

An update on the management of hypertension

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This article provides an update on the management of hypertension mostly based on the recent clinical guidelines issued by the National Institute of Clinical Excellence (NICE).¹ Key points being highlighted are the importance of assessment of the cardiovascular disease (CVD) risk and the fact that beta-blockers (BBs) are no longer considered as appropriate first-line agents (in the absence of other indications for beta-blockade). The importance of fully involving patients in treatment decisions on an on-going basis is also emphasised.

Introduction

Hypertension is a major modifiable risk factor for cardiovascular disease. Any definition of hypertension is arbitrary.² Consensus from published guidelines is that hypertension is defined as a persistently raised blood pressure (BP) of above 140/90mmHg.

Cardiovascular risk

The co-existence of other modifiable risk factors (e.g. elevated cholesterol, smoking, diabetes) and non-modifiable risk factors (e.g. old age, family history of CVD, male gender) has a bearing on the management strategy for the patient. Health professionals should use a validated

risk assessment tool, such as that produced by the Joint British Societies (JBS), as an aid for deciding when treatment is necessary. The latest version of the JBS chart is available in the British National Formulary (BNF).³

Treating hypertension should not be viewed in isolation and other interventions, such as statins and aspirin, should be considered on the basis of a person's history of CVD or an assessment of their CVD risk. The NICE appraisal of statins recommends their use (i) for adults with clinical evidence of CVD (i.e. secondary prevention) and, (ii) as part of the management strategy for the primary prevention of CVD for adults who have a 20% or greater 10-year risk of developing CVD.⁴ Aspirin 75mg daily is recommended for all people with established CVD.⁵ Thresholds for using low-dose aspirin to prevent cardiovascular events in people without existing CVD are difficult to define. The British Hypertension Society recommends aspirin 75mg daily for primary prevention in patients with hypertension aged ≥ 50 years with BP controlled to $<150/90$ mmHg and either target organ damage, diabetes mellitus, or 10-year CVD risk of $\geq 20\%$.⁶

Treatment thresholds and targets

Thresholds for treatment of raised BP consider overall CVD risk, in addition to the absolute BP level. Drug therapy should be offered to patients with persistently high BP of 160/100mmHg or more, and patients at raised CVD risk (10-year risk of CVD of 20% or more, or existing CVD or target organ damage) with persistent BP of $>140/90$ mmHg.¹ Lower thresholds are recommended for patients with diabetes (Table 1).^{7,8}

The evidence base on optimal target BP for both systolic BP and diastolic BP remains incomplete. NICE guidance recommends a BP treatment target of 140/90mmHg for non-diabetic patients.¹ Lower BP targets are recommended for those with diabetes (Table 1).^{7,8} Patients who are at the highest baseline risk of CVD have the most to gain from lowering of BP.⁹ Although it may not be possible to achieve target in all patients, any lowering of BP is beneficial. The aim is to achieve the

largest reduction possible toward the target, considering tolerability and concordance for each individual patient.¹⁰

Lifestyle interventions

A healthier lifestyle, by lowering BP and CVD risk, may reduce, delay or remove the need for long-term therapy in some patients.⁹ All guidelines recommend that lifestyle interventions should form an integral part of the management of high BP either alone or in addition to drug therapy. Key interventions and the associated

changes in BP that have resulted from adherence in trials are given in Table 2.^{1,9} Lifestyle modifications can be difficult to achieve and patients need regular follow-up and support to maintain changes in the long-term.

Drug treatment strategy

A range of effective antihypertensive drugs from different pharmacological classes can be considered for the treatment of hypertension. In June 2006, NICE updated its guidance on the drug treatment of

hypertension. Recommendations were made following a systematic review of randomised controlled trial data which found no difference between the classes of drugs with regard to the risk of death or myocardial infarction. However, BBs were considered less effective than comparable drugs in reducing the risk of stroke.¹¹ Thiazide diuretics and calcium channel blockers (CCBs) were considered the most likely drugs to confer benefits in cardiovascular outcomes, except possibly in younger patients. BBs are no longer considered by NICE as an appropriate choice for initial treatment of hypertension unless there are compelling reasons to use them (e.g. coronary artery disease).¹

