

Hypertension in the elderly: how to treat patients in 2013?

The essential recommendations of the Polish guidelines

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KEY WORDS

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ABSTRACT

The prevalence of hypertension is rising with age, and current evidence shows that the majority of elderly patients benefit from proper antihypertensive therapy. To support physicians in everyday care of elderly patients with hypertension, new guidelines were issued in Poland at the end of 2012. In 2013, the guidelines started to be implemented into practice. The aim of this article is to present an overview of the major recommendations included in these 2013 guidelines. Physicians should be aware of the key issues specific for the care of the elderly hypertensive population. Lowering blood pressure below 150/90 mmHg should be considered as the goal of therapy in hypertensive patients older than 80 years. Slight overweight (body mass index, 27–28 kg/m²) may be beneficial for patients older than 75 years and especially for octogenarians because it may prevent protein and calorie deficiency. Thiazide-like diuretics followed by angiotensin-converting-enzyme inhibitors, if needed, should be considered as a first-line therapy for hypertensive patients older than 80 years. Because of high risk of adverse effects, the pharmacological treatment of hypertension in the elderly should be started with lower doses of blood pressure-lowering agents, and treatment intensification should be careful. The guidelines on hypertension management were developed by 3 medical societies and specialists from different medical fields. The Delphi method was used to achieve consensus on controversial issues.

Introduction **Epidemiology** The age of the Polish population is gradually increasing; in 2011, there was 19.2% of people over the age of 60 years, and this number is estimated to exceed 25% in 2020.¹ In this group, the number of persons older than 80 years is growing most rapidly. Similarly, the prevalence of hypertension is rising with age, reaching 76% in the age group of 65-year olds and older,² but it decreases slightly after the age of 80 years. The results of the recently completed HYVET study provide the evidence that some octogenarians can benefit from proper blood pressure (BP) lowering.³ During the last decade, BP control has improved significantly, but it is still far from optimal or even satisfactory. Considering the above data, a decision was made to develop

specific guidelines on the management of hypertension in the elderly.⁴

Consensus procedure Based on the literature review, the writing committee drafted the outline of the document and formulated questions to the first round of the Delphi consensus procedure. A panel of respondents invited to take part in guideline development included 32 experts. Each of them had a special interest in the management of hypertension in elderly patients, but their background varied and included hypertensiology, cardiology, geriatrics, internal medicine, and family medicine. Based on the analysis of the first-round results, second-round questionnaire was developed and again distributed among the respondents. It included questions about the issues that

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TABLE 1 Differences in the management of hypertension in the elderly

Patient assessment
The SCORE risk assessment is not needed because cardiovascular risk is high due to age only.
Unnecessary laboratory and visual examinations should be avoided.
Low serum creatinine level may be a result of reduced muscle mass.
The elderly with important cognitive impairment should not be referred for ambulatory blood pressure monitoring.
A history should be expanded to the so called geriatric giants: dementia, depression, falls, incontinence, and malnutrition.
Comprehensive geriatric assessment is especially recommended in patients with functional impairment and in very old persons (>84 years).
Goals of therapy
Target blood pressure level for patients older than 80 years should be <150/90 mmHg.
Lifestyle
For patients over 75 years of age, slight overweight (body mass index, 27–28 kg/m ²) might be accepted and it is not recommended to take intensive measures to lose weight.
Due to catabolic processes, protein supply may be increased to 1.0–1.2 g/kg of the desired body mass.
Effect of salt restriction (<5 g/d) leads to greater blood pressure reduction than in younger patients and requires more careful monitoring.
For the elderly, the risk of hyponatremia is higher than for younger patients.
Regular physical exercise adjusted to patient's capabilities is recommended to all elderly patients.
Pharmacological treatment for obesity is not recommended.
Caloric restrictions in overweight/obese elderly individuals should be strictly monitored.
Drug therapy
In elderly patients, the normalization of blood pressure should be slower than in younger adults.
The initial doses of antihypertensive drugs should be reduced by about one-third or a half.
Thiazide-like diuretics followed by angiotensin-converting-enzyme inhibitors should be considered as a first-line therapy for hypertensive patients older than 80 years.
β-blockers should not be used as a first-line therapy unless compelling indications are present.
Provision of care
The care of an older patient with hypertension produces increased workload for physicians and nurses in a practice and requires good communication and teamwork.
Consultations with other specialists (geriatrists, cardiologists, and hypertension specialists) and coordination of care are more challenging than in younger patients.
Additional support from the patient's family or social workers is frequently needed.

