New developments in preventing and managing hypertension

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Hypertension is a major risk factor for cardiovascular disease yet it is still underdiagnosed and undertreated in the UK. This article outlines some recent initiatives that aim to improve the prevention, detection and management of hypertension now and in the future.

Hypertension is one of the most important preventable causes of premature morbidity and mortality in the UK, says NICE1 and recent estimates suggest it costs the NHS over £2 billion annually to deal with conditions that are attributable to it.2

High blood pressure is a major risk factor for ischaemic and haemorrhagic stroke, heart attack, heart failure, chronic kidney disease, dementia and premature death and affects more than one in four adults in England,3,4 yet only four in 10 know they are affected and are controlling it to the recommended levels. People who are unaware of their high blood pressure or choose to ignore it can leave themselves at risk of potentially untreatable vascular and renal damage.

NICE guidance

The NICE clinical guideline4 provides welcome advice on dealing with the problems associated with hypertension and its management. It explains how to confirm diagnosis by measuring blood pressure effectively in the clinic, at home and in people with a “white coat” effect, and advises on when to consider referring the patient for specialist investigation.

The guideline spells out its definitions for stages 1 and 2 hypertension (see Table 1) but cautions that there is “no natural cut-off point above which ‘hypertension’ definitively exists and below which it does not”. The risk is continuous and with each 2mmHg rise in systolic blood pressure there is a 7 per cent greater risk of death from ischaemic heart disease and a 10 per cent higher risk of dying from a stroke.

The NICE Pathway on hypertension in adults5 is an online tool that provides quick and easy access to the guidance. It outlines strategies for managing people who already have high blood pressure as well as helping people to avoid developing it.

Lifestyle

Lifestyle interventions should be the first consideration when people arrive...
for assessment or treatment of hypertension, NICE says. Are they overweight? Is their diet healthy? Do they do regular exercise? How much alcohol or coffee are they drinking? Is their salt intake too high? Are they smoking? Health professionals should promote lifestyle changes where necessary by offering appropriate guidance about eating healthily, exercising regularly, drinking safely and stopping smoking, for which separate NICE Pathways are available.6

Do not offer calcium, magnesium or potassium supplements to reduce blood pressure, NICE advises. However, do tell people about local initiatives that will support their efforts to change their habits to healthier ones.

When to offer antihypertensive drug treatment
Antihypertensive drugs should be offered to patients of any age with stage 2 hypertension and to those with stage 1 hypertension aged under 80 years with established cardiovascular disease (or who have a 20 per cent 10-year risk of developing it), renal disease, diabetes or target organ damage.

Where possible, recommended treatment is drugs taken once daily and nonproprietary drugs should be prescribed where appropriate, to minimise costs. People with isolated systolic hypertension (systolic blood pressure 160mmHg or more) should be offered the same treatment as those with both raised systolic and diastolic blood pressure. People aged 80 years and over should be offered the same antihypertensive drug treatment as those aged 55–80 years, taking into account any co-morbidities they might have.

An action plan for blood pressure
In 2014, with support from Public Health England (PHE), 12 member organisations across central and local government, the health services, voluntary and community sectors, and academia joined forces to establish the Blood Pressure System Leadership Board. Their mission was to design an effective way to improve prevention, detection and management of high blood pressure.7

Tackling High Blood Pressure – From Evidence into Action is the action plan the board’s members developed together. It links in with the NHS Five Year Forward View8 and PHE’s own remit of protecting and improving the nation’s health.

Many identified risk factors for high blood pressure are modifiable, including excess weight, dietary salt or alcohol, or high levels of caffeine. Even those with “normal” blood pressure could cut their risk of developing cardiovascular disease by lowering their blood pressure to a threshold of 115/75mmHg.9 Some risk factors, however, such as old age, family history or ethnicity, are clearly not modifiable.

People who live in deprived areas are 30 per cent more likely than their more affluent neighbours to have hypertension. People aged over 65 years and those of Asian, black African or Caribbean descent are at greater risk of being affected by the condition and the board believes its action plan has the potential to address health inequalities such as these.

Sections of advice on prevention, detection and management of hypertension include estimates of the potential for savings in terms of quality-adjusted life years (QALYs) and financial savings on related health and social care, based on a cost-effectiveness review commissioned by PHE.2

How do you improve the current system?
The action plan emphasises the importance of fostering joint leadership at local and national levels. It suggests key roles and activities for different groups, such as healthcare commissioners, providers and professional organisations, local government officers and elected members, employers and the voluntary sector. It also details commitments made by stakeholders across the health system for national actions throughout England from 2014–2016.

Lessons from Canada
Lessons can be learned from Canada, where there has been a “very marked improvement in performance on high blood pressure”10 says the action plan. The Canadians’ study of translating evidence into practice in complex systems revealed some clear themes. These include the importance of taking context into account, from microcultures within teams to macro-level and national leadership. Sustainable, successful implementation of good practice depends on both individual and organisational approaches, the plan concludes, because individually adopting new practices leads to variations in care that are usually unsustainable, while organisational approaches that do not engage the individual lead to patchy implementation.

... and from England
Other worthwhile lessons can be gleaned from the hypertension profiles that complement PHE’s plan.3 Every profile has a wide range of data for each CCG and each local authority in England. They are designed to help health commissioners and health professionals in assessing the extent and impact of hypertension on their local population and therefore to aid in making appropriate, informed decisions that will provide opportunities to improve services.

