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Hypertension

B M Y Cheung 張文勇

Question:

The revised World Health Organization/International Society of Hypertension (WHO/ISH) Guidelines was published in 1999. What are the key messages for family physicians? What is the recommended management for a blood pressure of 140/90 mmHg in a 45-year-old man who is a non-smoker and has no family history of cardiovascular diseases?

*See page 262
for the comments*

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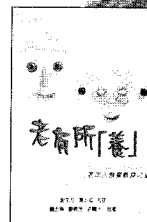
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Comments to this month's Clinical Challenge

Comments:

The 1999 WHO/ISH hypertension guidelines were written for a global audience from communities that are at different risks from cardiovascular diseases and have different health care systems. They provide recommendations based on expert interpretation of epidemiological data and randomised controlled clinical trials. As there are many important messages in the guidelines, I would urge the reader to study the full document.¹ However, there are two issues I would like to highlight.

Firstly, the risk of coronary heart disease and stroke increases with blood pressure and the relationship is a continuous one. There is no sudden jump in risk if a certain level of blood pressure is exceeded. Therefore, treatment should not depend on an arbitrarily defined blood pressure. Instead, the overall cardiovascular risk of a patient should be assessed. The new guidelines advocate that the decision to **initiate** anti-hypertensive therapy and the **urgency** to control blood pressure with drug therapy depends on the level of blood pressure, the number of cardiovascular risk factors (e.g. smoking, hypercholesterolaemia, diabetes, family history of premature cardiovascular disease), target organ damage (e.g. left ventricular hypertrophy, nephropathy and retinopathy) and associated clinical conditions (e.g. cerebral vascular disease and ischaemic heart disease). The guidelines provide a table for clinicians to stratify risk into low, medium, high and very high (**Table 1**).

Secondly, the guidelines deal with the choice of anti-hypertensive drugs. The guidelines controversially state that 6 main drug classes: diuretics, beta-blockers, angiotensin-converting enzyme inhibitors (ACE inhibitors), calcium channel blockers, alpha-blockers, and angiotensin II antagonists are all suitable for the initiation of blood pressure lowering therapy. This is in contrast to the American JNC VI guidelines² in which diuretics and

beta-blockers are the recommended first line treatment in the absence of contra-indications. There is accumulating evidence that calcium channel blockers and ACE inhibitors are safe and reduce cardiovascular events in hypertensive patients. However, there is as yet no evidence from clinical trials that alpha-blockers or angiotensin II antagonists also do so. Until such evidence is available, many practitioners might prefer to reserve these drugs for second line treatment. One might also take issue with the recommendation that angina, advanced age and systolic hypertension are "compelling indications" for the use of calcium channel blockers.

The WHO/ISH guidelines are very useful for practising physicians as illustrated by the hypothetical case of a 45-year-old male non-smoker with no family history of cardiovascular diseases and a blood pressure of 145/90 mmHg. According to **Table 1**, we can easily see that this patient is at low risk and therefore the correct management will be to assess other risk factors, target organ damage and associated clinical conditions, initiate lifestyle measures and continue to monitor blood pressure and other risk factors for six to twelve months (**Figure 1**). Hopefully, lifestyle measures alone will reduce the blood pressure by a few millimeters of mercury. In order to detect target organ damage and associated clinical conditions, one would need to take a full medical history, perform a careful clinical examination including fundoscopy, and do a urinalysis for glucose, blood and protein. The carotid arteries and peripheral pulses should be examined for evidence of atherosclerosis. An electrocardiogram should be performed to detect evidence of ischaemic heart disease, arrhythmia and left ventricular hypertrophy. The electrocardiogram is not a sensitive method of diagnosing left ventricular hypertrophy and preferably echocardiography should be performed although that may not be readily available in the primary care setting. A fasting blood sample should be taken for the measurement of glucose and lipid profile. If there is evidence of diabetes, target organ damage or 'associated clinical conditions', initiation of anti-hypertensive drug therapy is indicated.

