

HYPERTENSION, CLASSIFICATION AND PATHOGENESIS

*Ergashov Bekhruzjon Komilovich
Axmedov Shamshod Jamshidovich*

*Trainee assistant at the Asian
International University, Bukhara, Uzbekistan
ORCID ID 0000-0003-4613-0057*

Annotation

Information about hypertension, its classification, mechanisms of development, elements of non-drug treatment and methods of preventing the disease are provided.

Key words: hypertension, nature of the course, treatment options, laboratory diagnostics, prevention.

Hypertension (HTN) is a chronic, stable increase in blood pressure, in which in people not receiving antihypertensive drugs, the level of systolic blood pressure is ≥ 140 mmHg. Art. and/or diastolic blood pressure level – ≥ 90 mm Hg. Art. (WHO and International Society of Hypertension recommendations 1999).

Arterial hypertension (AH) is a cause of heart attack and stroke. According to WHO estimates, >17.5 million people worldwide died from heart attacks and strokes in 2012.

Etiological:

- secrete essential (primary) AG;
- secondary (symptomatic). Secondary (symptomatic) hypertension is a manifestation of the underlying disease (glomerulonephritis, pyelonephritis, renal tuberculosis, hydronephrosis, kidney tumors, renal artery stenosis, thyrotoxicosis, pheochromocytoma, Itsenko-Cushing syndrome, etc.). Secondary hypertension accounts for 5–10% of cases of hypertension. As a rule, treatment of secondary hypertension consists of treating the disease that led to increased blood pressure.

Essential (primary) hypertension, or hypertension, develops as an independent chronic disease; it accounts for 90–95% of cases of increased blood pressure.

According to the nature of the flow:

- benign (slowly progressive) course;
- malignant (rapidly progressive). According to the level of diastolic blood pressure there are:
 - mild course – diastolic blood pressure 115 mm Hg. Art.

Mechanisms of development of hypertension The pathogenesis of hypertension is based on an increase in cardiac output and peripheral vascular resistance.

Let us present the development mechanism schematically:

Stress factor → dysregulation of peripheral vascular tone by higher centers of the brain (hypothalamus, medulla oblongata) → spasm of arteries in the periphery, including renal → increased secretion of neurohormones of the renin-angiotensin-aldosterone system → secretion of aldosterone → retention of water and sodium in the vascular bed → increase in the volume of blood circulating in the vessels → increase in blood pressure.

With hypertension, blood viscosity increases, which causes a decrease in the speed of blood flow and metabolic processes in tissues. The inert walls of the vessels thicken, their lumen narrows, which fixes a high level of total peripheral vascular resistance and makes hypertension irreversible. Subsequently, as a result of increased permeability and plasma saturation of the vascular walls, elastofibrosis and arteriosclerosis develop, which ultimately leads to secondary changes in organ tissues: myocardial sclerosis, hypertensive encephalopathy, primary nephroangiosclerosis.

The degree of damage to various organs in hypertension may be different, therefore, several clinical and anatomical variants of hypertension are distinguished with predominant damage to the vessels of the kidneys, heart and brain.

Risk factors:

- smoking;
- dyslipidemia;
- obesity;
- diabetes mellitus (DM);
- frequently recurring nervous strains;
- increased salt intake (>5 g/day).

Screening. Blood pressure measurements should be carried out at least once every 3–5 years, that is, in all patients who consult a doctor for another reason or during preventive examinations.

If there is a slight increase in blood pressure (130–139/85–89 mm Hg) or indication of an increase in blood pressure in the past, annual blood pressure monitoring is required.

The pathogenesis of hypertension is based on an increase in cardiac output and peripheral vascular resistance. In response to the influence of a stress factor, disturbances in the regulation of peripheral vascular tone by higher centers of the brain (hypothalamus and medulla oblongata) occur. A spasm of arterioles occurs on the periphery, including renal arterioles, which causes the formation of dyskinetic and dycirculatory syndromes. The secretion of neurohormones of the renin-angiotensin-aldosterone system increases. Aldosterone, which is involved in mineral metabolism, causes retention of water and sodium in the vascular bed, which further increases the volume of blood circulating in the vessels.

