Вестник РУДН. Серия: МЕДИЦИНА
RUDN Journal of MEDICINE. ISSN 2313-0245 (Print). ISSN 2313-0261 (Online)
2023;27(2):155—166
http://journals.rudn.ru/medicine

DOI 10.22363/2313–0245–2023–27–2–155–166
EDN ZBIHBG

REVIEW
ОБЗОРНАЯ СТАТЬЯ

Arterial hypertension in young adults

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Abstract. Arterial hypertension (AH) is associated with the development of pathological changes in target organs, which leads to an increase in morbidity and mortality. The aim of the review was to discuss the peculiarity of AH in young people, in particular risk factors for developing AH, associations between the risk of cardiovascular events and elevated blood pressure in young adults, blood pressure phenotypes in young people, the role of traditional cardiovascular diseases risk factors in young people with AH, features of target organ damages in young people with AH and optimal blood pressure for target organ protection. Threshold values of blood pressure, from which the cycle of pathological changes starts, have not been finally determined, however, it is likely that they are significantly lower than the blood pressure values that are currently used to diagnose AH n in Europe and Russia. Reclassification of AH using more strict criteria in the United States resulted in an increase in the prevalence of AH from 29 % to 43 %, and affected mainly young people. Obesity, increased daily sodium excretion, increased consumption of meat products, dyslipidemia, hyperinsulinemia, hyperuricemia, high levels of depression and low social status are among the potential risk factors for developing AH at a young age, while a low-salt diet, eating a large amount of plant foods, high in carotenoids and folate, and a high level of physical activity may have a preventive effect on the development of AH. The results of recent studies indicate a high prevalence of AH, including masked, in young people, which often remains underestimated in real clinical practice. The strategy for the treatment of AH in young patients has not been determined, which is associated with an insufficient evidence base. Studies are needed to identify additional arguments for initiating or withholding antihypertensive therapy in this population, including the study of early signs of hypertension-associated target organ damage. *Conclusion.* The results of recent studies indicate a high prevalence of hypertension, including masked, in young people, which often remains underestimated in real clinical practice. Further research is required to identify additional arguments for initiating or withholding antihypertensive therapy in this population, including the study of early signs of hypertension-associated target organ damage.

Key words: arterial hypertension, target organ damage, young people

Funding. The authors received no financial support for the research and publication of this article.

Author contributions. All authors made a significant contribution to the development of the concept and writing the article, read and approved the final version before publication.

Conflict of interest statement. The authors declare no conflict of interest.

Ethics approval — not applicable.

Acknowledgements — not applicable.

Consent for publication — not applicable.

Received 16.03.2023. Accepted 17.04.2023.

For citation: Bazhdyreva EI, Shavarova EK, Kirpichnikova EI, Ezhova NE, Kobalava Zh D. Arterial hypertension in young adults. *RUDN Journal of Medicine.* 2023;27(2):155—166. doi: 10.22363/2313-0245-2023-27-2-155-166

Introduction

Cardiovascular diseases (CVD) and their complications lead to 18 million deaths per year, which is about a third of the total number of deaths in the world [1]. The most important modifiable risk factor for cardiovascular events (CVE) is arterial hypertension (AH). To date, there are two concepts for determining the threshold values for its diagnosis: the traditional threshold of 140/90 mm Hg, adopted by the European Society of Cardiology (ESC) and the Russian Society of Cardiology [2, 3], as well as the threshold of 130/80 mm Hg, proposed in 2017 by the American College of Cardiology and the American Heart Association (ACC/AHA) [4]. Reducing the threshold for diagnosing hypertension by 10 mm Hg based on the results of large studies and meta-analyses, the most significant of which was the SPRINT study, which found that BP ≥130/80 mm Hg associated with a higher risk of severe cardiovascular complications[5, 6]. Since the introduction of the new ACC/ANA criteria, the prevalence of hypertension has increased from 32 % to 46 % in the United States, from 25 % to 50 % in China, from 36 % to 58 % in Japan, from 29 % to 43 % in India, and from 30 % to 49 % in South Korea [7].