The WHO/ISH guidelines summarises the current approach to the management of hypertension. A shortened version is available (obtainable from WHO fax + 41 22 791 4151, e-mail watsonm@who.ch) which should be very useful to practising physicians. ■

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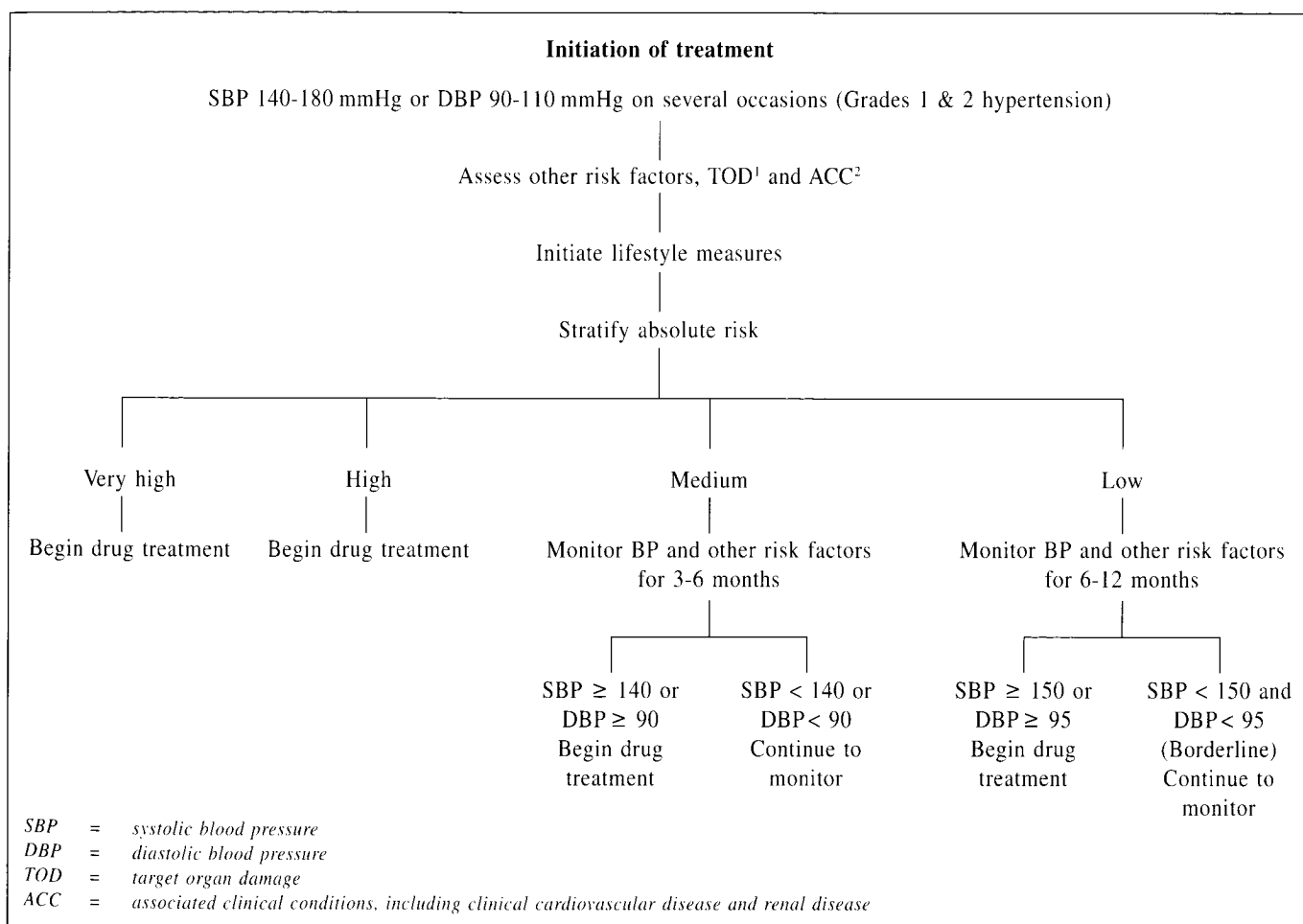
Table 1: Stratification of risk to quantify prognosis

Other risk factors & disease history	Blood pressure (mmHg)		
	Grade 1 (mild hypertension) SBP 140-159 or DBP 90-99	Grade 2 (moderate hypertension) SBP 160-179 or DBP 100-109	Grade 3 (severe hypertension) SBP ≥ 180 or DBP ≥ 110
I No other risk factors	Low risk	Medium risk	High risk
II 1-2 risk factors	Medium risk	Medium risk	Very high risk
III 3 or more risk factors or TOD or diabetes	High risk	High risk	Very high risk
IV ACC	Very high risk	Very high risk	Very high risk

SBP = systolic blood pressure
TOD = target organ damage

DBP = diastolic blood pressure
ACC = associated clinical conditions, including clinical cardiovascular disease or renal disease

Figure 1: Guidelines for selecting drug treatment of hypertension



References

- 1999 World Health Organisation - International Society of Hypertension Guidelines for the management of hypertension. *J Hypertens* 1999;17:151-183.
- Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure. The sixth report of the Joint National Committee on Prevention, Detection, and Treatment of High Blood Pressure (JNC VI). *Arch Intern Med* 1997;157:2413-2446.