

Modern Approaches to the Mechanism of Occurrence of Arterial Hypertension

Umurov Erkin Utkirovich
Bukhara state medical institute

Article Information

Received: March 31, 2023

Accepted: April 30, 2023

Published: May 26, 2023

Keywords

arterial hypertension, extracurricular activities, hyperlipidemia, diabetes mellitus.

ABSTRACT

Arterial hypertension (AH) is a chronic formative disease, the main manifestation of which is arterial hypertension syndrome, in which an increase in blood pressure will not be associated with the presence of pathological processes for certain reasons. The diagnosis of "hypertensive disease" is made based on the elimination of diseases that lead to the secondary nature of increased blood pressure and the presence of hereditary predisposition. Diseases of the circulatory system are one of the most common diseases in the Republic of Uzbekistan, the mortality rate of which is 51.1% in the composition of the causes of the total death of the population.

The idea of hypertensive disease for a long time explained in terms of G.F.Lang's neurogenic theory. It was based on two main factors - mental strain due to mental trauma and prolonged cessation of emotions of a negative nature. Modern ideas about hypertension are related to clinical and experimental data, which suggests that the social and personal attitude of a teenager towards it, rather than the absolute power of stress, determines the emergence of emotional stress [1,2]. The cause of nervous breakdown at this age can be a large training load and difficulties in the training program. But the load at school is the same for all adolescents, and hypertension is only in some.

Therefore, it will be more correct to focus on the extracurricular activities of the student. Apparently, studying at a music school, learning a second foreign language, etc. physical education, sports, recreation do not affect most adolescents. Many teenagers, a year before leaving school, prepare to enter the University, study intensively with tutors and take exams twice in the summer. As a result of the irrational Organization of the student's work, all of the above leads to overstrain of the nervous system and creates conditions for the development of hypertensive disease [3, 4, 5].

In half of adolescents, the disease is asymptomatic, which makes it difficult to identify the disease, while simultaneously treating it in a timely manner. In children with high blood pressure above average, a tendency to increase with age is maintained. In the future, it rises to 33-42%, and 17-26% of children develop AH, i.e. hypertension can occur in every third child with elevated blood pressure [6, 7, 8].

Smoking is a relatively manageable risk factor. The main preventive work should be aimed at determining the long-term effects of smoking. Parents should play an important role in promoting the risk of smoking. Our survey showed that 42% of boys' families and 58% of girls' families smoked fathers.

The pathophysiological basis for the development of obesity is the discrepancy between the energy needs of the body and incoming energy. The main way to energize is to consume food. Energy consumption goes to metabolic processes, heat production and physical activity. Fighting excess body weight in adolescents is not easier than in adults, so it is very important to prevent obesity. In the diet, it is necessary to increase the content of plant fiber, which will help the feeling of satiety appear faster. In addition, vegetables and fruits contain antioxidants – substances that normalize the metabolism [9, 10, 11, 12, 13].

An increase in body weight is associated with an increase in arterial pressure. 60-70% of patients with AH are obese and central obesity, in combination with IR and dyslipidemia, is more pronounced in relation to the peripheral state of increased blood pressure. Obesity-related AH may be a separate genetically determined phenotype [14]. The detection rate of hypertension in middle-aged people with obesity is 50% higher than normal body weight and, according to a Framingham study, blood pressure rises in parallel with an increase in body mass index (BMI). Systolic blood pressure for each excess weight of 4.5 kg rises to 4 mmHg in men and 4.2 mmHg in women [15]. The correlation of BMI and arterial blood pressure is observed not only in older patients, but also in adolescents [16]. Especially often, obesity plays an important role in the pathogenesis of increased blood pressure in perimenopausal women with Type 2 diabetes who are at increased risk of developing arterial stiffness and endothelial dysfunction. The combination of hypertension and obesity is characterized by a high level of illness and death, since it leads to the development of cardiovascular system and renal pathology, the addition of obesity or hyperlipidemia to the liver increases the risk of HI by 2 times, the combination of all three components by 5 times [17].

Currently, obesity is not only an important factor determining cardiovascular risk, but also an important mechanism involved in AH pathogenesis. The link between obesity and high blood pressure includes dietary features, metabolic disorders, endothelial and vascular dysfunction, neuroendocrine imbalance, sodium retention, altered glomerular filtration, and a harmful inflammatory response.