Figure 1 depicts an algorithm for the drug treatment of patients with newly diagnosed hypertension.¹ Low-dose thiazide diuretics or CCBs are considered by NICE as equal first-line choices for patients over 55 years of age. As the recommendations do not distinguish between the two options, prescribers may decide on the basis of the patient's risk of adverse effects, patient preference and costs. Angiotensin-converting enzyme inhibitors (ACEIs) are recommended for younger patients. Where an ACEI is indicated but not tolerated (e.g. because of cough), an angiotensin-II receptor blocker (AIIRB) is appropriate. BBs are indicated as initial treatment only in particular situations namely in patients with coronary artery disease, women of child-bearing potential, patients with evidence of increased sympathetic drive, or patients with an intolerance or contraindication to ACEIs and AIIRBs. NICE recommendations for patients already receiving BBs are summarised in Panel 1.¹

Many patients will require more than one drug to achieve BP control. Where the first-line drug does not adequately control BP, additional drugs should be added in a sequential manner according to the algorithm. The drug combinations recommended are not supported by large clinical outcome studies, but is based on sound pathophysiological grounds.¹⁰

Treatment of patients with hypertension and diabetes was not considered in the development of the updated NICE guideline, and although not explicitly stated, the recommendations do not apply to patients

Table 1: Thresholds and targets in the NICE hypertension and diabetes guidelines^{1,7,8}

Thresholds for initiating treatment (either systolic or diastolic within ranges)	
Patients without diabetes	Treat if persistent BP >140-159/90mmHg and 10-year CVD risk ≥ 20% or existing CVD or target organ damage Treat all patients with persistent BP ≥ 160/100mmHg
Patients with type 2 diabetes	Treat if BP ≥ 140-159/80-99mmHg and 10-year CVD risk >20% or concomitant microalbuminuria or proteinuria Treat all patients with BP ≥ 160/100mmHg
Patients with type 1 diabetes	Treat if BP ≥ 135/85mmHg Treat if BP ≥ 130/80mmHg and abnormal albumin excretion rate or two or more features of the metabolic syndrome
Targets for treatment (both systolic and diastolic BP to be achieved)	
Patients without diabetes	≤ 140/90mmHg
Patients with type 2 diabetes	< 140/80mmHg or ≤ 135/75mmHg if microalbuminuria or proteinuria present
Patients with type 1 diabetes	< 135/85mmHg or < 130/80mmHg if nephropathy

Table 2: Key lifestyle advice for patients and associated BP reductions^{1,9}

	Systolic and Diastolic BP reductions in trials
Adopt a healthy low calorie diet.	5-6mmHg
Take aerobic exercise for 30-60 minutes, three to five times each week.	2-3mmHg
Limit alcohol consumption to no more than 21 units/week (men) and 14 units/week (women), with intake spread out over the week.	3-4mmHg
Reduce dietary sodium intake to less than 2.4g (100mmol) per day. This is equivalent to 6g of salt.	2-3mmHg
Avoid excessive consumption of coffee (≥ 5 cups) and other caffeine-rich products that can raise BP.	
Stop smoking. This has benefits on CVD, if not directly on high blood pressure.	

Panel 1: NICE recommendations for patients already receiving a regimen that includes a β -blocker¹

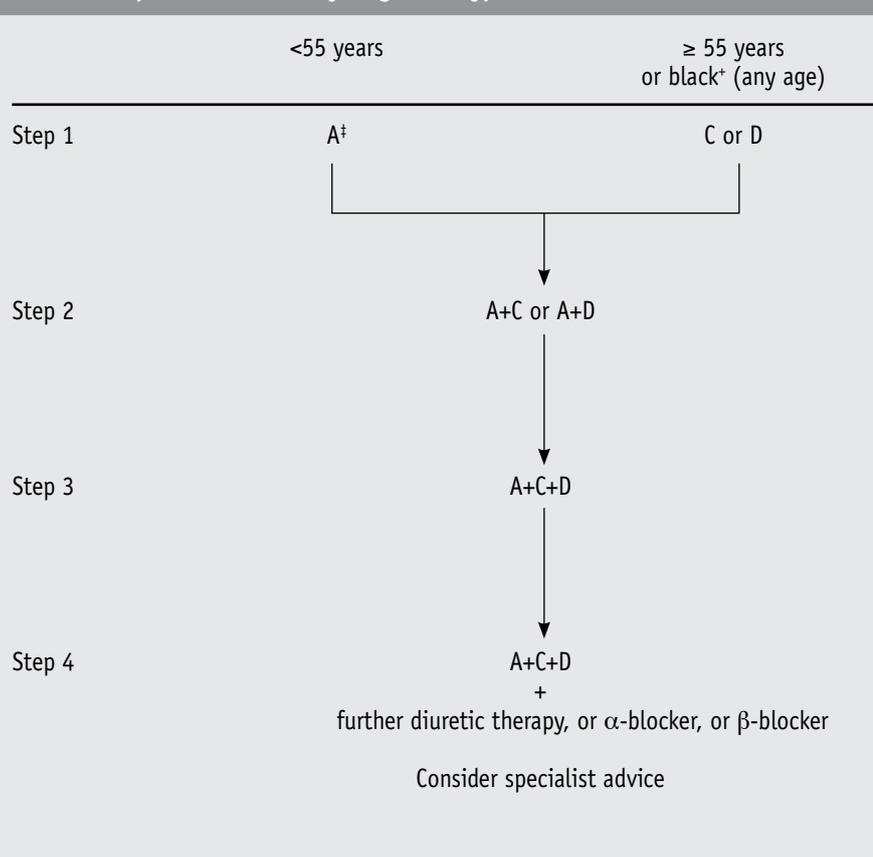
If BP is controlled, consider long-term management at a routine review. There is no absolute need to replace the β -blocker with an alternative agent.