have not been agreed upon in the first round, together with the arguments for and against particular recommendations. Based on the outcomes of a two-round Delphi consensus process, the writing committee drafted a document, which was reviewed by 5 experts in hypertension in the elderly. After their comments and remarks were analyzed, the final version of the guidelines was developed and subsequently supported by the College of Family Physicians in Poland, Polish Hypertension Society, and Polish Society of Gerontology. It was also recommended by national consultants in the fields of geriatrics, cardiology, hypertensiology, and family medicine. The aim of this paper was to provide an overview of the major recommendations included in these guidelines.⁴ The summary

of the main differences in the management of hypertension in the elderly is presented in **TABLE 1**.

Clinical assessment Clinical assessment of an older patient with hypertension requires a medical history, physical examination, and additional examinations (laboratory and others). They are performed with the objectives to: 1) diagnose the causes of hypertension (primary or secondary); 2) identify cardiovascular risk factors; 3) detect target-organ damage; 4) recognize comorbidities, particularly those affecting treatment decisions; and 5) define individual, family, and social factors important for further management. In patients with multimorbidity, in very old patients (>84 years), and in those with functional impairment, it is recommended to perform a comprehensive geriatric assessment. Selective components of this assessment, which should be used to improve treatment and BP control are presented in **TABLE 2**. The collected data provide the basis for treatment decisions. Moreover, it is frequently necessary to: design follow-up; organize primary care, rehabilitative services, and specialist consultations; facilitate cooperation with social services; determine an optimal placement for the patient; and improve the effective use of resources. The Polish guidelines provide 4 tools that can be used for the assessment of older individuals living in the community: 1) "DEEP IN" for quick screening; 2) the Polish version of the Vulnerable Elders Survey (VES-13); 3) the Abbreviated Mental Test Score (AMTS); and 4) the Geriatric Scale for Depression. Each patient requires careful monitoring of the signs and symptoms of low BP, such as falls, syncope, arrhythmias, episodes of unawareness, drowsiness, or tachycardia. Elderly persons are prone to develop orthostatic hypotension because aging is associated with the impairment of different compensatory mechanisms. It is defined as a decrease of systolic BP (SBP) of at least 20 mmHg or diastolic BP (DBP) of 10 mmHg within 1 to 3 minutes of standing (**TABLE 2**).

Office blood pressure measurement Office BP measurement on repeated office visits is the standard method recommended by the Polish guidelines to confirm or refute the diagnosis of hypertension in the elderly.

As in the other age groups, the rules of indirect BP measurement have to be followed to ensure accurate measurements. A detailed description of the measurement technique is presented in the Polish Hypertension Society guidelines published in 2011.⁵

The diagnosis of hypertension should not be based on a single BP measurement because BP is greatly variable.⁶ Two separate measurements should be recorded during each visit. If the mean value at 1 visit is ≥180 mmHg for SBP and/or ≥110 mmHg for DBP, the diagnosis of hypertension may be confirmed during this visit. In patients with lower pressures but with the mean SBP

TABLE 2 Components of comprehensive geriatric assessment in elderly hypertensive patients

Component	Elements	Meaning
medical assessment	problem list	risk of drug–drug or drug–disease interactions
	comorbid conditions and disease severity	
	medication review	risk of cascade prescription
nutritional status	body mass index	obesity or risk of malnutrition
	mini-nutritional assessment	
physical function	basic activities of daily living	risk of disability and dependence
	instrumental activities of daily living	
	time up and go test	
psychological status	mental status testing (e.g., clock drawing test, abbreviated mental test score)	risk of noncompliance need of caregiver support
	mood/depression testing (e.g., geriatric depression scale)	
social assessment	informal support needs	risk of noncompliance
	financial assessment	

value of ≥ 140 mmHg and/or DBP of ≥ 90 mmHg, additional measurements during the next 2 separate office visits are needed to confirm the diagnosis. This means that the diagnosis of hypertension requires at least 3 readings.

