Treating mild hypertension in young adults: is pharmacotherapy necessary?

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To cite this article: Filip Pawliczak, Agata Bielecka-Dąbrowa, Marek Maciejewski & Maciej Banach (2020): Treating mild hypertension in young adults: is pharmacotherapy necessary?, Expert Opinion on Pharmacotherapy, DOI: 10.1080/14656566.2020.1719997

To link to this article: https://doi.org/10.1080/14656566.2020.1719997

Published online: 06 Feb 2020.

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1. Introduction

Hypertension is one of the most prevalent diseases and cardiovascular risk factors world-wide. According to World Heart Organisation’s estimations, the condition affects around 1.13 billion people [1]. Data suggest that in 2015, 25% of men and 20% of women had abnormally high blood pressure, but less than 20% of these individuals had the disease managed properly [2]. Unfortunately, this fact raises great concern as the cardiovascular consequences of hypertension are globally well known as the main causes of death, contributing toward ischemic heart disease, heart failure, stroke, and as well as many other conditions [3]. Over recent decades, clinicians have observed an increasing number of children, adolescents, and young adults diagnosed with elevated blood pressure [4]. In the US, approximately 40% of people aged between 18 and 59 years old were classified as hypertensive [5]. Despite there being strong evidence for the use of antihypertensive medication in moderate and severe stages of the disease and in older people, the use of pharmacotherapy for younger adults with the mild hypertension is still debated.

2. Hypertension versus risk management

The treatment of hypertension is strictly connected to cardiovascular risk management, and thus requires different approaches based on risk stratification for optimal results in specific groups of patients. Both American and European guidelines include proper staging of the disease in accordance with measurable levels of systolic or diastolic blood pressure (BP) [6,7].

The European classification is designed to incorporate graduation of measured blood pressure and presence of cardiovascular risk factors, hypertension-mediated organ damage (HMOD – arterial stiffening, left ventricular hypertrophy, microalbuminuria, chronic kidney disease, retinopathy or features of peripheral atheromatosis), or comorbidities. It is advisable that personal risk is assessed with a SCORE chart in individuals without diagnosed CV disease [8]. Estimation should also evaluate HMOD, which may increase CV risk significantly, even when asymptomatic as well as confirmed CV pathology. We suggest that there are four possible risk groups: low, moderate, high, and very high. Unfortunately, risk assessment may not be accurate in patients <40 years as their absolute risk is often <1%. The proposed remedy is to estimate their relative risk called “CV risk age” based on HeartScore calculations. Patients in low-risk groups with mild hypertension (grade 1 – systolic BP>140 & diastolic >90 mmHg) should be first advised to change their lifestyle. Indeed, an increase in physical activity, tobacco cessation, a proper low-fat diet, weight-loss, and reduction of sodium supplementation are considerable key lifestyle modifications which may result in BP reduction. The estimated time for this pharmacological strategy is limited to a 3–6-month period. If BP control is not achieved during this period, antihypertensive medications should be prescribed additionally to lifestyle intervention. The expected effect of the additive pharmacotherapy should be reached in another 3-month period. On the other hand, young patients with grade-1 hypertension and detected HMOD or CV disease, despite a low-risk SCORE-based approach, may be considered as individuals of higher risk, thereby giving necessity for instantaneous antihypertensive drug administration additional to intensive lifestyle modification.

The American perspective is slightly different, the main distinction being the definition of the hypertension itself based on the values of BP. The US guidelines recommend diagnosing stage 1 hypertension in patients with BP of 130–139/80–89 mmHg. However, the same document suggests using antihypertensive therapy only when the patient develops cardiovascular disease or if there is a high 10-year cardiovascular risk (>10%). In fact, for risk stratification purposes, American authors have found a specific calculation, derived from an equation of a pooled cohort analysis, more useful [9]. The main advantage of this over SCORE is the prediction of both fatal and non-fatal cardiovascular events. Another difference in the US recommendations is the obligatory pharmacotherapy and lifestyle modification for patients with stage 2 hypertension which is defined as BP values of 140/90 mmHg and above irrespective of personal cardiovascular risk.

Hypertension should not be diagnosed and treated solely as a risk factor of cardiovascular diseases. It is highly important and recommended that any other concomitant risk modifier cannot be missed at any age. Total cardiovascular prevention
requires the proper management of every modifiable condition, especially those with well-established data for mortality reduction after intervention; this includes dyslipidemias, with familiar hypercholesterolemia being the most picturesque example as a treatment requirement at a young age, as well as diabetes and prediabetes, obesity, tobacco smoking, and sedentary lifestyles [10].

Indeed, it is important to implement effective treatments for all these risk factors as soon as possible with a short deadline only for achieving these therapeutic goals where plausible.