The reclassification, first of all, affected young people: the frequency of AH diagnosis in men increased three times, and in women it doubled [7]. The effect of elevated blood pressure at a young age on a subsequent increase in the risk of developing CVD and its complications at an older age is of great interest both from a scientific and practical point of view. The issue of management of such patients remains open today. Since obesity, high salt intake, smoking and lack of physical activity are possible causes of hypertension in young people, lifestyle modification is recommended in most cases. The need for prescribing drug therapy is not obvious, and studies on this issue have mixed results.

Risk factors for developing arterial hypertension at a young age

Among the factors contributing to the increase in blood pressure in people in the first half of life, various determinants are considered, the main of which are listed in the table.

Table.

Possible risk factors for the onset of hypertension at a young age

Risk factors	Relationship between risk factor and prognosis	References
Large size of the skin fold of the subscapular region	Higher risk of increased BP ≥ 165/90 mm Hg or start of anti-HTN therapy at 8-year follow-up (age 20–49 years)	8
Large waist circumference	Higher risk of increased BP157 ≥ 138/85 mm Hg or starting of anti-HTN therapy at 10-year follow-up	9
BMI	↑ BMI in hypertension at a young age (BP ≥ 140/90 mm Hg before 40 years) compared to persons with normotension	10
Increase in daily sodium excretion	↑ SBP in men and women aged 20–59	11
Low salt diet	↓ SBP at day 30 of follow-up (age ≤ 45 years)	12
More consumption of meat products	Higher risk of increased BP ≥ 135/85 mm Hg or starting of anti-HTN therapy at 15 years of follow-up	13
Greater consumption of plant foods	Lower risk of BP increase ≥135/85 mm Hg or starting of anti-HTN therapy at 15 years of follow-up	13
More frequent alcohol drinking	Not accompanied by an increase in the frequency of hypertension	14
Higher content of carotenoids in food	Lower rate of BP increase ≥140/90 mm Hg or start of anti-HTN therapy at 20-year follow-up	15
Higher folate content in food	Lower rate of BP increase ≥140/90 mm Hg or start of anti-HTN therapy at 20-year follow-up	16
High concentration of triglycerides	Higher risk of increased BP ≥140/90 mm Hg under the age of 40	10
Higher fasting insulin values	Higher risk of increased BP ≥140/90 mm Hg or start of anti-HTN therapy at 20-year follow-up	17
Higher uric acid values	Higher risk of increased BP ≥ 140/90 mm Hg or start of anti-HTN therapy at 20-year follow-up	18
Higher C-reactive protein values	Higher risk of increased BP ≥ 140/90 mm H or start of anti-HTN therapy at 8-year follow-up, but the risk is offset by adjusting for BMI	19
Higher level of physical activity	Lower the frequency of increasing BP ≥140/90 mm Hg or start of anti-HTN therapy at 15 years of follow-up	20
Higher level of physical activity	Higher risk of increased BP ≥160/95 mm Hg or start of anti-HTN therapy at 5-year follow-up, predominantly in blacks	21
Low socioeconomic status	Higher risk of increased BP ≥140/90 mm Hg or start of anti-HTN therapy at 10-year follow-up	22

Notes: BP — blood pressure, AGT — antihypertensive therapy, BMI — body mass index, SBP — systolic BP. The studies included normotensive persons aged 18–30 years, men and women.

Associations between the risk of cardiovascular events and elevated blood pressure in young adults

Since AH is more typical for older people, most of the randomized clinical trials studying the prediction of the role of one or another risk factor for CVD are conducted with the participation of patients over 55 years of age. Cardiovascular complications usually develop after age 50 in men, after age 60 in women, and are rare among young people; therefore, assessing the predictive value of risk factors identified at a young age requires a follow-up period of several decades and a large sample size [23]. It is known that an increase in blood pressure in adolescence is associated with the development of stable AH in old age [1].

A large population-based study by Sauvaget et al. in India included more than 167,000 people aged 35–90 years. According to the authors, in those examined at the age of 34–44 years, the risk of death from CVD increased at a fairly high level of systolic blood pressure (SBP): 140–159 mm Hg, which corresponds to 1 degree of AH according to the ESC classification [24].