Ambulatory blood pressure monitoring Ambulatory BP monitoring (ABPM) is a noninvasive technique, which provides information on the value of BP profile over the 24-hour period, during day and night hours. It was proved that ABPM better correlates with the cardiovascular outcome than BP measured in a clinic or at home.⁷ It is the most cost-effective strategy for confirming the diagnosis of hypertension across the range of age subgroups, both in men and women.⁸ The Polish guidelines provide indications for referring elderly patients for ABPM. These include: 1) significant differences between clinical and home BP measurements; 2) presence of symptoms suggesting orthostatic hypotension or dysfunction in the autonomic nervous system; 3) suspected white-coat hypertension or masked hypertension; and 4) resistant hypertension. Elderly patients with significant cognitive impairment should not be referred for ABPM.

The NICE guidelines recommend that ABPM should be offered to each patient if office BP measurement is 140/90 mmHg or higher.⁹ As access to ABPM in Poland is inadequate and the value of ABPM is limited in subjects with cognitive dysfunction, dementia, or restrictions in daily living, ABPM cannot replace office or home measurements in primary health care in Poland.

Home blood pressure measurement Home BP monitoring (HBPM) might offer an appropriate alternative to ABPM. Although the evidence is incomplete, in typical practice, it appears to be superior to office BP measurement for diagnosing hypertension.⁹ Patients with essential physical and

mental disabilities might have serious limitations in using HBPM.

Goals of antihypertensive treatment The Polish guidelines emphasize that the target BP level is below 140/90 mmHg for patients younger than 80 years and below 150/90 mmHg for those older than 80 years.

Treatment goals are similar to those proposed by other guidelines.^{5,10,11} The guidelines of the National Institute for Health and Clinical Excellence in the United Kingdom recommend a target BP level of less than 150/80 mmHg in octogenarians.⁹ A 2011 consensus document developed by the American College of Cardiology Foundation and the American Heart Association specifies target SBP to be less than 140 mmHg for patients younger than 79 years and target BP range of ≤ 140 –150 mmHg for patients older than 79 years.¹² The recently published 2013 Canadian Hypertension Education Program guidelines define the goals for the treatment of diastolic hypertension with or without systolic hypertension below 140/90 mmHg and for isolated systolic hypertension without other strong indications in patients younger than 80 years. For patients aged 80 years and older, the SBP target should be below 150 mmHg.¹³

The 2013 European Society of Hypertension (ESH) / European Society of Cardiology (ESC) guidelines recommend the goal of treatment between 150 and 140 mmHg in elderly hypertensive patients (also in individuals older than 80 years in good clinical condition) with SBP ≥ 160 mmHg and the goal below 140 mmHg in fit elderly patients younger than 80 years with SBP ≥ 140 mmHg if treatment is well tolerated. However, the ESH/ESC recommendations emphasize that in frail elderly patients, the physician's decision on antihypertensive therapy should be based on the clinical status and treatment outcome.¹⁴

Guideline recommendations about the goals of antihypertensive therapy in elderly patients are based on expert opinion rather than on data from randomized controlled trials. It has been shown that a target BP $< 140/90$ mmHg significantly reduces cardiovascular risk in young and middle-aged patients. A reappraisal of the 2009 ESH guidelines reviewed the SBPs achieved in the active arms of 9 important drug-treatment trials in elderly patients, but only 2 of them had a target BP lower than 140/90 mmHg.¹⁵ Two recent treat-to-target trials have reported no benefit in treating elderly patients to a systolic BP target of less than 140 mmHg compared with systolic BP targets less than 150 and 160 mmHg.^{16,17} The ongoing Systolic Blood Pressure Intervention Trial, a randomized study comparing a < 140 mmHg target threshold with a < 120 mmHg threshold in high-risk patients, should clarify this issue.¹⁸

Prevention and nonpharmacological treatment The guidelines give precise recommendations about lifestyle modification, which are

slightly different in elderly patients compared with the general population with hypertension.