With arterial hypertension, blood viscosity increases, which causes a decrease in the speed of blood flow and metabolic processes in tissues. The inert walls of the vessels thicken, their lumen narrows, which fixes a high level of total peripheral vascular resistance and makes arterial hypertension irreversible. Subsequently, as a result of increased permeability and plasma saturation of the vascular walls, the development of elastofibrosis and arteriosclerosis occurs, which ultimately leads to secondary changes in organ tissues: myocardial sclerosis, primary nephroangiosclerosis.

The degree of damage to various organs in hypertension may be different, so there are several clinical and anatomical variants of hypertension with predominant damage to the vessels of the kidneys, heart and brain.

REFERENCES

1. Saodat, A., Vohid, A., Ravshan, N., & Shamshod, A. (2020). MRI study in patients with idiopathic coxarthrosis of the hip joint. *International Journal of Psychosocial Rehabilitation*, 24(2), 410-415.
2. Axmedov, S. J. (2023). EFFECTS OF THE DRUG MILDRONATE. *Innovative Development in Educational Activities*, 2(20), 40-59.
3. Уроков, Ш. Т., & Хамроев, Х. Н. (2019). Influence of diffusion diseases of the liver on the current and forecast of obstructive jaundice. *Тиббиётда янги кун, 1*, 30.
4. TESHAEV, S. J., TUHSANOVA, N. E., & HAMRAEV, K. N. (2020). Influence of environmental factors on the morphometric parameters of the small intestine of rats in postnatal ontogenesis. *International Journal of Pharmaceutical Research (09752366)*, 12(3).
5. Хамроев, Х. Н. (2022). Toxic liver damage in acute phase of ethanol intoxication and its experimental correction with chelate zinc compound. *European journal of modern medicine and practice*, 2, 2.
6. Gafurovna, A. N., Xalimovich, M. N., & Komilovich, E. B. Z. (2023). KLIMAKTERIK YOSHDAGI AYOLLARDA ARTERIAL GIPERTENZIYANING KECISHI. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 23(6), 26-31.
7. Komilovich, E. B. Z. (2023). Coronary Artery Disease. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(12), 81-87.
8. Эргашов, Б. К. (2023). Артериальная Гипертония: Современный Взгляд На Проблему. *Research Journal of Trauma and Disability Studies*, 2(11), 250-261.
9. ASHUROVA, N. G., MAVLONOV, N. X., & ERGASHOV, B. Z. K. *БИОЛОГИЯ И ИНТЕГРАТИВНАЯ МЕДИЦИНА. БИОЛОГИЯ*, (4), 92-101.