However, the results of other studies determine the threshold blood pressure much lower. According to a population-based study by Son et al., which evaluated the data of preventive examinations of 2 million Koreans aged 20–39 years with a follow-up period of 10 years, they obtained the following distribution of BP categories according to the ACC / AHA classification: normal BP — 39.9 %, elevated 10 .8 %, stage 1 AH — 37.7 %, stage 2 AH — 11.6 % [25]. Greater BP was found in older male patients who consumed more alcohol, smoked, had a larger BMI, and had higher fasting glucose and total cholesterol levels. It was found that persons with ACC/AHA stage 1 and 2 AH have a greater risk of subsequent development of CVD compared with persons with normal pressure, and the risk of CVD in men was 25 %, and in women by 27 % in the presence of AH compared with persons with normotension [25]. Similar data were obtained in the Harvard Alumni Health Study on a cohort of 18,881 male students who had their blood pressure measured at clinical examination, and subsequently, three decades after graduation from the university, analyzed outcomes against a medical database. It turned out that the increase in blood pressure to the level of 130–140/80–90 mm Hg in youth is associated with an increased risk of death from CVD in adulthood by 21 %, up to 140–159/90–99 mm Hg — by 46 %, ≥ 160/≥ 100 — by 89 % ($p < 0.001$) [26].

Meta-analysis by Luo et al. pooled 17 observational cohort studies (4.5 million young adults aged 18–45 years, mean follow-up 14.7 years). It was found that even with normal blood pressure (120–130/70–80 mm Hg), the relative risk of cardiovascular events is increased by 19 % compared with people with optimal blood pressure, with high normal blood pressure — by 35 %, with stage 1 hypertension — 2 times, and with AH stage 2–3 times. According to the authors, both systolic BP (SBP) and diastolic BP (DBP) independently influence cardiovascular outcomes and should be assessed in parallel when determining risks in young patients. Increased SBP > 120–129 mm Hg as well as DBP > 80 mm Hg were associated with a progressive increase in the risk of cardiovascular disease, coronary artery disease, and stroke. The risk of death from any cause began to increase from SBP > 150–160 mmHg and with DBP > 80–90 mm Hg. [1].

The predictive value of SBP and DBP was assessed in a study by Vishram et al. on a cohort of 85,772 people aged 19–72 years, it showed that with age there is a gradual shift in the degree of influence of SBP and DBP on mortality from stroke and other causes except CHD [12]. At 19–26 years old, DBP has the greatest influence, at 27–62 years old — both DBP and SBP, and at the age of 63–78 years old — mainly SBP. At the same time, in women, the relationship between BP and stroke mortality was not significant until middle age, which is probably due to the protective effect of estrogen before menopause [27].

The CARDIA study was conducted to determine risk factors at a young age that influence the subsequent development of CVD. It combines 4880 participants of white and black races under the age of 50 years, the follow-up period was 28 years. Researchers have shown that pre-hypertensive SBP levels in blacks at a young age are most strongly associated with the future development of CVD. Such an indicator for whites was an increased level of DBP, and in middle age, an indicator closely associated with CVD is SBP [28].

In turn, Bundy et al. assessed changes in office BP and 24-hour BP monitoring (ABPM) throughout life in a cohort of 5115 white and black patients aged 18–30 years [14]. The highest blood pressure values were noted in patients with diabetes mellitus (DM), blacks and with a body mass index (BMI) ≥25 kg/m^2. An earlier increase in SBP in black patients may reflect accelerated vascular aging associated with genetic characteristics, psycho-emotional stress, and environmental factors. Also, the central pressure in the aorta (CAP) was less than the brachial pressure up to 40 mm Hg. BP amplification from the ascending aorta to the brachial artery is less in young blacks than in whites due to earlier reflection of the peripheral pulse wave [29]. In individuals with a BMI ≥ 25 kg/m^2, mean daily SBP values were higher by 6.3 mm Hg compared with individuals with normal body weight. In the presence of diabetes mellitus (DM), mean nighttime DBP values exceeded this indicator in persons without carbohydrate metabolism disorders by 17.3 mm Hg.

In the same cohort of patients, Yano et al. showed that the increase in blood pressure above 130/80 mm Hg in subjects under 40 years of age was associated with a significantly higher risk of CV events in the future compared to individuals with normal BP, while the main predictor of CVD was the level of DBP at a young age, which is consistent with the results of the earlier Framingham study [30].

