Challenges in the Management of Hypertension in Asia

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Abstract

Hypertension is common in Asian populations and is a major cause of cardiovascular diseases. Even a small reduction in blood pressure can lead to a substantial decrease in the risk of stroke. The prevalence of hypertension appears to be increasing in many countries, partly because of ageing of the population, but also because of increasing obesity. Obesity, diabetes and hypertension are often found together, in patients who have the metabolic syndrome. Diabetes, which is common in Asia, is associated with hypertension and so, it is important to detect and treat hypertension vigorously in these patients. While much effort has gone into promoting the awareness of hypertension, the rates of detection, treatment and control remain low. As hypertension is very prevalent in the general population, it makes sense to adopt population approaches towards the detection and treatment of hypertension, and its prevention. As obesity is a major cause of hypertension in Asia, tackling it will help to lower the incidence of hypertension in the future. Lowering sodium contents in foods and promotion of regular physical activity will also help to lower blood pressure at the population level. Asians appear to respond well to calcium channel blockers but have a higher incidence of dry cough with angiotensin converting enzyme inhibitors. There are now enough generic antihypertensive drugs from which to choose, but it is recognised that the costs of long term follow up and treatment impose a certain economic burden, whether on the individual or the health provider.

[246 words]

Hypertension is common in Asia (Table 1)[1] and is a major cause of circulatory diseases such as stroke, coronary heart disease, heart failure and renal failure. Even a small reduction in blood pressure can lead to a substantial decrease in the risk of both ischaemic and haemorrhagic stroke.

The prevalence of hypertension appears to be increasing in many countries,[2] partly because of ageing of the population, but also because of increasing obesity. In Asia, central or abdominal obesity is an important cause of hypertension and diabetes.[3] In the Hong Kong Cardiovascular Risk Factor Prevalence Study (CRISPS), 58% of people with diabetes had raised blood pressure, while 56% of people with hypertension had dysglycaemia.[4] Obesity, diabetes and hypertension are often found together in the same patient, who may also have hypertriglyceridaemia and reduced high density lipoprotein-cholesterol. This cluster of risk factors forms the metabolic syndrome (Table 2).[5] The syndrome, although controversial, is a useful concept in Asia,[6] because it precedes type 2 diabetes and reminds the clinician to look for the other components of the syndrome.

In Asia, diabetes is common,[7] and presents a particular challenge. As it is associated with hypertension and dyslipidaemia, the patients are at increased cardiovascular risk and require a comprehensive approach to the management of cardiovascular risk. This includes good control of blood pressure, which is known to reduce macrovascular complications. The detection and vigorous treatment of hypertension in diabetic patients are therefore extremely important.

While much effort has gone into promoting the awareness of hypertension, the rates of detection, treatment and control remain low. If hypertension is present in 20-30 % of the general population, it makes sense to adopt a population approach towards the detection and treatment of hypertension, and its prevention. The high prevalence of hypertension justifies the measurement of blood pressure in every adult. Because of the large numbers, ambulatory blood pressure cannot be used for the purpose of screening. Instead, home blood pressure monitors may prove to be very useful, as they are increasingly affordable. These home machines may be used in other household members for the detection and the monitoring of hypertension. Indeed, home blood pressure monitoring is now recognised as one of the methods for the diagnosis of hypertension in the NICE guideline on the management of hypertension in adults in primary care.

As obesity is a major cause of hypertension and its prevalence is increasing in Asia, tackling it will help to lower the incidence of hypertension in the future. In order to prevent the rise in blood pressure, people in the community must embrace a healthy lifestyle and change their diet and leisure activities to prevent the development of obesity (Table 3). The prevalence of hypertension increases with age, which means that lifestyle changes must be started early in life. We have identified snack foods as an important factor associated with obesity, and not eating vegetables, fruits and fish as a risk factor for diabetes.[8] Lowering sodium contents in foods and promotion of regular physical activity will also help to lower blood pressure at the population level. Asian households tend to be larger than in western countries and it is common for the extended family or generations to live together. This means that lifestyle changes

should be targeted at the household rather than the individual hypertensive patient. A family approach should work well in Asia.

