice cardiac glycosides (digoxin) are less frequently used in treatment of HF in patients with sinus rhythm, since their nonhazardous effect even

in prescription of low doses is reasonably doubted. Findings of major prospective non-randomized studies show that the use of digoxin twice heightens the mortality of CHF patients, including patients with both persevered and impaired LV systolic function. Therefore, the current national and European guidelines recommend its prescription to monitor the symptoms and reduce cases of hospitalization in the severe CHF and lowering of the left ventricular ejection fraction or in combination with tachysystolic form of atrial fibrillation. Maintenance digoxin dose in elderly patients should constitute 1/2-1/4 from the regular dose for young and adult patients, i.e., 0, 0,625-0,125 mg/day.

Clinical case: 70 year-old patient S. presented with complaints of palpitations, dyspnea at rest, edema of the lower extremities, and enlargement of abdomen. The patient has been suffering from arterial hypertension for 20 years. On examination: enforced position orthopnea, acrocyanosis, congestive fine rales in the lower parts of the lungs, blood pressure 125/70 mm Hg, pulse 110 beats/min, arrhythmic, left heart border is on the anterior axillary furrow, right heart border is on the parasternal furrow, tones are weak, arrhythmic, systolic murmur over all points in the area of the top and III-IV intercostal space on the left, the liver performs at 7-8 cm below the edge of the rib arch. Urinalysis test showed protein traces; blood creatinine 130 μ mol/L. Echo cardioscopy demonstrated end-diastolic size of the left heart ventricle 70 mm, end-systolic size 62 mm, left atrium 46 mm, ejection fraction 27%, regurgitation over the mitral tricuspid valves; Chest Rtg-graphy showed megalocardia due to the enlargement of the left and right ventricles, cardiac congestion in the lungs. ECG demonstrated reduced voltage, atrial fibrillation with heart rate of 100-120/min. Diagnosis: stage 3 hypertension, risk 4 (very high), hypertensive heart, permanent form of atrial fibrillation, HF 11B with LV systolic dysfunction, NYHA FC IV.

The patient was treated with torasemidum at 20 mg/daily intravenously, digoxin at 0.25 mg/daily, verospiron at 50 mg/daily, ramipril at 2.5 mg/daily; on the day 8 of the therapy the dose was increased to 5.0 mg. Following the 7 days, after the patient's condition stabilized, β -AB carvedilolol was prescribed at 3.125 mg twice daily. After discharge from the hospital the patient continues outpatient treatment with digoxin at 0.25 mg/daily, ramipril at 5.0 mg/daily, warfarin at 3.75 mg/daily, torasemidum at 10 mg once a day, verospiron at 0.25 mg/daily, carvedilolol according to titration scheme (3.125 mg twice daily, 6.25 mg twice daily, 12.5 mg twice daily, 25 mg in the morning and 12.5 mg in the evening). The patient has reached a clinically tolerant dose at 37.5 mg. After 6 months the repeated examination showed patient's satisfactory condition with no edema, satisfactory hemodynamic rates, diminished size of the heart; the patient continuously takes carvedilolol at 25 mg (it is a clinically tolerant dose), ramipril at 5 mg/day; verospiron at 0.25 mg/day, digoxin at 0.25 mg/day.

Notwithstanding the achievements of the contemporary cardiology, management of elderly people with CHF remains a difficult task. The number of such patients is increasing and a general practitioner has to make complicated clinical decisions more frequently. We have prepared this publication to draw attention of general practitioners to the features of therapy of elderly patients.

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