Blood pressure phenotypes in young people

Masked AH and white-coat hypertension are associated with target organ damage (TOD), especially LV hypertrophy, as well as with the subsequent development of persistent hypertension [16]. White-coat hypertension is manifested by the registration of hypertension when measured by a doctor and ambulatory normotension. The clinical significance of white-coat hypertension is unclear, but a recent meta-analysis has shown that untreated white-coat hypertension is associated with an increased risk of cardiovascular disease, all-cause mortality, and cardiovascular mortality [31]. Masked hypertension is diagnosed in patients with normal office BP and AH based on ambulatory BP measurements. This type of hypertension occurs in 5–11 % of young people and is more typical for people who belong to the category of high normal BP when measured at clinic visits. It is noted that this condition can turn into sustained hypertension, induce target organ damage and increase the left ventricular myocardial mass index (LVMI), intima-media complex thickness (IMC) and pulse wave velocity (PWV), as well as increase the risk of death. An analysis was made of the probability of developing stable AH in patients with masked hypertension diagnosed in childhood. It was shown that the risk is significantly higher in male patients, which indicates sexual dimorphism in the prevalence of this pathology and is combined with data on a lower prevalence of hypertension in women in the general population [32, 33].

Isolated systolic arterial hypertension (ISAH) (SBP ≥ 140–159 mm Hg and DBP < 90 mm Hg) occurs according to various sources in 2–8 % of the general population and from 14 to 40 % in the population of patients with AH and may be accompanied by normal central aortic pressure due to pronounced peripheral amplification. The hemodynamic pattern of ISAH includes greater stroke volume, aortic stiffness, and normal total peripheral vascular resistance (TPVR), while isolated diastolic and systolic-diastolic AH are characterized by increased TPVR. This condition is considered as an early stage of AH, and hemodynamic changes as preceding the formation of high vascular resistance. This previously considered benign condition has been shown to be associated with an increased risk of death from cardiovascular causes. The study by Yano et al. (39,441 people aged 18–49 years, follow-up period — 31 years) showed that young men with ISAH had the same risk of CVD as patients with high normal BP, and women had a higher risk, and that this condition was closely associated with smoking, as well as large body mass index (BMI), heart rate, total plasma cholesterol. Such patients should be advised to modify their lifestyle, but the need for drug therapy is not yet clear. Long-term follow-up is required for this group of patients, as many of them will subsequently develop sustained hypertension [34]. Sustained hypertension is manifested by an increase in both office and outpatient blood pressure. This condition is irreversible and remains the most important risk factor for cardiovascular enents. Thus, ISAH may be an early form of AH that adversely affects the prognosis, while the mechanisms of early BP increase require further study [32].

The role of traditional CVD risk factors in young people with hypertension

Cholesterol levels are a known modifiable risk factor for CVD, but few studies have focused on the effect of raising cholesterol levels at a young age on subsequent CVD risk. Yiyi et al., conducted a meta-analysis that assessed the impact of low-density lipoprotein cholesterol (LDL–C) on CVD risk in 36,000 young adults. It was found that LDL–C ≥ 100 mg/dl was associated with a 64 % increased relative risk of future CVD. It has also been found that high LDL–C values

are associated with subclinical coronary atherosclerosis in middle age [35].

