

## Management of hypertension in adults in primary care:

### NICE guideline

#### INTRODUCTION

Hypertension is common and is one of the leading causes of cardiovascular events such as stroke and ischaemic heart disease. It is responsible for approximately 12% of consultations in primary care. This is a summary of the key points in the 2011 National Institute for Health and Clinical Excellence (NICE) hypertension guideline.<sup>1</sup> This is an update of NICE clinical guideline 18, which was first published in 2004 and was partially updated in 2006 (clinical guideline 34). The 2006 and 2011 updates were developed in collaboration with the British Hypertension Society (BHS). The areas included for updating were selected because of new evidence that might change existing recommendations. These included the use of ambulatory blood pressure monitoring (ABPM) and home blood pressure monitoring (HBPM) in diagnosis; the place of new thresholds and targets for treatment; and a re-examination of the position of angiotensin-converting inhibitors (ACEIs), angiotensin II receptor blockers (ARBs), calcium-channel blockers (CCBs), and diuretics in the treatment algorithm. Consideration of differences in management for people of various ages and ethnicity, as well as how to treat resistant hypertension, were also included. The management of blood pressure in people with diabetes was not included in this guideline.

#### THE GUIDANCE

##### Diagnosis

The diagnosis of hypertension uses both clinic blood pressure monitoring (CBPM)

and ABPM readings (Box 1). If blood pressure measured in the clinic is 140/90 mmHg or higher, a second measurement should be taken during the consultation. If the second measurement is substantially different from the first, take a third measurement. The lower of the last two measurements should be recorded as the clinic blood pressure. Everyone with a clinic blood pressure of 140/90 mmHg or higher should have ABPM to make a diagnosis of hypertension.

ABPM was identified as the most accurate and cost-effective means of confirming the diagnosis of hypertension. The recommended protocol for ABPM measurements is at least twice hourly during the person's normal waking hours (for example, between 8am and 10pm). The average of at least 14 measurements taken over that period should be used to confirm the diagnosis. If ABPM is unsuitable (for example, in people with atrial fibrillation) or not tolerated, then HBPM is a suitable alternative. Blood pressure should be measured using the average of two readings in the morning and two in the evening, over 4–7 days. The readings on the first day should be discarded.

If blood pressure is  $\geq 180$  mmHg and/or 110 mmHg on CBPM, treatment should be considered as soon as possible, before the results of the ABPM are available.

CBPM should be used to monitor the response to treatment in all patients except those who have a discrepancy of  $\geq 20/10$  mmHg between clinic and HBPM/ABPM readings, in these patients

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**Submitted:** 26 August 2011; **final acceptance:** 30 August 2011.

© **British Journal of General Practice** 2012; **62:** 163–164.

**DOI:** 10.3399/bjgp12X630232

#### Box 1. Hypertension stages

##### Stage 1 hypertension

Clinic blood pressure  $\geq 140/90$  mmHg and subsequent ambulatory blood pressure monitoring (ABPM) or home blood pressure monitoring (HBPM) average blood pressure  $\geq 135/85$  mmHg

##### Stage 2 hypertension

Clinic blood pressure  $\geq 160/100$  mmHg and subsequent ABPM or HBPM average blood pressure  $\geq 150/95$  mmHg

##### Severe hypertension

Clinic systolic blood pressure  $\geq 180$  mmHg, or clinic diastolic blood pressure  $\geq 110$  mmHg

## REFERENCES

1. National Institute of Health and Clinical Excellence. *Hypertension: clinical management of primary hypertension in adults*. NICE clinical guideline 127. London: NICE, 2011. <http://guidance.nice.org.uk/CG127> [accessed 19 Jan 2012].
2. Beckett NS, Peters R, Fletcher AE, *et al*; HYVET Study Group. Treatment of hypertension in patients 80 years of age or older. *New Engl J Med* 2008; **358**(18): 1887–1898.

HBPM or ABPM should be used.

