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SPECIFIC FEATURES OF TREATING ACUTE HEART FAILURE AND DECOMPENSATED CHRONIC HEART FAILURE IN THE ELDERLY

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Abstract. Numerous studies have shown that data on the treatment of acute heart failure in the elderly are insufficient. Currently, treatment of patients in this age group with decompensated chronic heart failure is based on research findings and expert recommendations. It is known that angiotensin-converting enzyme inhibitors, beta-blockers, mineralocorticoid receptor antagonists, and sodium-glucose cotransporter-2 inhibitors are prescribed for the treatment of decompensated chronic heart failure with reduced left ventricular ejection fraction, regardless of patient age, and their beneficial effects have been proven. However, recommendations and data for the treatment of decompensated chronic heart failure with moderately reduced and preserved left ventricular ejection fraction are insufficient. In recent years, it has been noted that the use of inotropic agents - catecholamines and calcium sensitizers in the treatment of these conditions is appropriate. This article focuses on these classes of drugs.

Keywords. chronic heart failure, elderly, decompensation, inotropes, calcium sensitizers.

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ЁШИ КЕКСАЛАРДА ЎТКИР ЮРАК ЕТИШМОВЧИЛИГИ ВА СУРУНКАЛИ ЮРАК ЕТИШМОВЧИЛИГИНИНГ ДЕКОМПЕНСАЦИЯСИНИ ДАВОЛАШНИ ЎЗИГА ХОСЛИГИ

Резюме. Ўтказилган кўплаб тадқиқотларда ёши кексаларда ўткир юрак етишмовчилигини даволашга оид маълумотлар етарли эмас. Ҳозирги кунда сурункали юрак етишмовчилигининг декомпенсацияси аниқланган ушбу ёш тоифасидаги беморларни даволашда ўтказилган тадқиқотлар хулосаси ва экспертларнинг тавсиясига асосланади. Маълумки, чап қоринча қон отиш фракцияси паст сурункали юрак етишмовчилиги декомпенсациясини даволашда беморларнинг ёшидан қатъий назар ангиотензинга айлантирувчи фермент ингибитори, бета-адреноблокаторлар, минералокортикоид рецепторлар антогонисти ва 2 – тип натрий-глюкоза котранспортери ингибитори буюрилади ва уларнинг ижобий самаралари исботланган. Бироқ, касалликнинг ЧҚҚОФ бироз пасайган ва сақланган гемодинамик фенотипини декомпенсациясини даволашга оид тавсия ва маълумотлар етарли эмас. Сўнгги йилларда мазкур ҳолатларни даволашда инотроп воситалар – катехоламинлар ҳамда кальций сенсибилизаторларидан фойдаланишни мақсадга мувофиқ эканлиги таъкидланмоқда. Мазкур мақолада ушбу дори воситаларига эътибор қаратилган.

Калит сўзлар: сурункали юрак етишмовчилиги, ёши кексалар, декомпенсация, инотроп, кальций сенсибилизаторлари.

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ОСОБЕННОСТИ ЛЕЧЕНИЯ ОСТРОЙ СЕРДЕЧНОЙ НЕДОСТАТОЧНОСТИ И ДЕКОМПЕНСАЦИИ ХРОНИЧЕСКОЙ СЕРДЕЧНОЙ НЕДОСТАТОЧНОСТИ У ПОЖИЛЫХ ЛЮДЕЙ

Резюме. Многие исследования показали, что данных о лечении острой сердечной недостаточности у пожилых людей недостаточно. В настоящее время лечение пациентов этой возрастной группы с декомпенсированной хронической сердечной недостаточностью основано на выводах исследований и рекомендациях экспертов. Известно, что при лечении декомпенсированной хронической сердечной недостаточности с пониженной фракцией выброса левого желудочка, независимо от возраста пациента, назначают ингибиторы ангиотензинпревращающего фермента, бета-адреноблокаторы, антагонисты минералокортикоидных рецепторов и ингибиторы натрий-глюкозного котранспортера 2 типа и их положительные эффекты доказано. Однако рекомендаций и данных по лечению декомпенсированной хронической сердечной недостаточности с умиренно сниженной и сохраненной фракцией выброса левого желудочка недостаточно. В последние годы было отмечено, что использование инотропных препаратов — катехоламинов и сенсибилизаторов кальция при лечении этих состояний является целесообразным. В данной статье основное внимание уделяется этим классам лекарственных средств.

Ключевые слова: хроническая сердечная недостаточность, пожилые люди, декомпенсация, инотропы, кальций-сенсибилизаторы.

In modern medicine, the concept of initiating pharmacotherapy at low doses with rapid prescription and short-term titration to therapeutic levels is increasingly being promoted. Within this approach, sodium–glucose cotransporter type two inhibitors (SGLT2i) are prescribed at an optimal dose from the beginning of treatment [9,4]. In addition, in elderly patients it is considered essential to continuously evaluate both the efficacy and adverse effects of prescribed medications.