Features of target organ damages in young people with hypertension

The main target organ damages associated with AH include left ventricular hypertrophy (LVH), microalbuminuria, arterial stiffness and increased PWV, as well as a decrease in the ankle-brachial index and an increase in intima-media thickness and pulse pressure (PP) [3]. Afterload on the left ventricle is determined by the state of the vascular system, namely, the pressure in the ascending aorta — central aortic pressure. Other components are vascular resistance, arterial elasticity, reflected wave pressure. PP is affected by stroke volume and aortic stiffness, and mean BP is affected by cardiac output (CO) and systemic vascular resistance. With an increase in arterial stiffness, the speed of wave propagation increases, which leads to an increase in PP in the aorta. Aortic pressure is less than peripheral. The difference in pressure in the aorta and at the periphery is associated with the phenomenon of amplification: the result of an early merger of the reflected wave with the systolic component of the direct wave due to the proximity of the reflection points. This phenomenon does not allow estimation of the true pressure in the aorta through the measurement of peripheral BP [36]. These changes increase afterload in the left ventricle, resulting in myocardial hypertrophy, increased oxygen consumption, decreased systolic volume and CO, impaired diastolic function, and heart failure (HF). LVH is independently associated with a high risk of heart failure (HF). The closest relationship was noted between arterial stiffness, diastolic dysfunction and diastolic HF. The latter develops due to the direct impact of a pathologically high load on cardiomyocytes, which occurs during their contraction and relaxation, and is also indirectly associated with LVH. A decrease in the diastolic recoil of the aortic wall and a shift of the reflected wave from diastole to late systole lead to a decrease in DBP and, as a result, to a decrease in coronary artery perfusion [37]. An increase in SBP and PP leads to remodeling of the arterial bed and is associated with damage to target organs [38].

In a study by Yu et al. (included 2502 people aged 18 to 40 years) it has been shown that an increase in peripheral vascular resistance is associated with an increase in SBP, as well as with structural changes in resistant vessels. This reflects an early maladaptive mechanism for increasing SBP in young people. Elevated SBP may, in turn, reflect the inability of resistant vessels to adapt to a certain level of PP, such patients are more likely to develop sustained hypertension in the future. In the same study, it was found that greater SBP and systemic vascular resistance were in patients with greater body weight and BMI, regardless of the level of PP. This may suggest that the increase in body weight is associated with a decrease in the ability of resistant vessels to adapt to a higher stroke volume, also observed in such patients [39].

Previously, in the same cohort of patients, it was confirmed that increased CO is the main hemodynamic mechanism associated with increased SBP in patients with normal body weight, which was associated with an increase in the activity of the sympathetic nervous system. In obese patients, an increase in systemic vascular resistance is associated with an increase in SBP and changes in vascular stiffness. The highest systemic vascular resistance was found in women with low PP, regardless of SBP [40].

In experimental studies, the role of cytokines in the pathogenesis of increased peripheral vascular resistance and the development of AH in young people, in particular, interleukin-6, has been demonstrated. Stimulation of smooth muscle cells with angiotensin II results in the release of interleukin-6, which increases smooth muscle cell proliferation. The level of this marker is increased in the group of patients with elevated blood pressure compared with the control group. To date, data are insufficient to confirm this relationship and further studies are required [41].

Early diagnosis of target organ damage is of particular importance in young patients with initial degrees of BP elevation and low/moderate CV risk. The clinical assessment of the arterial vessels is based on the study of PWV as a marker of damage to the

medial layer of the arteries and an increase in their stiffness, and intima-media thickness as a parameter associated with atherosclerosis and reflecting changes in the intimal layer of the arteries. In a study by Cecelja et al. included 1400 participants aged 20–24 who had PWV and intima-media thickness measured. According to the results of the study, it was found that PWV is interconnected with mean BP, intima-media thickness, total cholesterol, glucose, insulin resistance index and BMI, however, an independent association was found only with mean BP. The only parameter negatively correlated with intima-media thickness was high-density lipoprotein cholesterol. These data support an independent etiology of atherosclerosis and arterial stiffness in young adults [42].

Optimal blood pressure for target organ protection

Although elevated BP has been shown to be associated with risks of target organ damage and cardiovascular events, the clear evidence for the rationale for medical treatment of early stages of AH, especially in young patients, are not presented. In a cohort of 8418 treated hypertensive patients without CVD, with a mean age of 51 years, Kwon et al. showed that the optimal level for target organ protection is BP < 120/70 mm Hg. At the same time, for an older age, a decrease in SBP < 120 and DBP < 70 mm Hg may, on the contrary, increase the risk of CVD and death [2].

In the SPRINT study, more than 9,000 patients with SBP ≥ 130 mm Hg, with a mean age of 50 years, compared intensive pressure reduction < 120 versus standard protocol reduction to < 140 mm Hg. They showed that an intensive decrease in blood pressure (on average, up to 121 mm Hg) was associated with a 25 % reduction in the risk of serious CV events and a 27 % reduction in overall mortality. In turn, when using standard protocols, the decrease in blood pressure averaged 136 mm Hg, and no such dependence was found. However, the incidence of serious side effects (syncope, hypotension, electrolyte abnormalities, acute kidney injury) was also higher in the intensive BP reduction group [6].

