



PATHOGENETIC ASPECTS OF THE DEVELOPMENT OF ISCHEMIC HEART DISEASE AND CHRONIC HEART FAILURE

Tashkent State Medical University

Nadirova Yulduz Isomovna, Xodjamkulov Abdimumin Oybek Ugli

*2nd year student of the Faculty of Medical Prevention and Public Health,
Ecology, Environmental Protection and Chemistry of Tashkent State Medical
University*

Abstract:

This article analyzes the pathogenetic mechanisms that play an important role in the development of coronary heart disease and chronic heart failure. The role of myocardial perfusion disorders, atherosclerotic processes, activation of neurohormonal systems, and metabolic changes in the development of these diseases is highlighted. Structural and functional changes occurring in the heart muscle, hemodynamic disorders, and the role of compensatory mechanisms are also considered. The results of the study show that it is important to determine the interrelationship of these pathological processes and prevent the development of the disease.

Keywords: Ischemic heart disease, chronic heart failure, pathogenesis, myocardial ischemia, atherosclerosis, neurohormonal system, hemodynamic disorders, cardiac muscle, hypoxia, remodeling.

Ischemic heart disease and chronic heart failure are among the most pressing problems of modern medicine. These diseases are one of the main causes of disability and mortality among diseases of the cardiovascular system, and an in-depth study of the mechanisms of their development is of great importance. This process is often associated with atherosclerotic narrowing of the coronary arteries, leading to hypoxia and metabolic disorders in the myocardial tissues. As a result of the formation of atherosclerotic plaques, narrowing of blood vessels occurs, which



leads to a decrease in myocardial perfusion. As a result, oxygen deficiency is observed in the heart muscle, and energy metabolism is disrupted. In ischemic conditions, the process of anaerobic glycolysis in myocardial cells increases, lactic acid accumulates, and the intracellular pH level decreases. This leads to a decrease in the contractile ability of the heart muscle. Under conditions of chronic ischemia, structural changes develop in the myocardium. In particular, hypertrophy of cardiomyocytes, fibrotic processes, and remodeling of the left ventricle are observed. These changes reduce the pump function of the heart and lead to the development of chronic heart failure.

The activation of neurohormonal systems plays an important role in the pathogenesis of chronic heart failure. Excessive activity of the renin-angiotensin-aldosterone system and the sympathetic nervous system leads to increased cardiac load, narrowing of vessels, and, as a consequence, to a deepening of hemodynamic disorders. Prolonged myocardial ischemia leads to structural restructuring of the heart muscle, which leads to a decrease in the contractile function of the heart. At the same time, although the activation of neurohormonal systems manifests itself as a compensatory mechanism, over time it exacerbates pathological processes. Pathogenetic mechanisms play an important role in the development of coronary heart disease and chronic heart failure. Myocardial ischemia, atherosclerosis, activation of neurohormonal systems, and structural remodeling processes are the main factors in the development of these diseases. In-depth study of these mechanisms is important for the early diagnosis of the disease and the development of effective treatment measures.

FOYDALANILGAN ADABIYOTLAR:

1. Braunwald E. Heart Disease: A Textbook of Cardiovascular Medicine. – 11th ed. – Philadelphia: Elsevier, 2019.



2. Холов, Х. А., Тешаев, О. Р., Бобошарипов, Ф. Г., Амонуллаев, А. Х., & Надирова, Ю. И. (2023). ОСТРЫЙ ПАНКРЕАТИТ-КАК НЕРЕШЕННАЯ ПРОБЛЕМА МЕДИЦИНЫ. *Академические исследования в современной науке*, 2(8), 192-206.

3. Бобошарипов, Ф. Г., Холов, Х. А., Тешаев, О. Р., & Надирова, Ю. И. (2023). ПОСТБАРИАТРИЧЕСКАЯ ГИПОГЛИКЕМИЯ И ГИПОТОНИЯ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 21(5), 105-113.

4. Надирова, Ю. И., Жаббаров, О. О., Бобошарипов, Ф. Г., Турсунова, Л. Д., & Мирзаева, Г. П. (2023). ОЦЕНКА ЭФФЕКТИВНОСТИ И ОПТИМИЗАЦИЯ ДЕЗАГГРЕГАНТНОЙ ТЕРАПИИ У БОЛЬНЫХ С ИБС.

5. Надирова, Ю. И., & Бобошарипов, Ф. Г. (2024). Клинико-диагностические аспекты раннего развития остеопороза при хронической сердечной недостаточности. In *International scientific-online conference*.

6. Bobosharipov, F. G., Ruxullayevich, T. O., Amonullayevich, X. X., & Isomovna, N. Y. (2024). GENETIC INFLUENCES FOR PEPTIC ULCER DISEASE ARE INDEPENDENT OF GENETIC FACTORS IMPORTANT FOR HP INFECTION.

7. Bobosharipov, F. G., Xolov, X. A., & Yu, N. (2024). ACUTE PANCREATITIS AFTER ELECTIVE LAPAROSCOPIC CHOLECYSTECTOMY: RETROSPECTIVE STUDY. In *Proceedings of Scientific Conference on Multidisciplinary Studies* (Vol. 3, No. 6, pp. 132-136).

8. Rakhmatov, A. M., & Zaripov, S. I. (2024). Gout and its association with gouty nephropathy: an analysis of 46 patients. *Современные подходы и новые исследования в современной науке*, 3(16), 100-102.