3. Hypertension in the young

Young patients with hypertension are not a homogenous group, given that the disease is less frequent among them and their cumulative cardiovascular risk may not be calculated correctly, especially if their lifespan with the disease is taken into consideration. The prevalence of elevated values of systolic BP is correlated with age, but younger individuals present a tendency for developing diastolic hypertension, which may be underestimated in terms of cardiovascular prevention [11]. However, there are also data for commonly diagnosed isolated stage 1 systolic hypertension among young men, which is thought to be associated with smoking. There is evidence that their cardiovascular risk is similar to the high-normal group, and thus lifestyle modification is the optimal approach [12]. Nonetheless, further follow-up is required for this group in order to select individuals with sustained hypertension, who are in need of pharmacotherapy.

It is also more probable to diagnose secondary hypertension in this group as research has provided data suggesting that it may occur in up to 15% of individuals before the age of 50. That being said, screening is not advised due to low cost-effectiveness, but diagnostic alertness is valuable, especially in the patients with hypertension at stage 2 or higher [13]. Furthermore, it is also important to diagnose and treat reversible causes of hypertension such as aortic coarctation, renal parenchymal disease, fibromuscular dysplasia, as well as endocrine or monogenic disorders at a young age as it may be possible to either cure or help control BP in later life without the necessity for intensive medication.

Recommendations point out that there is a lack of data which substantiate the beneficial effect of pharmacotherapy in young people with stage 1 hypertension. The reason for this is mostly due to the design of clinical outcome studies, which are based on a high occurrence of CV incidents, which are not common in younger populations. However, even though it is unclear if one should treat low-risk patients with medication, there is evidence for a relationship between BP values and long-term CV risk [14]. What is more, the early introduction of pharmacotherapy may reduce the risk of developing severe hypertension at an older age. Thus, antihypertensive therapy may be considered in those individuals which are at risk of developing high BP values in the future. In Figure 1 we provide practical algorithm to support decision-making.

![Figure 1. Treating arterial hypertension in the young patients. HA – arterial hypertension, CVD – cardiovascular disease, HMOD – hypertension-mediated organ damage (arterial stiffening, left ventricular hypertrophy, microalbuminuria, chronic kidney disease, retinopathy or features of peripheral atheromatosis).](image-url)
Guidelines suggest when initiating pharmacotherapy to use ACE inhibitors or ARBs together with calcium channel blockers or diuretics. In young women aspiring to become a mother, it is important to remember that most of the recommended drugs are contraindicated during pregnancy due to their fetal renal-damaging properties [15].

It is further important to note that hypertension in women during gestation also affects up to 5–10% of pregnancies and is considered life-threatening with multiple severe complications for both the mother and fetus [16]. The classification provided by the experts is based on the moment of diagnosis and modifies further proceedings. Irrespective, it is recommended to frequently assess urine of pregnant women for proteinuria as it is one of the additional risk factors uncommon in other populations. The threshold value for pharmacotherapy in this group is at >140/90 mmHg if the disease is exacerbated by the gestation. If not, drug initiation therapy is recommended at >150/95 mmHg. However, despite medication effectiveness, as mentioned before – it also has to be fetus-safe. The drugs with a confirmed high-safety profile are methyldopa, labetalol as are some calcium channel blockers [17].

4. Expert opinion
Pharmacotherapy is not an obvious choice for the mild elevation of blood pressure in the young adults. Furthermore, hypertension is known for its life-long duration requiring long-term management and thus, all aspects of drug administration have to be taken into consideration with all the upcoming side-effects, difficulties of adequate compliance & adherence and cost. If blood pressure elevation is perceived in terms of being the risk factor and modifiable prevention goal, it is clear to select individuals who may benefit the most with proper medication. Young adults at high cardiovascular risk are not the most common, but these patients, when appropriate treatment is introduced, have the highest decrease in mortality and morbidity due to cumulative risk reduction. On the other hand, it is vital to make an effort to educate young ones about the importance of lifestyle choices and the effects of daily routine on the prevention and if needed also the treatment of hypertension. Pharmacotherapy itself should be rather considered as an additional treatment for those who develop elevated blood pressure where a proper lifestyle is adhered to as well as those with established HMOD or CV disease. Unfortunately, clinical practice shows that healthy living is not always a practical way for the patients to self-treat and pharmacotherapy initiation is usually necessary. Moreover, it is significant to take specific conditions like pregnancy or treatable causes of hypertension into consideration, while choosing proper pharmaceuticals to optimize patient outcome. It is clear that an individual approach needs to be taken based on the patient’s willingness to take care of themselves in addition to their health status when deciding whether to start therapy with antihypertensive drugs or if the patient can get by through lifestyle modification solely.

Funding
This manuscript has not been funded.

Declarations of interest
The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

Reviewer Disclosures
Peer reviewers on this manuscript have no relevant financial or other relationships to disclose.

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8. Mostly guidelines presenting modern approach to hypertension and other CV risk factors with good depiction of pharmacotherapy.


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