10. Jamshidovich, A. S. (2023). ASCORBIC ACID: ITS ROLE IN IMMUNE SYSTEM, CHRONIC INFLAMMATION DISEASES AND ON THE ANTIOXIDANT EFFECTS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(11), 57-60.
11. Jamshidovich, A. S. (2023). THE ROLE OF THIOTRIAZOLINE IN THE ORGANISM. *Ta'lim innovatsiyasi va integratsiyasi*, 9(5), 152-155.
12. Jamshidovich, A. S. (2023). HEPTRAL IS USED IN LIVER DISEASES. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 35(3), 76-78.
13. Jamshidovich, A. S. (2023). EFFECT OF TIVORTIN ON CARDIOMYOCYTE CELLS AND ITS ROLE IN MYOCARDIAL INFARCTION. *Gospodarka i Innowacje.*, 42, 255-257.
14. Jamshidovich, A. S. (2024). NEUROPROTECTIVE EFFECT OF CITICOLINE. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 4(1), 1-4.
15. Jamshidovich, A. S. (2024). THE ROLE OF TRIMETAZIDINE IN ISCHEMIC CARDIOMYOPATHY. *Journal of new century innovations*, 44(2), 3-8.
16. Ачиллов Шохрух Шавкиддин угли. (2024). ХИРУРГИЧЕСКИЕ МЕТОДЫ ЛЕЧЕНИЯ АНЕВРИЗМЫ БРЮШНОЙ АОРТЫ . *TADQIQOTLAR*, 30(3), 120–126
17. Ачиллов Шохрух Шавкиддин угли (2023). ОСЛОЖНЕНИЯ ПОСЛЕ КОВИДА НА СОСУДАХ НИЖНИХ КОНЕЧНОСТЕЙ. *CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES* Volume: 04 Issue: 06 Oct-Nov 2023 ISSN:2660-4159, 400-403
18. Ачиллов Шохрух Шавкиддин угли (2023). НАЛОЖЕНИЕ ШВОВ ПРИ ГНОЙНЫХ ПРОЦЕССАХ НА ТКАНИ. *CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES* Volume: 04 Issue: 06 Oct-Nov 2023 ISSN:2660-4159, 292-297
19. Khamroev, B. S. (2022). RESULTS OF TREATMENT OF PATIENTS WITH BLEEDING OF THE STOMACH AND 12 DUO FROM NON-STEROIDAL ANTI-INFLAMMATORY DRUGS-INDUCED OENP. *Journal of Pharmaceutical Negative Results*, 1901-1910.
20. Nutfilloyevich, K. K. (2023). STUDY OF NORMAL MORPHOMETRIC PARAMETERS OF THE LIVER. *American Journal of Pediatric Medicine and Health Sciences* (2993-2149), 1(8), 302-305.
21. Nutfilloyevich, K. K. (2024). NORMAL MORPHOMETRIC PARAMETERS OF THE LIVER OF LABORATORY RATS. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 36(3), 104-113.

22. Nutfilloevich, K. K., & Akhrorovna, K. D. (2024). MORPHOLOGICAL CHANGES IN THE LIVER IN NORMAL AND CHRONIC ALCOHOL POISONING. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 36(3), 77-85.
23. Kayumova, G. M., & Hamroyev, X. N. (2023). SIGNIFICANCE OF THE FEMOFLOR TEST IN ASSESSING THE STATE OF VAGINAL MICROBIOCENOSIS IN PRETERM VAGINAL DISCHARGE. *International Journal of Medical Sciences And Clinical Research*, 3(02), 58-63.
24. Хамроев, Х. Н., & Тухсанова, Н. Э. (2022). НОВЫЙ ДЕНЬ В МЕДИЦИНЕ. *НОВЫЙ ДЕНЬ В МЕДИЦИНЕ Учредители: Бухарский государственный медицинский институт, ООО "Новый день в медицине"*, (1), 233-239.
25. Хамроев, Х. Н. (2024). Провести оценку морфологических изменений печени в норме и особенностей характера ее изменений при хронической алкогольной интоксикации. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 36(3), 95-3.
26. Хамроев, Х. Н., & Туксанова, Н. Э. (2021). Characteristic of morphometric parameters of internal organs in experimental chronic alcoholism. *Тиббиётда янги кун*, 2, 34.
27. Хамроев, Х. Н., Хасанова, Д. А., Ганжиев, Ф. Х., & Мусоев, Т. Я. (2023). Шошилинч тиббий ёрдам ташкил қилишнинг долзарб муаммолари: Политравма ва ўтқир юрак-қон томир касалликларига ёрдам кўрсатиш масалалари. *XVIII Республика илмий-амалий анжумани*, 12.
28. Хамроев, Х. Н., & Хасанова, Д. А. (2023). Жигар морфометрик кўрсаткичларининг меъёрда ва экспериментал сурункали алкоголизмда қиёсий таснифи. *Медицинский журнал Узбекистана | Medical journal of Uzbekistan*, 2.
29. Khamroyev, X. N. (2022). TOXIC LIVER DAMAGE IN ACUTE PHASE OF ETHANOL INTOXICATION AND ITS EXPERIMENTAL CORRECTION WITH CHELATE ZINC COMPOUND. *European Journal of Modern Medicine and Practice*, 2(2), 12-16.
30. Hamroyev, X. N. (2022). The morphofunctional changes in internal organs during alcohol intoxication. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 2(2), 9-11.
31. Khamroyev, X. N. (2022). TOXIC LIVER DAMAGE IN ACUTE PHASE OF ETHANOL INTOXICATION AND ITS EXPERIMENTAL CORRECTION WITH CHELATE ZINC COMPOUND. *European Journal of Modern Medicine and Practice*, 2(2), 12-16.