Obesity, vascular damage, aging, and infections can disrupt the complex balance of many factors attached by adipose tissue to promote the growth of smooth muscle cells of vessels that contribute to the development of atherosclerosis, arterial stenosis, and hypertension.

Reasons for unsatisfactory control of AH can include a slowdown in the preventive work of health institutions, insufficient and timely appointment of modern effective drugs by doctors, neglect of patient treatment, etc. All this is the reason that only a small number of patients achieve a targeted level of blood pressure, which in turn leads to a decrease in the cardio- and cerebroprotective effects of antihypertensive therapy (AHT). In this regard, work is underway to increase the effectiveness of AHT and seek ways to comply with the treatment of the patient. Literature data shows that the method of self-control of blood pressure (BP) is an effective measure in this regard. By independently controlling blood pressure, the patient becomes an active participant in the process of treating arterial blood pressure, increasing the motivation for treatment and the regimen of taking hypotensive drugs that allow medical recommendations, including AHT, to increase efficiency.

Obesity, stress and an increase in an unhealthy lifestyle led to an increase in the number of people with diabetes mellitus (DM) among Europeans at the age of 20-79 years to over 50 million. The number is expected to reach 64 million by 2030 and will cost € 90 billion to treat. The 10-year risk of developing diabetes was calculated using a scale, which asked (A) different questions to the population, (B) to severe hereditary diseases for obesity, hypertension or (and) diabetes, (C) to patients with cardiovascular diseases.

The division into groups highlights an unfavorable prognosis in people with a combination of diabetes and cardiovascular disease, among which there are many patients with AH. A common combination of AH and diabetes worsens the prognosis of patients with diabetes and quadruples the cardiovascular risk [26].

References:

1. Lawes CM, Vander Hoorn S, Rodgers A. Global burden of blood-pressure-related disease, 2001. *Lancet*. 2008;371:1513–1518.
2. Vangen-Lonne AM, Wilsgaard T, Johnsen SH, Lochen ML, Njolstad I, Mathiesen EB. Declining incidence of ischemic stroke: what is the impact of changing risk factors? The Tromso Study 1995 to 2012. *Stroke*. 2017;48:544–550.
3. Chobanian AV, Bakris GL, Black HR, et al. The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA*. 2003;289:2560–2572.
4. Oliveria SA, Lapuerta P, McCarthy BD, L'Italien GJ, Berlowitz DR, Asch SM. Physician-related barriers to the effective management of uncontrolled hypertension. *Arch Intern Med*. 2002;162:413–420.
5. Ho PM, Magid DJ, Shetterly SM, et al. Importance of therapy intensification and medication nonadherence for blood pressure control in patients with coronary disease. *Arch Intern Med*. 2008;168:271–276.
6. Neuhauser HK, Adler C, Rosario AS, Diederichs C, Ellert U. Hypertension prevalence, awareness, treatment and control in Germany 1998 and 2008-11. *J Hum Hypertens*. 2015;29:247–253.
7. Wallace SM, Yasmin, McEniery CM, et al. Isolated systolic hypertension is characterized by increased aortic stiffness and endothelial dysfunction. *Hypertension*. 2007;50:228–233.
8. Williams B, Mancia G, et al. 2018 ESC/ESH guidelines on hypertension. *J Hypertens*. 2018
8. Freeman R, Wieling W, Axelrod FB, et al. Consensus statement on the definition of orthostatic hypotension, neurally mediated syncope and the postural tachycardia syndrome. *Clin Auton Res*. 2011;21:69–72.
9. Fagard RH, Cornelissen VA. Incidence of cardiovascular events in white-coat, masked and sustained hypertension versus true normotension: a meta-analysis. *J Hypertens*. 2007;25:2193–2198.
10. Mancia G, Facchetti R, Bombelli M, Grassi G, Sega R. Long-term risk of mortality associated with selective and combined elevation in office, home, and ambulatory blood pressure. *Hypertension*. 2006;47:846–853.
11. Bobrie G, Clerson P, Menard J, Postel-Vinay N, Chatellier G, Plouin PF. Masked hypertension: a systematic review. *J Hypertens*. 2008;26:1715–1725.
12. Mancia G, Fagard R, Narkiewicz K, et al. 2013 ESH/ESC guidelines for the

