



Hypertension *in Practice*

A review series for General Practitioners





Assessing the 'new' hypertensive

Although our understanding of hypertension has increased greatly in recent years, most patients with high blood pressure will be labelled as having 'essential hypertension' i.e. the cause is unknown. In fact, the causes of essential hypertension are likely to be a complex combination of genetic, environmental and other factors. In all patients with hypertension, various factors may affect blood pressure and contribute to the presentation of hypertension. Therefore one of the aims of assessment is to detect these contributory factors. A few patients will have a definite underlying cause for their raised blood pressure.

Aims of evaluation of the new hypertensive

- Detection of underlying causes or modifiable contributory factors
- Detection of target organ damage and existing cardiovascular disease
- Assessment of overall risk factors for future cardiovascular disease
- Detection of concomitant conditions that may influence drug treatment
- Detection of attitudes and beliefs that may affect future adherence to therapy

Hypertension is a major risk factor for cardiovascular death and disability (such as coronary heart disease, stroke and heart failure), but treatment effectively reduces this morbidity and mortality. The patient must be recognised as an individual, not a statistic, and the approach must be tailored to detecting and treating the effects of hypertension (target organ damage) and reducing overall risk. Therefore risk factors in addition to the raised blood pressure, such as smoking and obesity, must be addressed.

Evidence of target organ damage in hypertensive patients

Cerebral

- History of stroke or transient ischaemic attack (TIA)
- Presence of carotid bruit(s)

Cardiac

- Left ventricular hypertrophy
- Heart failure
- History of myocardial infarct, symptoms of angina

Other vascular

- Claudication and/or absent peripheral pulses
- Aortic aneurysm

Renal

- Proteinuria
- Raised serum creatinine

Optic

- Retinopathy (fundal haemorrhages, exudates, papilloedema)

Finally, attention must be paid to co-morbidities that may affect the best choice of treatment for the individual hypertensive patient, and the patient's attitudes and beliefs that may affect future adherence to therapy.



Urine testing

Urinalysis (dipstick testing) is needed to look for protein or red blood cells that may indicate a renal problem that has resulted in secondary hypertension, such as polycystic kidneys, chronic pyelonephritis or chronic glomerulonephritis. Alternatively, identification of proteinuria or microscopic haematuria may indicate target organ damage from hypertension (renal arteriolar necrosis, nephrosclerosis). If proteinuria is present, a formal assessment of protein loss by means of a 24-hour collection is required.



Dipstick urine testing is a necessary investigation

ECG

An ECG is helpful, especially for older patients, to look for unsuspected ischaemia and left ventricular hypertrophy (LVH), and to provide a baseline for future comparison. The ECG is an insensitive measure of left ventricular size, but this means that a patient in whom LVH is apparent on the ECG has a particularly adverse prognosis.²

Additional investigations

Further investigations should be determined by abnormalities detected during history-taking or on physical examination. For example, although echocardiography is a more accurate test for left ventricular hypertrophy than the ECG and may be required in some cases, it is unrealistic for every new hypertensive. Renal ultrasound and specialist referral are appropriate if renovascular or renal parenchymal disease is suspected. If bruits are heard, imaging of the appropriate vessel(s) may be required.



REFERENCES

- 1** Vallance P. Hypertension. *J R Coll Physicians Lond* 1999;**33**:119-23
- 2** Elliott H. Investigation and management of hypertension. *Medicine* 2002;**30(7)**:169-73
- 3** Curhan GC, Willett WC, Rosner B, Stampfer MJ. Frequency of analgesic use and risk of hypertension in younger women. *Arch Intern Med* 2002;**162**:2204-8
- 4** Wright JM. Choosing a first-line drug in the management of elevated blood pressure: what is the evidence? 1: Thiazide diuretics. *Can Med Assoc J* 2000;**163**:57-60
- 5** Zillich AJ, Garg J, Basu S, Bakris GL, Carter BL. Thiazide diuretics, potassium, and the development of diabetes: a quantitative review. *Hypertension* 2006;**48**:219-24
- 6** Haslam DW, James WPT. Obesity. *Lancet* 2005;**366**:1197-209
- 7** Kastarinen MJ, Nissinen AM, Vartiainen EA, Jousilahti PJ, Korhonen HJ, Puska PM. Blood pressure levels and obesity trends in hypertensive and normotensive Finnish population from 1982 to 1997. *J Hypertens* 2000;**18**:255-62.
- 8** Han TS, van Leer EM, Seidell JC, Lean ME. Waist circumference action levels in the identification of cardiovascular risk factors: prevalence study in a random sample. *BMJ* 1995;**311**:1401-5
- 9** Janssen I, Katzmarzyk PT, Ross R. Body mass index, waist circumference, and health risk: evidence in support of current National Institutes of Health guidelines. *Arch Intern Med* 2002;**162**:2074-9
- 10** Parker RJ, Hardinge M, Jeffries C. Snoring. *BMJ* 2005;**331**:1063
- 11** Onusko E. Diagnosing Secondary Hypertension. *Am Fam Physician* 2003;**67**:67-74
- 12** Lenders JW, Eisenhofer G, Mannelli M, Pacak K. Pheochromocytoma. *Lancet* 2005;**366**:665-75
- 13** Sawka AM, Jaeschke R, Singh RJ, Young WF Jr. A comparison of biochemical tests for pheochromocytoma: measurement of fractionated plasma metanephrines compared with the combination of 24-hour urinary metanephrines and catecholamines. *J Clin Endocrinol Metab* 2003;**88**:553-8
- 14** Derx FHM, Schalekamp MADH. Renal artery stenosis and hypertension. *Lancet* 1994;**344**:237-9
- 15** Baguet JP, Hammer L, Levy P, Pierre H, Rossini E, Mouret S, Ormezzano O, Mallion JM, Pepin JL. Night-time and diastolic hypertension are common and underestimated conditions in newly diagnosed apnoeic patients. *J Hypertens* 2005;**23**:521-7
- 16** Stradling JR, Partlett J, Davies RJ, Siegwart D, Tarassenko L. Effect of short term graded withdrawal of nasal continuous positive airway pressure on systemic blood pressure in patients with obstructive sleep apnoea. *Blood Press* 1996;**5**:234-40