There have been high hopes that the Human Genome Project will reveal the genes that cause common diseases such as hypertension. Genome wide association studies have revealed many candidate genes for hypertension but nearly all of these have only a small effect on blood pressure. For the majority in the general population, a large number of genes influence blood pressure. This means that a single drug class is unlikely to be sufficient to normalise blood pressure in every person. Asians appear to respond well to calcium channel blockers,[9] but have a higher incidence of dry cough with angiotensin converting enzyme inhibitors.[10] Angiotensin receptor blockers may be suitable for Asian patients who develop a cough with the latter. There are now enough generic antihypertensive drugs from which to choose, but it is recognised that the costs of long term follow up and treatment impose a certain economic burden, whether on the individual or the health provider.

In conclusion, we must not underestimate the scale and depth of the challenge of hypertension in Asia. It is very prevalent and increasingly so, partly because of the ageing of the population and partly because of increasing obesity. We still do not know the main genes involved and existing antihypertensive drugs are not ideal in terms of efficacy and tolerability, resulting in imperfect compliance and suboptimal blood pressure control. To prevent hypertension and to reduce the incidence of hypertension in the general population, lifestyle changes, including healthy diet and regular physical activity, are of paramount importance and should be taken up by people of all ages.

[819 words]

Conflicts of interest

None

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Table 1. Prevalence and control of hypertension in different parts of Asia

Region	**Year**	**Prevalence (%)**		**Control (%)**	
		Men	Women	Men	Women
China	2002	20	17	5% (Total)	
Korea	2001	31.5	23.7	7.7	14.0
Malaysia	1996	31.9	33.9	6.0	6.0
Taiwan	2002	27.1	20.2	21.0	28.5
Turkey	2003	27.5	36.1	8.2	8.0

Adapted from Cheung & Ong.[1]

Table 2. Criteria for diagnosis of the metabolic syndrome

Measure	**Categorical Cut Points**
Elevated waist circumference*	Population-and country-specific definitions
Elevated triglycerides (drug treatment for elevated triglycerides is an alternate indicator†)	≥ 150 mg/dL (1.7 mmol/L)
Reduced HDL-C (drug treatment for reduced HDL-C is an alternate indicator†)	< 40 mg/dL (1.0 mmol/L) in males; < 50 mg/dL (1.3 mmol/L) in females
Elevated blood pressure (antihypertensive drug treatment in a patient with a history of hypertension is an alternate indicator)	Systolic ≥ 130 and/or diastolic ≥ 85 mm Hg
Elevated fasting glucose‡ (drug treatment of elevated glucose is an alternate indicator)	≥ 100 mg/dL (≥ 5.6 mmol/L)

HDL-C, high-density lipoprotein cholesterol.

*It is recommended that the International Diabetes Federation (IDF) cut points be used for non-Europeans and either the IDF or American Heart Association/National Heart, Lung and Blood Institute (AHA/NHLBI) cut points used for people of European origin until more data are available.

†The most commonly used drugs for elevated triglycerides and reduced HDL-C are fibrates and nicotinic acid. A patient taking 1 of these drugs can be presumed to have

high triglycerides and low HDL-C. High-dose omega-3 fatty acids presumes high triglycerides.

‡Most patients with type 2 diabetes mellitus will have the metabolic syndrome by the proposed criteria.

Adapted from the joint interim statement of the International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; and International Association for the Study of Obesity.[5]

Table 3. Effects of lifestyle changes on blood pressure

Modification	**Approximate SBP reduction**
Weight reduction	5-20 mmHg/10 kg weight loss
Dietary Approaches to Stop Hypertension (DASH) diet	8-14 mmHg
Low sodium diet	2-8 mmHg
Physical activity	4-9 mmHg
Moderating alcohol consumption	2-4 mmHg

Adapted from The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure produced by the National Heart Lung and Blood Institute, US. **http://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.pdf** [Accessed on 11. 11. 11]