Weight loss For elderly people younger than 75 years, the recommended body mass index (BMI) should be kept within the range of 22 to 25 kg/m². The lower threshold is thus set up slightly higher than for younger adults. For hypertensive seniors older than 75 years, and definitely for those older than 80 years, the acceptable upper limit of the BMI is increased to 27–28 kg/m². Such recommendations stem from the fact that slight overweight might be beneficial in the elderly and might help prevent the frailty syndrome, which is particularly dangerous at this age. The 2013 ESH/ESC guidelines for the management of hypertension indicate a worse prognosis following weight loss in the elderly. Therefore, weight stabilization in this group of patients seems to be more important than weight reduction.¹⁴ Moreover, reliable studies demonstrating the benefits from dietary or pharmacologically supported weight reduction were conducted on younger patients.¹⁹

Dietary approach Diet of elderly hypertensive patients should be well-balanced and fit patients' preferences to secure the normal functioning of the gastrointestinal tract and the optimal nutritional value. Basic caloric demand is at the level of 20 to 25 kcal/kg of the desired body mass. A balanced diet should contain a lot of fruit and vegetables, especially those rich in potassium.^{20,21} Excessive consumption of sweet fruit, rich in simple carbohydrates, should be avoided.

Salt reduction The guidelines recommend the reduction of salt intake below 5 g (or 85 mmol) NaCl per day. This should be reached by avoiding processed food and salt. Fresh food and steam cooking should be encouraged. The recommendation to limit salt consumption also in elderly patients is strongly supported by the results of the TONE study.²² However, clinicians should be aware of the risk of hyponatremia, especially in patients treated with thiazides and selective serotonin reuptake inhibitors or carbamazepine (SIDAH syndrome). Also, one may need to consider the quality of life of elderly people depending on individual dietary habits.

Alcohol intake Alcohol intake should be reduced to less than 20 g/d for men and 10 g/d for women. Since participants of the studies demonstrating a beneficial effect of limited alcohol intake on BP reduction were usually younger adults, this recommendation is based mostly on experts' consensus.

Physical exercises Exercise training is beneficial for BP lowering but its role in very elderly or frail patients has not been studied.²³ Regular aerobic exercise at the level of 60% to 75% of the maximum heart rate for 20 to 45 minutes per day

should be recommended. However, in the elderly, because of frequent comorbidities and functional limitations, the advice concerning the exercise should be adapted to the preferences and capabilities of patients and caregivers. In individuals after myocardial infarction, an exercise program should be preceded by stress electrocardiography to assess the exercise tolerance level.

Smoking cessation Smoking cessation, although it does not lower BP, is beneficial irrespective of age,²⁴ and all elderly hypertensive smokers should be encouraged to quit. The 5A strategy (ask, assess, advice, assist, arrange) as well as nicotine replacement or pharmacological therapy are applicable to help patients quit smoking.

Pharmacotherapy recommendations **General considerations** There is good evidence from randomized trials that adequate control of hypertension in the elderly population can reduce cardiovascular events and mortality.²⁵ On the other hand, such studies were performed in thoroughly selected patients and, moreover, the registries and retrospective analyses of the randomized trials showed risks related to abrupt and intense BP lowering in some elderly patients. Similarly, epidemiological prospective studies demonstrated the presence of the J-curve relationship between BP and mortality, dementia, or falls in feeble elderly patients.

The basic principles of pharmacotherapy initiation in uncomplicated hypertension in the elderly, recommended by the presented guidelines, are similar to those in younger patients.¹² Therapy should begin with 1 drug and the doses should be increased, or the second or third agent should be added, if the first one is ineffective. Drug tolerance should be carefully monitored. If the initial drug is not a diuretic, it should be added. The preferred drugs are long-acting antihypertensive medications, administered once daily, which contribute to better BP control and improve cooperation with the patient. If the BP exceeds the target by over 20/10 mmHg, treatment may begin with 2 drugs at small doses. The treatment of older hypertensive patients with compelling indications requires individualization of therapy and is described in the next section of this article.

