

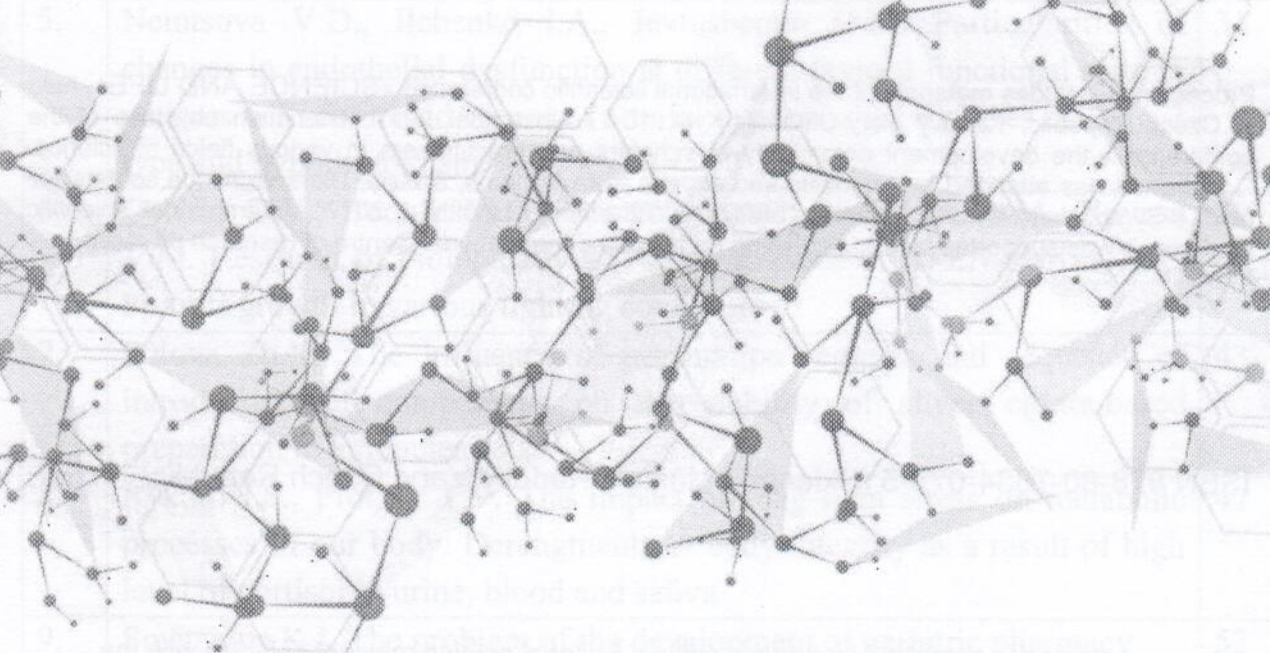
UDC 001  
BBK 73  
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SCIENCE AND LIFE: Proceedings of articles the international scientific conference. Czech Republic, Karlovy Vary - Ukraine, Kyiv, 16-17 November 2017 [Electronic resource] / Editors prof. I.P.Klimov, I.V.Ignatko, V.B.Mantusov. – Electron. txt. d.. – Czech Republic, Karlovy Vary: Skleněný Můstek. – ISBN 978-80-7534-079-5.

Proceedings includes materials of the international scientific conference «SCIENCE AND LIFE», held in Czech Republic, Karlovy Vary-Ukraine, Kyiv, 16-17 November 2017. The main objective of the conference - the development community of scholars and practitioners in various fields of science. Conference was attended by scientists and experts from Armenia, Russia, Ukraine. At the conference held e-Symposium and conference "Medicine, Pharmacy, Health – 2017". International scientific conference was supported by the publishing house of the International Centre of research projects.

ISBN 978-80-7534-079-5 (Skleněný Můstek, Karlovy Vary, Czech Republic)

Articles are published in author's edition. Editorial opinion may not coincide with the views of the authors

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## CURRENT TRENDS IN THE TREATMENT OF CHRONIC HEART FAILURE

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Chronic heart failure (CHF) is a leader in cardiovascular disease. The average prevalence of CHF in the adult population of Ukraine ranges from 1.5 to 5.5%, and with age its prevalence is progressively increasing, amounting to 10% or more among people over 70 years of age [1, c.6]. Clinical prognosis of CHF is worse than the higher degree of clinical severity. Despite the fact that in large placebo-controlled clinical trials, it has proven that long-term pharmacotherapy with basic therapy (ACE inhibitors or angiotensin II receptor antagonists, beta-blockers and aldosterone antagonists) can increase the life expectancy of patients, there is an urgent need to expand the potential exposure to the underlying pathogenesis moments of CHF development.