Relaxation therapy
Previous research into relaxation therapy seemed to suggest convincingly that it lowered blood pressure, says Professor...
Managing hypertension in specific patient groups

Pregnancy

The hypertension in pregnancy overview of the NICE Pathway sets out advice for reducing the risk of hypertensive disorders in pregnancy by maintaining a healthy lifestyle with a good diet, enough rest and exercise and by avoiding pharmacological interventions such as nitric oxide donors, diuretics and progesterone. However, it warns against recommending nutritional supplements such as magnesium, folic acid, antioxidants (vitamins C and E), fish or algal oils or garlic “solely with the aim of preventing hypertensive disorders in pregnancy”.

The Pathway lists the risks in future pregnancies for women who have had pregnancy-induced hypertension, eclampsia, pre-eclampsia or HELLP syndrome (haemolysis, elevated liver enzymes and low platelet count). It advises on breast-feeding (listing drugs with no known adverse effects on babies receiving breast milk as well as drugs to avoid), weight management and long-term health risks.

NHS Choices is a source of useful, accessible information and advice on the effects and management of hypertension during pregnancy, directed at the pregnant woman.

Younger people

As blood pressure readings are not centrally collated in GP practices for adults younger than 40 years, a significant minority of adults are not being tested often enough to identify hypertension at an early stage.

The NICE Guideline Development Group has recommended research into appropriate intervention thresholds for people aged under 40 years with hypertension, to discover whether those with untreated hypertension are more likely to develop target organ damage and if so, whether such damage is reversible. The data will be important to inform decisions on treating younger people with stage 1 hypertension with no overt target organ damage. They also want to find accurate methods of assessing lifetime cardiovascular risks in the same group as they believe these are currently substantially underestimated.

Older people

Getting older is a nonmodifiable risk factor for high blood pressure. It is likely that systolic blood pressure will rise and this is thought to mirror the length of time that people have been exposed to modifiable risk factors. Women tend to have a lower blood pressure than men up to the age of 65 years, then after that the relationship is reversed. NICE specifies a treatment target of 140/90mmHg for adults under 80 years and the consensus regarding cardiovascular risk is that treatment should focus on managing systolic blood pressure.

Diastolic blood pressure drops after the age of 60 years, while systolic blood pressure continues to rise, so people aged over 80 years need to have their blood pressure carefully managed as they are more likely to have postural hypotension, which raises their risk of cardiovascular mortality and of falling.

What of the future?

Two recent UK trials, both using mobile phones as a tool, found that telemonitoring was effective in achieving clinically important blood pressure reductions in patients with uncontrolled hypertension in primary care settings.

Pharmacists are increasingly demonstrating their own effectiveness in blood pressure management, with studies suggesting improved medicine adherence and blood pressure reductions as a result of pharmacists’ interventions.

Self-monitoring is becoming increasingly popular and validated monitors, suitable for home use, are now widely available and inexpensive. A Cochrane review suggests home monitoring is associated with moderate reductions in blood pressure and is a potentially important adjunct to clinical care.

... and the futuristic?

A small paper clip-sized device implanted between the iliac artery and vein has shown promising results in lowering blood pressure, researchers say. The device, called an arteriovenous coupler, is designed to shunt blood from the artery into the vein. It was tested on 44 of 83 patients all with resistant high blood pressure who had not responded to at least three types of drug treatment, with the remainder in the control group. The team from Queen Mary University of London compared the effects of the coupler against current pharmacological treatment in a small randomised controlled trial. The trial, published in 2015 in The Lancet, reported that those who received the coupler experienced a reduction in mean office systolic blood pressure of 26.9mmHg compared with a reduction of 3.7mmHg in the 39 patients in the usual-care group at six months.

Nearly one-third of patients with the implant developed venous iliac stenosis that required treatment. The researchers acknowledge that more research is needed to test its long-term effects and safety. However, if successful, this treatment could transform the lives of people living with hypertension.

References

Benefits/harms of novel oral anticoagulants similar in general population and the elderly

Clinical question:
How safe and effective are the new oral anticoagulants for elderly patients?

Bottom line:
The new oral anticoagulants provide a balance of benefits and harms. There were no major differences in the magnitude of benefits and harms between those 75 years and older and the total population studied. The bleeding risk is somewhat lower with apixaban and rivaroxaban, and is higher with dabigatran. (LOE = 1a)

Reference:


Synopsis:
Older patients take more medications, may metabolise these medications more slowly, and are at an increased risk of bleeding complications. This meta-analysis identified studies that compared a novel oral anticoagulant — such as dabigatran, rivaroxaban, apixaban and edoxaban — with warfarin, and then abstracted the data for patients 75 years and older. Of 19 studies, 11 reported data separately for patients 75 years and older in the original publication, in unpublished clinical trial reports, or provided these data on request. The studies were generally of good quality, although approximately half failed to mask the patients and healthcare providers. For the analysis, the authors calculated summary odds ratios (an estimate of relative risk) rather than just calculating relative risks directly.

The primary outcome was major bleeding, which was significantly less common with apixaban, edoxaban and rivaroxaban, but was increased with dabigatran in the 150mg dose (odds ratio [OR] = 1.18; 95% CI 0.97–1.44). Gastrointestinal bleeding was more common with dabigatran than with warfarin (OR = 1.78; 1.32–2.35), but data were not available for the other drugs. Fatal bleeding was lower with rivaroxaban than with warfarin, and similar for the other novel oral anticoagulants, while clinically relevant bleeding was less common with apixaban and similar with the other novel oral anticoagulants. The risk of stroke or systemic embolism was slightly lower with dabigatran 150mg and apixaban than warfarin. An important limitation of the analysis is that most of the comparisons were based on or dominated by a single large manufacturer-sponsored study, eg ReLy, ARISTOTLE, Engage-AF.