- management of arterial hypertension: the Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC) *Eur Heart J.* 2013;34:2159–2219.
13. U, U. E. (2022). Characteristic Prevalence of Endocrine Disease. *Central Asian Journal of Medical and Natural Science*, 3(6), 58-62.
 14. Рахимова Г. Ш. ИНТЕРПРЕТАЦИЯ МАКРОСКОПИЧЕСКОЙ ТОПОГРАФИИ СЕМЕННИКОВ ПОДОПЫТНЫХ БЕЛЫХ КРЫС ПОСЛЕ МОДЕЛИРОВАННОЙ ЧЕРЕПНО-МОЗГОВОЙ ТРАВМЫ //ЎЗБЕКИСТОН РЕСПУБЛИКАСИ СОҒЛИҚНИ САҚЛАШ ВАЗИРЛИГИ ТОШКЕНТ ТИББИЁТ АКАДЕМИЯСИ. – С. 83.
 15. Рахимова Г. Ш. Тажрибадаги оғир бош мия шикастланишидан кейин 3 ойлик ок каламуш уруғдонларининг макроскопик хусусиятлари //Barqarorlik va yetakchi tadqiqotlar onlayn ilmiy jurnali. – 2022. – С. 303-306
 16. Рахимова Г. Ш. Современные Аспекты Изучения Особностей Морфофункциональных Характеристик Семенников В Норме И При Различных Факторных Воздействиях //Central Asian Journal of Medical and Natural Science. – 2022. – Т. 3. – №. 6. – С. 15-23.
 17. Shamsievna, R. G. (2023). The Leading Mechanisms of the Pathophysiology of Traumatic Brain Injuries. *Scholastic: Journal of Natural and Medical Education*, 2(3), 115–119.
 18. Рахимова Г. Ш. Вторичные повреждения тканей при острой черепно-мозговой травме //Amaliy va tibbiyot fanlari ilmiy jurnali. – 2023. – Т. 2. – №. 4. – С. 87-91.
 19. RAKHIMOVA G. NEW DAY IN MEDICINE //NEW DAY IN MEDICINE Учредители: Бухарский государственный медицинский институт, ООО" Новый день в медицине". – №. 2. – С. 197-200.
 20. Shamsievna R. G. Modern Aspects of Studying the Features of Morphofunctional Characteristics of Testes under Various Factor Influences //Eurasian Scientific Herald. – 2022. – Т. 7. – С. 279-286
 21. Sh R. G. Experimental modelling of traumatic brain injury in white rats //Тиббиётда янги кун. – 2021. – Т. 2. – №. 34. – С. 197-200.
 22. Rakhimova G. Sh. The Importance of Proteinuria as a Predictor of Diagnosis Risk Factor for Chronic Kidney Disease// The Pharmaceutical and Chemical Journal. – 2021. – Т. 8. - №. 1. – С. 79-81.
 23. Rakhimova G. MODELING OF ACUTE TRAUMATIC BRAIN INJURY IN WHITE MONGREL RATS //Академические исследования в современной науке. – 2022. – Т. 1. – №. 19. – С. 206-208.
 24. Abdullaeva M. A. Damage to the endothelial layer of the vascular wall in nonspecific aortoarteritis //Tibbiyotdayangikun. Tashkent. – 2016. – №. 3-4. – С. 13-15.
 25. Абдуллаева М., Умуров Э. АОРТА КАСАЛЛИКЛАРИНИНГ ДАВОЛАШ ВА ТАСНИФИ, ТАШХИСЛАШ, ПАТОГЕНЕЗИНИНГ ЗАМОНАВИЙ МЕЗОНЛАРИ (АДАБИЁТЛАР ШАРҲИ) //Евразийский журнал медицинских и естественных наук. – 2023. – Т. 3. – №. 2. – С. 49-54.
 26. Ahadovna A. M. Pathomorphological Changes that Develop in the Wall of the Aorta Under the Influence of Radiation //Central Asian Journal of Medical and Natural Science. – 2021. – Т. 2. – №. 4. – С. 198-203.