It is now known that the development of CHF is mainly associated with the activation of the renin-angiotensin system (RAAS) and the violation of natriuretic peptide (NP) system [2, c.887, 11 c. 1790]. The effect of angiotensin II on type 1 receptors — cause — vasoconstriction, secretion of aldosterone, vasopressin, norepinephrine, fluid retention, proliferation of smooth muscle cells and cardiomyocytes [3, c.12]. The blockade of receptor angiotensin II type 1, on the one hand, eliminates the adverse effects of angiotensin II mediated via type 1 receptors,



on the other hand, increases the effect of angiotensin II on type 2 receptors, supplementing vasodilatation and antiproliferative effects mediated through these receptors [4, c.888].

Neriplizin is an enzyme produced by the endothelium of blood vessels, is involved in the degradation of NP and bradykinin and leads to the potentiation of natriuretic, diuretic and vasodilating effects of endogenous NP. However, neriplizin is involved in degradation other vasoactive peptides, in particular angiotensin I and II and endothelin-1. Therefore, the balance of effects of influences on vascular tone of inhibitors of neriplizin is variable and depends on the predominance of constrictive and dilating influences. [4, c.890].

According to the results of experimental studies, combined inhibition of RAAS and neprilizin exceeds the effectiveness of each of the therapeutic strategies separately [2, c. 889]. Active search of new ways of influencing the mechanisms of development of CHF led to the creation of drugs with multiple action mechanism.

In clinical trials IMPRESS, OVERTURE studied the drug omapatrilat, which has an inhibitory effect on neriplizin and angiotensin-converting enzyme (ACE). In patients with CHF, the drug resulted in an increase in the ejection fraction and improvement in clinical outcomes, but without benefits to ACE inhibitors and with a higher risk of severe angioedema [5, c.619, 6c.924, 7c.108].

Another dual ACE inhibitor and neprilizin, ilepatril, showed a higher dose-dependent affinity for ACE, which resulted in a longer blockade of RAAS, and a lower and weak affinity to neprilizin, as opposed to omapatrilat [8, c.56].

In the year 2015, according to the PARADIGM-HF study, the approval of a new, modern drug for CHF Entresto, a combination of the angiotensin II receptor type 2 – valsartan and the neprilizine inhibitor – sacubitril, approved. [9, c.1394, 10, c.998]. Sacubitril inhibits the activity of neprilizine, which breaks NP and as a result increases natriurez, velocity of glomerular filtration and renal blood flow.

Valsartan is a selective angiotensin II receptor antagonist and supplements the effect of sacubitril: when concentrations of angiotensin II increase in blood plasma after the blockade of valsartan angiotensin II receptor type 1, stimulation of



unblocked receptors regulates the action of angiotensin II receptors type 2. As a result, the vasoconstriction and secretion of aldosterone suppressed. The use of Entresto did not show an increased risk of developing angioedema, unlike omapatrilat. Entresto indicate to patients with CHF with a reduced release fraction in the absence of sufficient effect from ACE inhibitors or angiotensin II receptor antagonists. The medication is registered in Ukraine, recommended and with the Ukrainian protocol for medical care for patients with CHF [1, с.34], and with ESC Guidelines [12, с.23]. However, unfortunately, for today, Entresto is not widely used in cardiology practices in Ukraine, which may be due to certain economic difficulties.

#### Used literature

1. Уніфікований клінічний протокол первинної, вторинної (спеціалізованої) та третинної (високоспеціалізованої) медичної допомоги «Хронічна серцева недостатність» - 2016 (Проект) [Електронний ресурс] – Режим доступу : <http://www.mif-ua.com/archive/article/44284>

2. Mangiafico, S. Neutral endopeptidase inhibition and the natriuretic peptide system: an evolving strategy in cardiovascular therapeutics / S. Mangiafico, L.C. Costello-Boerrigter, I.A. Andersen et al. // Eur. Heart J. – 2012. - №12, Vol. 34. – P. 886-893

3. Бова, А.А. Место антагонистов рецепторов ангиотензина II в клинической практике [Электронный ресурс] / А.А. Бова // Журнал «Медицинские новости» - 2009. - №6. - Режим доступа: <http://www.mednovosti.by/journal.aspx?article=4324>

4. Леонова, М.В. Новые и перспективные лекарственные препараты, блокирующие ренин-ангиотензин-альдостероновую систему / М.В. Леонова // РМЖ. - 2013. - №17. - С. 886

5. Rouleau, J.L. Comparison of vasopeptidase inhibitor, omapatrilat, and lisinopril on exercise tolerance and morbidity in patients with heart failure: IMPRESS

randomised trial / J.L. Rouleau, M.A. Pfeffer, D.J. Stewart et al. // *Lancet*. - 2000. - Vol. 356. - P. 615–620.