### Thresholds and targets

The guideline refers to the severity of hypertension in stages (Box 1). Patients with stage 1 hypertension, who are younger than 80 years and who have target organ damage or a 10-year cardiovascular risk of  $\geq 20\%$ , or established cardiovascular disease (CVD) or renal disease, should be offered medication, as should all patients with stage 2 hypertension. The target for treatment is a blood pressure  $<140/90$  mmHg, as the evidence was not found to be sufficient to recommend a lower target. Stage 1 patients without target organ damage or CVD risk  $>20\%$  are treated with lifestyle advice only, not medication.

Those diagnosed with hypertension aged  $<40$  years should be considered for specialist referral. This is because 10-year cardiovascular risk assessments can underestimate the lifetime risk of cardiovascular events in these people. Those aged  $>80$  years with stage 2 hypertension should be treated, but their blood pressure target should be  $\leq 150/90$  mmHg or less. The evidence for treating those aged  $>80$  years is based on the results of the Hypertension in the Very Elderly Trial (HYVET),<sup>2</sup> that treated to a target of 150/90 mmHg.

It is especially important to measure standing blood pressure in people with symptoms that are suggestive of postural hypotension. The blood pressure should be measured with the person sitting or lying, and again with the person standing. The person should be standing for at least a minute before the standing measurement is taken. If the systolic blood pressure drops by 20 mmHg or more, further investigation may be necessary and the standing blood pressure should be used in future.

### Treatments

The treatment algorithm has been changed, with a greater emphasis on using CCBs for those aged  $\geq 55$  years and patients of African or Caribbean descent.

First-line treatment is now ACEI, ARB, or CCB, with an option of diuretic if CCB is not tolerated or the person has oedema or heart failure, or is at high risk of heart failure. ACEI or ARB should be used for those aged  $<55$  years.

The second step is now ACE/ARB with a CCB for most patients.

The third step remains a diuretic but there is a preference for thiazide-like drugs. If diuretic treatment is to be initiated or changed, a thiazide-like diuretic, such as chlortalidone (12.5–25.0 mg once daily) or

indapamide (1.5 mg modified-release once daily or 2.5 mg once daily) should be given in preference to a conventional thiazide diuretic such as bendroflumethiazide or hydrochlorothiazide. There was a lack of evidence for thiazide diuretics at the doses commonly prescribed in current practice but the guideline is clear that people who are already well controlled on a thiazide diuretic should continue on the treatment they are taking.

The fourth step for those with resistant hypertension is now to consider using the aldosterone antagonist spironolactone in a low dose (25 mg) if the patient's potassium is below 4.5 mmol/l. For those where the potassium is higher than 4.5 mmol/l, it may be better to use a higher dose of a thiazide-like diuretic.

There is very little evidence available regarding fourth-line therapy options, but what there is points to spironolactone being the likely best choice for many patients. Spironolactone is licensed for the treatment of hyperaldosteronism rather than hypertension, although patients with resistant hypertension and low or low normal potassium are likely to have some element of aldosteronism. Care must be taken with spironolactone if the patient becomes dehydrated; therefore, it is a good idea to advise the patient to temporarily stop the drug if they develop diarrhoea and vomiting or if their fluid intake is restricted.

## DISCUSSION

The major change recommended by this guideline is the use of ABPM as the preferred method of diagnosing hypertension. The analysis for the guideline found the use of ABPM to be both cost-effective and cost-saving, due to improved diagnostic accuracy and fewer people being treated inappropriately. Multiple assessments of blood pressure may delay the start of treatment for several weeks or months, and in some cases years, if the patient fails to return for follow-up. For general practice, the question will be about who will fund the capital cost of the equipment. It is anticipated that the costs of ABPM machines will come down in the future, as they are more widely used. It must be emphasised that, like all NICE guidelines, the intention of this guideline is to be aspirational and improve the accuracy of diagnosis and quality of care and not to expect instant change in practice. The intention is not to encourage referral to hospital clinics: the diagnosis and management of hypertension should remain a primary care function.

### Provenance

Freely submitted; not externally peer reviewed.

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