If BP is not controlled, revise treatment according to the treatment algorithm (see Figure 1).

When a β -blocker is withdrawn, step the dose down gradually.

Do not withdraw the β -blocker if there is a compelling indication for being treated with one, such as symptomatic angina or a previous myocardial infarction.

Figure 1: NICE algorithm for the drug treatment of patients with newly diagnosed hypertension^{1,3}



*of African or Caribbean descent, and not mixed race, Asian or Chinese
[†] β -blockers are an alternative to A in patients younger than 55 years if A is not tolerated or is contraindicated (including women of childbearing potential)

- A=ACEI e.g. enalapril 5-20mg once dly
 lisinopril 10-20mg once dly
 perindopril 4-8mg once dly
 or AIIRB e.g. candesartan 8-16mg once dly
 (if intolerant) eprosartan 600-800mg once dly
 losartan 50-100mg once dly
 telmisartan 40-80mg once dly
 valsartan 80-160mg once dly

- C=calcium channel blocker e.g. amlodipine 5-10mg once dly
 D=thiazide-type diuretic e.g. bendroflumethiazide 2.5mg once dly
 indapamide 1.5mg once dly

- β -blocker e.g. atenolol 50mg once dly
 α -blocker e.g. doxazosin 4-8mg once dly, terazosin 2-10mg once dly

usual maintenance doses; lower dose may be required in elderly and in renal or liver impairment

with diabetes. In these patients, a thiazide diuretic or an ACEI is an appropriate first-line choice, with a combination of these two drugs being used should BP control not be achieved. An ACEI should be used first-line where there is evidence of nephropathy.¹⁰

Patient perspective

Decision on treatment goals should be reached in full discussion with patients, since the trial evidence does not support one target BP. The aim should be to achieve as great a reduction in BP toward the target as is acceptable to the patient.

Patients have reservations about taking their antihypertensive medication (e.g. preference for non-drug measures to lower BP, anxiety about potential side effects of treatment, doubt whether treatment continues to be necessary).¹² NICE guidelines recommend that all patients should have an annual review of care to monitor BP, provide support, and discuss lifestyle, symptoms and medication.¹

It is estimated that 50–80% of patients with hypertension do not take all of their prescribed medication.⁹ Reasons include the asymptomatic nature of hypertension, the need for long-term treatment, complex drug regimens, poor instructions, and disagreement about the need for treatment.⁹ Non-adherence to medication should be considered when evaluating a patient with poor BP control.¹³ Understanding a patient's reasons for not taking their medication is important for implementing effective strategies to improve the management of their hypertension.⁹

Conclusion

Managing hypertension is a challenge for both health professional and the patient. Updated guidelines should be utilised so as to provide optimal treatment and improve patient outcomes. Full involvement of patients in treatment decisions and regular review are essential for effective management.

Practice Points

- Hypertension is a major modifiable risk factor for cardiovascular disease.
- The co-existence of other modifiable risk factors has a bearing on the management strategy for the patient (CVD risk assessment).
- Drug therapy should be offered to patients with persistently high BP of 160/100mmHg or more, and patients at raised CVD risk (10-year risk of CVD of 20% or more, or existing CVD or target organ damage) with persistent BP of >140/90mmHg.
- BBs are no longer considered by NICE as an appropriate choice for initial treatment of hypertension unless there are compelling reasons to use them (e.g. coronary artery disease).
- Patients should be involved in treatment decisions on an on-going basis.

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