6. Packer, M. Comparison of omapatrilat and enalapril in patients with chronic heart failure: The Omapatrilat Versus Enalapril Randomized Trial of Utility in Reducing Events (OVERTURE) / M. Packer, R.M. Califf, M.A. Konstam et al. // *Circulation*. - 2002. - Vol. 106. - P. 920–926

7. Kostis, J.B. Omapatrilat and enalapril in patients with hypertension: the Omapatrilat Cardiovascular Treatment vs Enalapril (OCTAVE) trial / J.B. Kostis, M. Packer, H.R. Black et al. // *Am. J. Hypertens.* - 2004. - Vol. 17. - P. 103–111.

8. Azizi, M. Pharmacokinetics and pharmacodynamics of the vasopeptidase inhibitor AVE7688 in humans / M. Azizi, A. Bissery, S. Peyrard et al. // *Clin. Pharmacol. Ther.* - 2006. - Vol. 79. - P. 49–61.

9. Solomon, S.D. The angiotensin receptor neprilysin inhibitor LCZ696 in heart failure with preserved ejection fraction: a phase 2 double-blind randomised controlled trial / S.D. Solomon, M. Zile, B. Pieske et al. // *Lancet* - 2012. - Vol. 380(9851). - P. 1387–1395.

10. McMurray, J.J. Angiotensin-neprilysin inhibition versus enalapril in heart failure. / J.J. McMurray, M. Packer, A.S. Desai et al. // *N Engl J Med.* - 2014/ - №11, Vol.371 - P. 993–1004

11. McMurray, J. J. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of the ESC./ J.J. McMurray, S. Adamopoulos, S.D. Anker et al. // *Eur Heart J.* - 2012. - №14, Vol. 33. - P:1787—1847

12. Ponikowski, P. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC) Developed with the special contribution of the Heart Failure Association (HFA) of



the ESC. / P. Ponikowski, A.A. Voors, S.D. Anker // Eur. Heart. J. – 2016. – №27, Vol. 37. – P. 2129-200

6. Packer M. Comparison of omapatrilat and enalapril in patients with chronic heart failure: The Omapatrilat Versus Enalapril Randomized Trial of Utility in Reducing Events (OVERTURE) // M. Packer, R.M. Califf, M.A. Konstam et al. // Circulation. - 2005. - Vol. 116. - P. 970-976

7. Kostis J.B. Omapatrilat and enalapril in patients with hypertension: the Omapatrilat Cardiovascular Treatment vs Enalapril (OCTAVE) trial // J.B. Kostis, M. Packer, H.R. Black et al. // Am J Hypertens. - 2004. - Vol. 17. - P. 107-111.

8. Axzel M. Pharmacokinetics and pharmacodynamics of the vasopeptidase inhibitor AVE7688 in humans // M. Axzel, A. Hickey, S. Peppard et al. // Clin Pharmacol Ther. - 2008. - Vol. 79. - P. 49-61.

9. Solomon SD. The angiotensin receptor neprilysin inhibitor LCZ696 in heart failure with preserved ejection fraction: a phase 3 double-blind randomised controlled trial // S.D. Solomon, M. Zervas, H. Hassel et al. // Lancet. - 2012. - Vol. 380(9851). - P. 1387-1395.

10. McMurray JJ. Angiotensin-neprilysin inhibition versus enalapril in heart failure // J.J. McMurray, M. Packer, A.S. Desai et al. // N Engl J Med. - 2014. - Vol. 371. - P. 997-1004.

11. McMurray JJ. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of the ESC // J.J. McMurray, S. Adamopoulos, S.D. Anker et al. // Eur Heart J. - 2012. - Vol. 33. - P. 1787-1847.

12. Ponikowski P. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC) Developed with the special contribution of the Heart Failure Association (HFA) of