**Major new guidance on hypertension**

The latest NICE guidelines on hypertension contain new and updated recommendations on blood pressure measurement, antihypertensive drug treatment and blood pressure targets, writes John Cox

**Hypertension** is one of the most important preventable causes of premature morbidity and mortality, and its management is one of the most common interventions in primary care. The National Institute for Health and Clinical Excellence (NICE) has recently published an updated guideline on hypertension entitled *Hypertension: clinical management of primary hypertension in adults* ([http://guidance.nice.org.uk/CG127](http://guidance.nice.org.uk/CG127)). This clinical guideline, published August, updates and replaces the previous NICE guideline on this subject published June 2006. It contains new and updated recommendations on blood pressure measurement, antihypertensive drug treatment and blood pressure targets.

**Blood pressure measurement**

While there is still some emphasis on clinic measurement, the major emphasis is on ambulatory blood pressure monitoring (ABPM) in the diagnosis of hypertension.

The starting point in diagnosis remains the measurement of blood pressure in the clinic setting (clinic blood pressure measurement – CBPM). Blood pressure should be measured in both arms initially and if the difference in readings between arms is more than 20mmHg on repeated measurement, the arm with the higher readings should be used for all subsequent blood pressure measurement, antihypertensive drug treatment and blood pressure targets.

**Stage 1 hypertension** is present when clinic blood pressure is 140/90mmHg or higher and subsequent ABPM daytime average or HBPM average blood pressure is 135/85mmHg or higher. Also, **stage 2 hypertension** is present when clinic blood pressure is 160/100mmHg or higher and subsequent ABPM daytime average or HBPM average blood pressure is 150/95mmHg or higher.

<table>
<thead>
<tr>
<th>CBPM = 140/90mmHg &amp; ABPM = 135/85mmHg</th>
<th>CBPM = 160/100mmHg &amp; ABPM/HBPM = 150/95mmHg</th>
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<tbody>
<tr>
<td><strong>Stage 1 hypertension</strong></td>
<td><strong>Stage 2 hypertension</strong></td>
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<tr>
<td>If target organ damage present or 10 year CV risk &gt; 20%</td>
<td>Offer antihypertensive drug treatment</td>
</tr>
<tr>
<td>Offer lifestyle interventions</td>
<td>Offer specialist referral</td>
</tr>
<tr>
<td>Offer patient education and interventions to support adherence to treatment</td>
<td>Offer annual review of care to support monitor blood pressure, provide support and discuss lifestyle, symptoms and medication</td>
</tr>
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The diagnosis of severe hypertension is based solely on a clinic systolic blood pressure of 180mmHg or higher, or clinic diastolic blood pressure of 110mmHg or higher. This group should be started on antihypertensive drug treatment without waiting for the results of ABPM or home blood pressure monitoring (HBPM).

ABPM is now recommended for the diagnosis of hypertension in all patients where the clinic blood pressure is 140/90mmHg or higher. Moreover, specific information is given on the number of measurements required. Thus at least two measurements/per hour taken during the person’s usual waking hours, eg. between 8am and 10pm are recommended. The average value of at least 14 such measurements is taken as the ABPM level for diagnosis.

When ABPM is not available or is not acceptable to the patient, HBPM can be used. Care should be taken to ensure that for each blood pressure recording, two consecutive measurements are taken at least one minute apart with the person seated. Blood pressure should be recorded twice daily, ideally in the morning and evening for at least four days, (ideally for seven days). Measurements taken on the first day are discarded and the average value of all the remaining measurements is used for the diagnosis of hypertension.

The role of ABPM/HBPM in the diagnosis of hypertension is summarised in *Figure 1*. Stage 1 hypertension is present when clinic blood pressure is 140/90mmHg or higher and subsequent ABPM daytime average (or HBPM average) blood pressure is 135/85mmHg or higher. Also, stage 2 hypertension is present when clinic blood pressure is 160/100mmHg or higher and subsequent ABPM daytime average (or HBPM average) blood pressure is 150/95mmHg or higher.
Initiating treatment

According to the new guideline, antihypertensive drug treatment is offered to people of any age with stage 2 hypertension, ie. CBPM 160/100mmHg or higher and subsequent ABPM daytime average (or HBPM average) blood pressure is 150/95mmHg or higher.