The benefit of lowering blood pressure in preventing CVD was also confirmed in a meta-analysis by Ettehad et al. The authors showed that the decrease in SBP for every 10 mm Hg significantly reduces the risk of serious CV events and death. These data also extend to patients with baseline SBP < 130 mm Hg, in whom BP decreased to < 120 mm Hg [43]. However, such a strategy may have certain risks, in particular for high-risk comorbid patients, which was revealed in the ONTARGET and TRANSCEND study: SBP < 120 mm Hg and DBP < 70 mm Hg in this group of patients was associated with an increased risk of CVD, including myocardial infarction and stroke [44].

Contradictory results were also obtained in the work of Sheppard et al. A retrospective analysis of data from 38286 low-risk patients with ESC grade 1 AH (mean age 54 years) showed that drug therapy not only did not reduce the risk of CVD, but also had side effects such as hypotension, syncope, electrolyte imbalance, acute kidney injury [45]. Thus, drug therapy in this group of patients should be prescribed with great caution.

Optimal BP levels in a cohort of young hypertensive patients exposed to prolonged exposure to elevated BP require further study. There is no consensus on whether young adults with uncomplicated grade 1 AH should receive medical therapy. Conducting research is difficult, as unwanted effects of therapy may appear many years later. Many of the existing studies on this issue were observational rather than interventional, which does not provide accurate data on the need for antihypertensive therapy in different categories of blood pressure.

Long-term epidemiological studies have shown a direct relationship between blood pressure > 130/80 mm Hg at a young age and further risk of CVD and mortality [46]. A study by Liu et al. in a cohort of young and older CARDIA and MESA patients, respectively, found that the risk of CVD was higher in patients receiving antihypertensive therapy than in those whose BP levels were initially within the normal range [47]. According to Son et al., those surveyed who were prescribed drug therapy did not demonstrate a subsequent increase in CVD risk [25]. Liu et al. demonstrated that an increase in blood pressure at the age of 18–30 years was significantly associated with coronary calcification 15 years later [47]. Another study showed an association of elevated BP in adolescence with LV hypertrophy in middle age [30].

These data support early intervention to prevent BP elevation before target organ damage develops.

Thus, despite the lack of direct evidence, early initiation of therapy in younger patients may have a beneficial effect. To date, it has not been determined at what level of blood pressure should begin treatment at a young age. According to current guidelines, antihypertensive therapy, together with lifestyle changes, can be prescribed for ESC grade 1 AH in the absence of risk factors, target organ damage, and CVD, as it may prevent more severe hypertension and development of target organ damage in the future. The recommended target level of blood pressure in this case is 120–130/70–79 mm Hg. Young patients with grade 2 AH and above require lifestyle modification and appropriate drug therapy, as do patients with high-risk grade 1 AH [2, 3].

However, there is evidence of insufficient benefit of drug therapy in this category of patients. In particular, in the already mentioned study by Luo et al., to prevent one CV event, it was necessary to treat 2672 subjects with normal BP, 1450 subjects with high normal BP, 552 subjects with grade 1 AH and 236 — with grade 2 AH. This may indicate a relatively small benefit of drug treatment in these groups of patients. Since observational studies were included in the analysis, the interpretation of these results should be approached with caution [1].

When choosing a treatment strategy, it is important to take into account the mechanisms of early increase in BP, which are not the same in different groups of patients. Since antihypertensive drugs have various effects on hemodynamic parameters, in each case, the choice of the most appropriate therapy is required. In particular young blacks with high SBP may benefit from therapeutic strategies to reduce aortic stiffness to prevent premature CVD. These include lifestyle modifications, including dietary changes (eg, reducing salt intake), weight loss, and the use of inhibitors of the renin-angiotensin-aldosterone system. Conversely, in young white patients with high DBP, therapeutic strategies aimed at reducing peripheral vascular resistance (eg, exercise and calcium channel blockers) may be effective [48].

Mechanisms leading to an increase in SBP depend on body weight: increased CO is the main determinant of an increase in SBP with normal body weight, and with obesity, there is a predominant increase in systemic vascular resistanse. These data are important for determining the approaches of treating high SBP with various BMI indicators [35, 48].