Among the four groups of drugs mentioned above, angiotensin-converting enzyme inhibitors (ACEIs) are regarded as first-line therapy and should be prescribed across all hemodynamic phenotypes of heart failure, provided that no contraindications exist. At the same time, the European Society of Cardiology (ESC) 2021 guidelines emphasize that in ambulatory patients receiving ACEIs or angiotensin receptor antagonists (ARAs) who continue to experience symptoms of chronic heart failure (CHF), the prescription of an angiotensin receptor–neprilysin inhibitor (ARNI) (sacubitril/valsartan, Entresto) is appropriate [9]. To date, no large-scale studies have specifically examined the use of ACEIs and ARAs in elderly patients. Only a limited number of studies have investigated the association between ACEI use in ischemic etiology heart failure and age, mortality, and rehospitalization rates, without providing age-specific recommendations [11]. Other studies have reported that the use of ACEIs in elderly patients with CHF yields positive outcomes, and that in patients with reduced left ventricular ejection fraction and comorbid chronic kidney disease, ACEIs or ARAs may reduce cardiovascular events [8].

The PARADIGM-HF trial demonstrated that, regardless of age, the use of ARNIs in the treatment of CHF gradually reduced primary composite endpoints, including cardiovascular mortality and rehospitalization due to heart failure. Approximately 20% of participants in this trial were aged ≥75 years, including 7.0% aged ≥80 years and 1.4% aged ≥85 years [6].

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Both European and American clinical guidelines emphasize the importance of beta-blockers (bisoprolol, metoprolol, carvedilol) in the treatment of heart failure [9,4]. While nebivolol is recommended in the ESC 2021 guidelines, the American Heart Association and the American College of Cardiology do not include this drug in their heart failure treatment recommendations. All agents within this drug class may be used in elderly patients with heart failure. For instance, the SENIORS trial showed that in patients aged ≥70 years with CHF, nebivolol significantly reduced primary endpoints—rehospitalization due to cardiovascular causes and mortality—regardless of ejection fraction, compared with placebo. Another study demonstrated that metoprolol produced similar outcomes in elderly patients over 69 years of age. The CIBIS-ELD study reported comparable efficacy of bisoprolol and carvedilol in elderly CHF patients; however, bradycardia was more frequently observed in patients receiving bisoprolol, while a reduction in forced expiratory volume was noted in those receiving carvedilol [11]. These findings suggest that a personalized approach to selecting pathogenetic drug therapy is appropriate when treating CHF in elderly patients.

Following the publication of the ESC 2021 guidelines, mineralocorticoid receptor antagonists (MRAs) were recommended for patients with CHF and reduced ejection fraction in order to reduce symptoms, rehospitalization, and mortality. Representatives of this drug group—spironolactone, eplerenone, and finerenone—have been evaluated in multiple trials. The RALES, EMPHASIS-HF, and TOPCAT studies demonstrated that MRAs significantly reduced cardiovascular mortality and rehospitalization in CHF patients, with more pronounced benefits observed in elderly individuals [3,11]. These studies also noted that MRAs may induce hyperkalemia, particularly when used in combination with ACEIs or ARAs.

The use of SGLT2 inhibitors in CHF treatment has been recommended relatively recently. Nevertheless, several recent studies have shown that in patients with CHF with reduced ejection fraction and NYHA functional class II–IV, including those without type 2 diabetes mellitus, SGLT2 inhibitors (dapagliflozin or empagliflozin) are recommended (Class I) to reduce rehospitalization and mortality [9,4]. These studies also reported that the efficacy of these agents in elderly patients is comparable to that observed in younger populations [10,12].

Diuretics are used as symptomatic therapy in the management of acute heart failure with volume overload and in maintaining stability in CHF [9]. Loop diuretics are considered the drugs of choice for eliminating fluid retention in heart failure [5]. However, their impact on reducing morbidity and mortality has not been sufficiently studied [9]. Some studies have reported that in elderly patients hospitalized with decompensated CHF, the use of loop diuretics was associated with a reduced risk of rehospitalization due to heart failure and all-cause mortality within 30 days after discharge [1].

Indeed, the evidence base for pharmacological treatment of acute and decompensated chronic heart failure in elderly patients remains insufficient, highlighting the relevance of further scientific research in this field. The Euro Heart Failure Survey II reported that pathogenetic drugs were not prescribed at adequate doses in patients over 80 years of age, while another study noted unjustified underprescription of ACEIs and beta-blockers in patients older than 75 years [11]. Considering the rapid manifestation of adverse drug reactions and the presence of multiple comorbidities in elderly patients, treatment should be initiated at low doses and gradually titrated to therapeutic levels based on tolerance [7].

In recent years, the efficacy of inotropic agents (dobutamine, milrinone) and the calcium sensitizer levosimendan in the treatment of acute heart failure and decompensated CHF in elderly patients has been widely investigated. However, due to the limited number of enrolled patients, study design limitations, and challenges associated with including elderly individuals in

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clinical trials, it remains difficult to draw definitive conclusions regarding their mechanisms of action and clinical effectiveness. Nevertheless, a substantial number of scientific publications have addressed these agents, and ongoing research continues. Many authors conclude that further studies in this area are necessary, with levosimendan being considered particularly promising. It is hoped that future investigations into the unexplored aspects of inotropes and calcium sensitizers in the treatment of CHF decompensation in elderly patients will open new in clinical medicine.

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