In those with stage 1 hypertension, antihypertensive drug treatment is recommended for people aged under 80 years who have one or more of the following:
- Target organ damage, eg. left ventricular hypertrophy, hypertensive retinopathy
- Established cardiovascular disease, eg. ischaemic heart disease or cerebrovascular disease
- Renal disease, eg. chronic kidney disease stage 1-5 as diagnosed on eGFR
- Diabetes

A 10-year cardiovascular risk equivalent to 20% or greater, (Joint British Societies Cardiovascular Disease Risk Assessment Charts) which would be equivalent to a 10 year risk of fatal CVD of 5% or greater using HEART-Score (European Guidelines on CVD Prevention).

Because risk assessments can underestimate the lifetime risk of cardiovascular events in people aged under 40 years with stage 1 hypertension and no evidence of target organ damage, cardiovascular disease, renal disease or diabetes, it is recommended that specialist evaluation of secondary causes of hypertension and a more detailed assessment of potential target organ damage should be arranged.

Antihypertensive drug treatment

The by now familiar ‘A(B)CD’ algorithm from previous versions of the NICE guideline on hypertension has been simplified to an ‘AC’ algorithm for drug treatment of hypertension (see Figure 2). The guideline also makes a number of general recommendations on drug treatment including full guidelines available at http://guidance.nice.org.uk/CG127:
- Non-proprietary drugs taken only once a day should be offered if possible
- People aged over 80 years should be offered the same antihypertensive drug treatment as people aged 55–80 years, taking into account any comorbidities
- Angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (ARBs) should not be combined
- If treatment with a diuretic is being started, or changed, a thiazide-like diuretic, such as chlorthalidone (12.5-25mg once daily) or indapamide (1.5mg modified-release once daily or 2.5mg once daily) is recommended in preference to a conventional thiazide diuretic such as bendroflumethiazide or hydrochlorothiazide. However, those whose blood pressure is stable and well-controlled on treatment with bendroflumethiazide or hydrochlorothiazide can continue treatment with same
- If a beta-blocker was used in step 1, add a CCB rather than a thiazide-type diuretic for step 2, to reduce the risk of developing diabetes
- For step 4 treatment, further diuretic therapy with low-dose (25mg once daily) spironolactone if blood potassium level is 4.5mmol/l or lower can be considered. Particular caution should be exercised in people with a reduced eGFR, because of increased risk of hyperkalaemia. Where blood potassium levels are higher than 4.5mmol/l, a high-dose thiazide-like diuretic should be offered. Sodium and potassium and renal function should be checked within one month and repeated as required thereafter.

Blood pressure targets

CBPM should be used to monitor the response to treatment. However, for people identified as having a ‘white-coat effect’ ABPM or HBPM should be considered as an adjunct to CBPM to monitor the response to treatment.

Clinic blood pressure targets for those aged under 80 years are lower than 140/90mmHg and for those aged over 80 years, lower than 150/90mmHg. The targets for daytime average ABPM or average HBPM blood pressure during the person’s usual waking hours for those aged under 80 years are lower than 135/85mmHg and for those over 80 years, lower than 145/85mmHg.

Conclusion

There is no doubt but that the revised guideline gives much needed direction on the practical use of ABPM in the diagnosis and monitoring of treatment of hypertension. The current (2007) ESC/ESH guideline on the management of hypertension, endorsed by the ICGP, lacks the detail of this NICE guideline for the practical management of hypertension in general practice. The ESC/ESH guideline is at present being revised and an update is due for publication in spring 2012.

Ultimately, it is lowering blood pressure that saves lives and it matters little which guideline we use so long as we achieve good blood pressure control. Many Irish doctors are particularly fond of the A(B)CD algorithm for choice of drug to be used to manage high blood pressure contained in the previous versions of the NICE guideline and will no doubt be pleased with this new version.

GPs should give consideration to using this new NICE guideline at least until the update of the 2007 edition of the ESC/ESH guideline on the management of hypertension is published in spring 2012.

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