32. Хамроев, Х. Н. (2022). The morphofunctional changes in internal organs during alcohol intoxication. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 2(2), 9-11.
33. Латипов, И. И., & Хамроев, Х. Н. (2023). Улучшение Результат Диагностики Ультразвуковой Допплерографии Синдрома Хронической Абдоминальной Ишемии. *Central Asian Journal of Medical and Natural Science*, 4(4), 522-525.
34. Хамроев, Х. Н., & Уроков, Ш. Т. (2019). ВЛИЯНИЕ ДИФФУЗНЫХ ЗАБОЛЕВАНИЙ ПЕЧЕНИ НА ТЕЧЕНИЕ И ПРОГНОЗ МЕХАНИЧЕСКОЙ ЖЕЛТУХИ. *Новый день в медицине*, (3), 275-278.
35. Хамроев, Х. Н., & Ганжиев, Ф. Х. (2023). Динамика структурно-функциональных нарушение печени крыс при экспериментальном алгокольные циррозе. *Pr oblems of modern surgery*, 6.
36. Irgashev, I. (2024). COVID-19 INFEKSIYSINI YUQTIRGAN KASALXONADAN TASHQARI PNEVMONIYA BILAN KASALLANGAN BEMORLARDA DROPERIDOL NEYROLEPTIK VOSITASINI QO'LLANILISHI VA UNING DAVO SAMARADORLIGIGA TA'SIRI. *Центральноазиатский журнал образования и инноваций*, 3(1), 12-18.
37. Irgashev, I. E. (2022). New Principles of Anticoagulant Therapy in Patients with Covid-19. *Research Journal of Trauma and Disability Studies*, 1(12), 15-19.
38. Irgashev, I. E. (2023). RESPIRATORY DISTRESS SYNDROME. *Horizon: Journal of Humanity and Artificial Intelligence*, 2 (5), 587–589.
39. Irgashev, I. E. (2023). Pathological Physiology of Heart Failure. *American Journal of Pediatric Medicine and Health Sciences* (2993-2149), 1(8), 378-383.
40. Irgashev, I. E., & Farmonov, X. A. (2021). Specificity of resuscitation and rehabilitation procedures in patients with covid-19. *Central Asian Journal of Medical and Natural Science*, 2(1), 11-14.
41. Ikhtiyarova, G. A., Dustova, N. K., & Qayumova, G. (2017). Diagnostic characteristics of pregnancy in women with antenatal fetal death. *European Journal of Research*, (5), 5.
42. Kayumova, G. M., & Nutfilloyevich, K. K. (2023). CAUSE OF PERINATAL LOSS WITH PREMATURE RUPTURE OF AMNIOTIC FLUID IN WOMEN WITH ANEMIA. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, 2(11), 131-136.
43. Kayumova, G. M., & Dustova, N. K. (2023). Significance of the femoflor test in assessing the state of vaginal microbiocenosis in preterm vaginal discharge. Problems and scientific solutions. In *International conference: problems and scientific*

solutions. Abstracts of viii international scientific and practical conference (Vol. 2, No. 2, pp. 150-153).