Conclusion

Hypertension is associated with the development of pathological changes in target organs, which leads to an increase in morbidity and mortality. Threshold values of blood pressure, from which the cycle of pathological changes starts, have not been finally determined, however, it is likely that they are significantly lower than the blood pressure values that are currently used to diagnose hypertension in Europe and Russia. The results of recent studies indicate a high prevalence of hypertension, including masked, in young people, which often remains underestimated in real clinical practice. DBP has a greater influence on the long-term prognosis in young people. The strategy for the treatment of hypertension in young patients has not been defined, further research is required to identify additional arguments for initiating or withholding antihypertensive therapy in this population, including the study of early signs of hypertension-associated target organ damage.

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Особенности артериальной гипертонии у лиц молодого возраста

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Аннотация. Артериальная гипертензия (АГ) связана с развитием патологических изменений в органах-мишенях, что приводит к увеличению заболеваемости и смертности. Цель обзора — обсудить особенности течения АГ у лиц молодого возраста, в частности факторы риска развития АГ, ассоциации риска сердечно-сосудистых заболеваний с повышением артериального давления, фенотипы артериального давления, роль традиционных факторов риска сердечно-сосудистых заболеваний у лиц молодого возраста при АГ, особенности поражения органов-мишеней и оптимальное артериальное давление (АД) для защиты органов-мишеней. Пороговые значения АД, с которых начинается цикл патологических изменений, окончательно не определены, однако, вероятно, они значительно ниже тех значений АД, которые в настоящее время используются для диагностики АГ в Европе и России. Реклассификация АГ с использованием более строгих критериев в США привела к увеличению распространенности АГ с 29 % до 43 % и затрагивала преимущественно лиц молодого возраста. Ожирение, повышенная суточная экскреция натрия, повышенное потребление мясных продуктов, дислипидемия, гиперинсулинемия, гиперурикемия, высокий уровень депрессии и низкий социальный статус относятся к потенциальным факторам риска развития АГ в молодом возрасте, тогда как малосолевая диета, употребление в пищу большого количества растительной пищи с высоким содержанием каротиноидов и фолиевой кислоты, а также высокий уровень физической активности могут оказывать профилактическое действие на развитие АГ. Результаты исследований последних лет свидетельствуют о высокой распространенности АГ, в том числе маскированной, у лиц молодого возраста, которая в реальной клинической практике зачастую остается недооцененной. Стратегия лечения АГ у пациентов молодого возраста не определена, что связано с недостаточной доказательной базой. Необходимы исследования для выявления дополнительных аргументов в пользу начала или прекращения антигипертензивной терапии в этой популяции, включая изучение ранних признаков поражения органов-мишеней, связанных с гипертензией. Выводы. Результаты исследований последних лет свидетельствуют о высокой распространенности артериальной гипертензии, в том числе маскированной, у лиц молодого возраста, которая в реальной клинической практике зачастую остается недооцененной. Требуются дальнейшие исследования для выявления дополнительных аргументов в пользу начала или отмены антигипертензивной терапии в этой популяции, в том числе изучение ранних признаков ассоциированного с АГ поражения органов-мишеней.

Ключевые слова: артериальная гипертония, поражение органов-мишеней, молодые

Информация о финансировании. Авторы заявляют об отсутствии внешнего финансирования.

Вклад авторов: Все авторы внесли существенный вклад в разработку концепции и подготовку статьи, прочли и одобрили финальную версию перед публикацией.

Информация о конфликте интересов. Авторы заявляют об отсутствии конфликта интересов.

Этическое утверждение — неприменимо.

Благодарности — неприменимо.

Информированное согласие на публикацию — неприменимо.

Поступила 14.03.2023. Принята 17.04.2023.

Для цитирования: *Bazhdyreva E.I., Shavarova E.K., Kirpichnikova E.I., Ezhova N.E., Kobalava Z.D.* Arterial hypertension in young adults // Вестник Российского университета дружбы народов. Серия: Медицина. 2023. Т. 27. No 2. С. 155—166. doi: 10.22363/2313-0245-2023-27-2-155-166

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