9. Jumanazarov, S., Jabborov, O., Qodirova, S., & Rahmatov, A. (2022). THE ROLE OF PODOCYTIC DYSFUNCTION IN THE PROGRESSION OF CHRONIC GLOMERULONEPHRITIS.



10. Rakhmatov, A. M., & Jabbarov, A. A. (2022). KodirovaSh. A., Jumanazarov SB, 140-141.

11. Султонов, П. И., Умарова, З. Ф., Жаббаров, О. О., Ходжанова, Ш. И., Кодирова, Ш. А., Жуманазаров, С. Б., & Рахматов, А. М. (2023). Антиагрегант Терапияни Сурункали Буйрак Касаллигида Буйрак Функционал Захирасига Таъсири.

12. Мирзаева, П. П., Жаббаров, О. О., Аликулов, И. Т., Бувамухамедова, Н. Х., & Рахматов, А. М. (2022). Особенности течения подагрического поражения почек у больных с ожирением.

13. Sulstonov, P. I., Umarova, Z. F., Jabbarov, O. O., Khodjanova, S. I., Jumanazarov, S. B., Rahmatov, A. M., & Rahimov, I. S. (2023). EFFECT OF ARTIAGREGANT THERAPY ON KIDNEY FUNCTIONAL RESOURCES IN CHRONIC DISEASE. *Theoretical aspects in the formation of pedagogical sciences*, 2(5), 137-138.

14. Po'latovna, R. G. (2025). USING INTERACTIVE METHODS IN TEACHING MEDICAL STUDENTS IN HIGHER EDUCATION. *FARS International Journal of Education, Social Science & Humanities.*, 13(11), 511-515.

15. Рахимова, Г. П. (2025, December). КАРДИОРЕНАЛЬНЫЙ СИНДРОМ: СОВРЕМЕННЫЕ ПРЕДСТАВЛЕНИЯ, МОЛЕКУЛЯРНО-ГЕНЕТИЧЕСКИЕ МЕХАНИЗМЫ И ВОЗМОЖНОСТИ ГЕНЕТИЧЕСКОЙ ДИАГНОСТИКИ. In *CONFERENCE ON GLOBAL RESEARCH PERSPECTIVES* (Vol. 1, No. 1, pp. 30-37).

16. Рахимова, Г. П. (2025). ХРОНИЧЕСКАЯ СЕРДЕЧНАЯ НЕДОСТАТОЧНОСТЬ: СОВРЕМЕННЫЕ ПРЕДСТАВЛЕНИЯ, ПАТОФИЗИОЛОГИЯ И ПОДХОДЫ К ЛЕЧЕНИЮ. *GLOBAL RESEARCH AND ACADEMIC INNOVATIONS*, 1(1), 160-165.

17. Жаббаров, О. О., Джуманиязова, З. Ф., & Рахимова, Г. П. (2022). Клинико-патогенетические аспекты кардиоренального синдрома.



18. Рахимова, Г. П. (2022). Особенности почечной гемодинамике при кардиоренального синдрома (Doctoral dissertation, Ташкент).

19. Po'latovna, R. G. (2025). SURUNKALI YURAK YETISHMOVCHILIGI: ZAMONAVIY TUSHUNCHALAR, PATOFIZIOLOGIYA VA DAVOLASH YONDASHUVLARI. *Ta'lim innovatsiyasi va integratsiyasi*, 58(3), 246-249.

20. Po'latovna, R. G. (2025). KARDIORENAL SINDROM: KLINIK, PATOGENETIK VA GENETIK JIHATLARNING PROGNOSTIK ANAMIYATI. *Modern education and development*, 39(2), 250-256.

21. Бобошарипов, Ф. Г., Холов, Х. А., Тешаев, О. Р., Алимов, С. У., & Надирова, Ю. И. (2023). КОМОРБИДНОЕ ТЕЧЕНИЕ ОСТРОГО ХОЛЕЦИСТИТА У БОЛЬНЫХ COVID-19. *Models and methods in modern science*, 2(4), 51-58.

22. Холов, Х. А., Тешаев, О. Р., Бобошарипов, Ф. Г., Амонуллаев, А. Х., & Надирова, Ю. И. (2023). ОСТРЫЙ ПАНКРЕАТИТ-КАК НЕРЕШЕННАЯ ПРОБЛЕМА МЕДИЦИНЫ. *Академические исследования в современной науке*, 2(8), 192-206.

23. Umarova, Z. F., Tursunova, L. D., Maksudova, M. X., Hodjanova, S. I., Mirzayeva, G. P., & Nadirova, Y. I. (2023). Diastolic dysfunction in patients with coronary artery disease late after coronary stenting (Doctoral dissertation). In *International scientific-online conference International scientific-online conference*.

24. Бобошарипов, Ф. Г., Холов, Х. А., Тешаев, О. Р., & Надирова, Ю. И. (2023). ПОСТБАРИАТРИЧЕСКАЯ ГИПОГЛИКЕМИЯ И ГИПОТОНИЯ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 21(5), 105-113.

25. Надирова, Ю. И., Жаббаров, О. О., Бобошарипов, Ф. Г., Турсунова, Л. Д., & Мирзаева, Г. П. (2023). ОЦЕНКА ЭФФЕКТИВНОСТИ И ОПТИМИЗАЦИЯ ДЕЗАГГРЕГАНТНОЙ ТЕРАПИИ У БОЛЬНЫХ С ИБС.