44. Каюмова, Г. М., Мухторова, Ю. М., & Хамроев, Х. Н. (2022). Определить особенности течения беременности и родов при дородовом излитии околоплодных вод. *Scientific and innovative therapy. Научный журнал по научный и инновационный терапии*, 58-59.

45. Kayumova, G. M., & Dustova, N. K. (2023). ASSESSMENT OF THE STATE OF THE GENITAL TRACT MICROBIOCENOSIS IN PREGNANT WOMEN WITH PREMATURE RUPTURE OF THE MEMBRANES USING THE FEMOFLOR TEST. *Modern Scientific Research International Scientific Journal*, 1(1), 70-72.

46. Valeryevna, S. L., Mukhtorovna, K. G., & Kobylovna, E. S. (2019). Premature Birth In A Modern Aspect. *International Journal of Bio-Science and Bio-Technology*, 11(10), 31-37.

47. Саркисова, Л. В., Каюмова, Г. М., & Умидова, Н. Н. (2018). Морфологические изменения фетоплацентарного комплекса при герпетической инфекции. *Тиббиётда янги кун*, 188-191.

48. Каюмова, Г. М., Саркисова, Л. В., & Умидова, Н. Н. (2018). Современные взгляды на проблему преждевременных родов. *Тиббиётда янги кун*, 183-185.

49. Каюмова, Г. М., Хамроев, Х. Н., & Ихтиярова, Г. А. (2021). Причины риска развития преждевременных родов в период пандемии организм и среда жизни к 207-летию со дня рождения Карла Францевича Рулье: сборник материалов IV-ой Международной научнопрактической конференции (Кемерово, 26 февраля 2021 г.). ISBN 978-5-8151-0158-6.139-148.

50. Саркисова, Л. В., Каюмова, Г. М., & Бафаева, Н. Т. (2019). Причины преждевременных родов и пути их решения. *Биология ва тиббиёт муаммолари*, 115(4), 2.

51. Kayumova, G. M., & Dustova, N. K. (2023). Significance of the femoflor test in assessing the state of vaginal microbiocenosis in preterm vaginal discharge. Problems and scientific solutions. In *International conference: problems and scientific solutions. Abstracts of viii international scientific and practical conference (Vol. 2, No. 2, pp. 150-153).*

52. KAYUMOVA, G., & DUSTOVA, N. (2023). Features of the hormonal background with premature surge of amniotic fluid. *Of the international scientific and practical conference of young scientists «Science and youth: conference on the quality of medical care and health literacy» Ministry of healthcare of the republic of kazakhstan kazakhstan's medical university «KSPH»*. ISBN 978-601-305-519-0.29-30.