The normalization of BP level should be slower (rather in months than in weeks) among elderly patients, and the tolerance of treatment should be monitored.¹² The initial doses should always be reduced by about one-third or a half because the process of aging changes the pharmacokinetics and pharmacodynamics of drugs and increases the probability of adverse drug reactions. The baroreceptor function decreases during aging and elderly patients have poor tolerance of a sudden drop in BP, which may cause falls and reduce blood flow in the brain, heart, or kidneys.²⁶ Caution is recommended in disabled patients over 80 years of age with comorbidity, for whom we have little information about

the benefits of antihypertensive therapy because such patients were not included in randomized treatment trials.²⁷

Drug choice The first-line drug treatment may include, as a single drug or in combination, an angiotensin-converting-enzyme inhibitor (ACEI), an angiotensin receptor blocker (ARB), a long-acting calcium channel blocker (CCB), and thiazide or thiazide-like diuretics.^{12,13} β -blockers should not be used as first-line therapy without compelling indications. Thiazide-like diuretics followed by an ACEI should be considered as a first-line therapy for fit hypertensive patients older than 80 years.

Diuretics Thiazide-type diuretics are useful first-line agents in the treatment of hypertension in elderly patients as a low-renin patient group. In the elderly, a starting dose of 12.5 mg and a maximum dose of 50.0 mg of hydrochlorothiazide (or its equivalent) are recommended.²⁸ It has not been confirmed that low-dose thiazides used as a first-line therapy are worse than first-line high-dose thiazides or first-line ACEIs and CCBs.²⁹ However, recent data have shown that the antihypertensive efficacy of hydrochlorothiazide in very low doses, as measured in head-to-head studies by ABPM, is inferior to that of all other drug classes.³⁰ Thiazide-like diuretics (chlorthalidone, indapamide) seem to be more effective in elderly hypertensive patients. They not only have long half-life but also have been proved to be effective in reducing BP, improving cardiovascular outcomes, and increasing life expectancy.^{3,31-34}

Angiotensin-converting-enzyme inhibitors ACEIs were originally indicated for the treatment of essential hypertension and, by implication, for the prevention of cardiovascular, cerebrovascular, and renal complications of hypertension. Currently, they are indicated for the treatment of patients at high risk for coronary artery disease, after myocardial infarction, with dilated cardiomyopathy, heart failure, or with chronic kidney disease.³⁵ ACEIs also reduce the risk of major vascular events in old hypertensive patients.^{32,36} Apart from high BP control, the renin-angiotensin system (RAS) blockade may play a direct role in reducing the risk of Alzheimer's dementia and cognitive decline in older patients.³⁷ There is evidence of positive association between use of ACEIs and multiple functional beneficial effects on muscle function and exercise capacity.^{37,38}

Angiotensin receptor blockers ARBs and ACEIs are equally important in the treatment of hypertension.³⁹ ARBs are typically used as an alternative to ACEIs, primarily in elderly patients, because they do not tolerate the side effects of ACEIs.⁴⁰ However, it was also reported that ACEIs were more effective than ARBs in reducing cardiovascular and cerebrovascular morbidity and mortality in aged

patients with hypertension.⁴¹ Moreover, the use of ARBs does not affect muscle function in this patient group.³⁷

Calcium channel blockers CCBs reduce BP across all patient groups, regardless of sex, age, race/ethnicity, and dietary sodium intake.⁴² Comparative randomized trials indicated that dihydropyridine CCBs can prevent all major types of cardiovascular disease, except heart failure (for which an ACEI or diuretic is superior).^{32,43} CCBs in the elderly hypertensive population have also been shown to prevent dementia.^{44,45}

β -blockers β -blockers should not be used as the first choice to start treatment in elderly hypertensive patients without strong indications. There are data that show β -blockers to be inferior to diuretics and other antihypertensive medications with regard to all clinical outcomes and preventing cardiovascular events in older patients.^{46,47} There are still comorbid conditions in which β -blockers need to be considered for antihypertensive therapy in the elderly, such as coronary artery disease, postmyocardial infarction, heart failure, and arrhythmias.