53. Қаюмова, Г. М. НК Дўстова.(2023). Muddatdan oldin qog'onoq suvining ketishida xavf omillarning ta'sirini baholash. *Журнал гуманитарных и естественных наук*, 2(07), 11-18.
54. Қаюмова, Г. М., & Мухторова, Ю. М. (2022). Пороговые значения антител к эстрадиолу, прогестерону и бензо [a] пирену как факторы риска преждевременного излития околоплодных вод при недоношенной беременности. *Scientific and innovative therapy. Научный журнал по научный и инновационный терапии*, 59-60.
55. Sarkisova, L. V., & Kayumova, G. M. (2019). Exodus of premature birth. *Тиббиётда янги кун*, 1(25), 155-159.
56. Саркисова, Л. В., & Каюмова, Г. М. (2018). Перинатальный риск и исход преждевременных родов. *Проблемы медицины и биологии*, 169-175.
57. Каюмова, Г. М., Саркисова, Л. В., & Рахматуллаева, М. М. (2018). Особенности состояния плаценты при преждевременных родах. In *Республиканской научно практической конференции «Актуальные вопросы охраны здоровья матери и ребенка, достижения и перспективы»* (pp. 57-59).
58. Каюмова, Г. М., Саркисова, Л. В., & Саъдуллаева, Л. Э. (2018). Показатели центральной гемодинамики и маточно-фетоплацентарного кровотока при недонашивании беременности. In *Республиканской научно практической конференции «Актуальные вопросы охраны здоровья матери и ребенка, достижения и перспективы»* (pp. 56-57).
59. Саркисова, Л., Каюмова, Г., & Рузиева, Д. (2019). Современные тренды преждевременных родов. *Журнал вестник врача*, 1(4), 110-114.
60. Каюмова, Г. М., & Ихтиярова, Г. А. (2021). Причина перинатальных потер при преждевременных родов у женщин с анемией.(2021). In *Материалы республиканской научно-практической онлайн конференции.«Актуальные проблемы современной медицины в условиях эпидемии»* (pp. 76-7).
61. Kayumova, G. M., Khamroev, X. N., & Ixtiyarova, G. A. (2021). Morphological features of placental changes in preterm labor. *Тиббиётда янги кун*, 3(35/1), 104-107.
62. Khamroyev XN, Q. G. (2021). Improving the results of treatment of choledocholithiasis in liver diseases.
63. Kayumova, G. M. (2023). TO DETERMINE THE FEATURES OF THE COURSE OF PREGNANCY AND CHILDBIRTH IN WOMEN WITH PRENATAL RUPTURE OF AMNIOTIC FLUID. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, 2(11), 137-144.
64. Kayumova, G. M. (2023). To Determine the Features Of Pregnancy and Children During Antenature Ruption Of Ambient Fluid. *American Journal of Pediatric Medicine and Health Sciences* (2993-2149), 1(9), 66-72.

65. Kayumova, G. M. (2023). Features of the Hormonal Background During Premature Relation of Amniotic Fluid. *American Journal of Pediatric Medicine and Health Sciences* (2993-2149), 1(9), 73-79.
66. Kayumova, G. M. (2023). The Significance Of Anti-Esterogen And Progesterone Antibodies As A Risk Factor In Premature Rupture Of Amniotic Fluid. *American Journal of Pediatric Medicine and Health Sciences* (2993-2149), 1(9), 58-65.
67. Muxiddinova, I. M. (2022). IMPACT OF ENERGY DRINKS AND THEIR COMBINATION WITH ALCOHOL TO THE RATS METOBOLISM. *Gospodarka i Innowacje.*, 22, 544-549.
68. Mukhiddinova, I. M. (2022). EFFECTS OF CHRONIC CONSUMPTION OF ENERGY DRINKS ON LIVER AND KIDNEY OF EXPERIMENTAL RATS. *International Journal of Philosophical Studies and Social Sciences*, 2(4), 6-11.
69. Muxiddinova, I. M. (2022). Effects of Energy Drinks on Biochemical and Sperm Parameters in Albino Rats. *CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES*, 3(3), 126-131
70. Ильясов, А. С., & Исмадова, М. М. (2022). ЖИНСИЙ АЪЗОЛАРГА ЭНЕРГЕТИК ИЧИМЛИКЛАРНИНГ САЛБИЙ ТАСИРИ. *Uzbek Scholar Journal*, 5, 66-69.
71. Muxiddinova, I. M. (2022). Demage of Energy Drinks on the Spermatogenesis of Male Rat's. *Research Journal of Trauma and Disability Studies*, 1(9), 111-118.
72. Muxiddinova, I. M. (2022). Effects of Energy Drinks on Biochemical and Sperm Parameters in Albino Rats. *CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES*, 3(3), 126-131.
73. Muxiddinova, I. M. (2022). Ameliorative Effect of Omega-3 on Energy Drinks-Induced Pancreatic Toxicity in Adult Male Albino Rats. *INTERNATIONAL JOURNAL OF HEALTH SYSTEMS AND MEDICAL SCIENCES*, 1(5), 13-18.