Combination therapy The majority of elderly patients with hypertension require dual antihypertensive therapy or even triple antihypertensive therapy to control BP. The preferred combinations are an ACEI and a diuretic; an ARB and a diuretic; an ACEI or an ARB; and a dihydropyridine CCB.^{48,49} Spironolactone could be useful in addition to the combination of a CCB, RAS inhibitor, and/or thiazide or thiazide-like diuretic, in the case of resistant hypertension.⁵⁰ The dual inhibition with ACEI and ARB is ineffective and is associated with a significantly increased risk of adverse events such as syncope, hypotension, and renal dysfunction.^{51,52}

To decrease cardiovascular morbidity and mortality, it is crucial to improve BP control in elderly patients. The reasons for lower efficacy of antihypertensive treatment in elderly patients are complex.⁵³ However, combination therapy in the treatment of hypertension may improve both BP and tolerability.^{54,55}

Conclusions Proper hypertension control is crucial in the care of elderly patients. In Poland, the quality of care provided to hypertensive patients, particularly older ones, is largely unsatisfactory. This is mainly reflected by the lack of specific quality-improvement tools, which can assist professionals in achieving better outcomes of care. We believe that the publication and implementation of the Polish guidelines on hypertension management in the elderly will be an important step in continuous quality improvement. The guidelines allow to identify the major problems in the care of elderly patients with hypertension, to enhance cooperation between family doctors and specialists in other areas, including

geriatrics, and to facilitate the planning of care. For octogenarians, due to comorbidities and disabilities, comprehensive geriatric assessment is recommended. Much more effort is needed in Poland to reduce the risk and burden of cardiovascular diseases, also in elderly patients.

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Nadciśnienie tętnicze u osób w wieku podeszłym – jak należy leczyć pacjentów w 2013 roku?

Główne rekomendacje polskich wytycznych

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SŁOWA KLUCZOWE

leki przeciw-
nadciśnieniowe,
nadciśnienie tętnicze,
starość, wytyczne,
zmiana stylu życia

STRESZCZENIE

Częstość występowania nadciśnienia tętniczego wzrasta wraz z wiekiem, a wyniki badań potwierdzają, że większość starszych osób odnosi korzyści z leczenia tej choroby. Pod koniec ubiegłego roku opracowano wytyczne mające wspierać lekarzy w sprawowaniu opieki nad starszymi pacjentami z nadciśnieniem. W roku 2013 rozpoczęto ich wdrażanie do praktyki. Celem niniejszego artykułu jest przedstawienie najważniejszych zaleceń zawartych w wytycznych z 2013. Lekarze powinni znać odrębności opieki nad osobami z nadciśnieniem tętniczym w starszym wieku. U osób powyżej 80 r.ż., u których występuje nadciśnienie tętnicze, jako cel terapii należy przyjąć obniżenie ciśnienia tętniczego poniżej 150/90 mmHg. Nieznaczna nadwaga (wskaźnik masy ciała: 27–28 kg/m²) może mieć działanie ochronne w grupie osób powyżej 75 r.ż., a szczególnie u osób powyżej 80 r.ż., ponieważ może zapobiegać ryzyku wystąpienia niedożywienia białkowo-energetycznego. Po 80 r.ż. leczenie należy rozpoczynać od diuretyku tiazydopodobnego, dołączając w razie potrzeby inhibitor konwertazy angiotensyny. Na początku terapii, z powodu zwiększonego ryzyka objawów niepożądanych, należy stosować mniejsze dawki leków hipotensyjnych oraz wolniej intensyfikować leczenie. W opracowaniu wytycznych postępowania w nadciśnieniu tętniczym u osób w wieku podeszłym wzięły udział 3 towarzystwa naukowe oraz specjaliści z różnych dziedzin medycznych. W celu uzyskania konsensusu dotyczącego kontrowersyjnych zagadnień wykorzystano metodę Delphi.

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