'Doctor, do I need to take long term blood pressure medications?'

Dr. HO Chung Ping, MH, JP
M.B.B.S.(H.K.), MRCP (UK), FRCP (Edin), FRCP (Glasg), FHKAM (Medicine), FHKCP, Specialist in Nephrology

Ms. WONG Sui Lan
Senior Registered Nurse

Introduction

It is said that hypertension management is the bread and butter of a family practitioner and rightly so. Hypertension is common in any community. In Hong Kong, its incidence for people over the age of 75 is 73%. It is well proven that blood pressure control will reduce various complications, with inexpensive and effective medications being available. Hypertension management is therefore an important job for a family physician and to facilitate this, various hypertension management guidelines are available in many places. In Hong Kong, it is in the form of 'Hypertension Reference Framework for Primary Care Physicians' which can be downloaded online [1].

Despite those guidelines, there are practical problems for the primary care doctors. People in Hong Kong do care about their health but they have an aversion to taking long term medications. The almost invariable question from the patient when hypertension is diagnosed is 'Doctor, do I need to take long term blood pressure medications?' Many people do not like to take 'yes' for an answer but if a doctor said medicine is not necessary, they will doubt the doctor's honesty. They understand that hypertension is a chronic disease and long term treatment is needed. It remains the duty of the doctors to involve the patients in the decision making and come to an agreed treatment plan.

Medication is only part of the treatment and there are many aspects that the doctor needs to consider. The example below may serve to illustrate the case.

Case History

A 64-year-old male smoker (10 cigarettes per day) was diagnosed to have hypertension as his blood pressure was consistently over 170/100 mm Hg on three separate occasions. He did not suffer from diabetes mellitus. He has grade one fundi on examination. The urine routine and the renal function tests were normal. His total cholesterol was 6 mmol/L and the HDL cholesterol was 1.1 mmol/L.

How should he be managed?

Non-Drug Means

Hypertensive emergency is very rare in clinics. There is time for lifestyle interventions such as smoking cessation, body weight reduction and exercise. The importance of diet in hypertension prevention and blood pressure reduction is now increasingly recognized and the scientific rationale behind the dietary measures has been elucidated. The Hong Kong Medical Association has been actively promoting the DASH diet since 2012 [2].

The DASH Diet

The DASH diet is actively promoted in America for the prevention of hypertension. The term DASH stands for **D**ietary **A**pproaches to **S**top **H**ypertension. It aims to use dietary measures to prevent or reduce hypertension. A US study showed that the DASH diet reduced systolic blood pressure by 6 mm Hg and diastolic blood pressure by 3 mm Hg in patients with normal blood pressure.

In essence, it is a diet rich in in fruits and vegetables together with high dietary fibres like whole grain bread and oatmeal. Other ingredients include dairy products, whole grain food, peas and nuts while low in red meat, sweets and sugar-containing drinks. Poultry and fish (white meat) is preferred to red meat. Polyunsaturated fats are preferred to animal fats.

The most important part of the DASH diet is to increase the intake of fruit and vegetables: 2-3 portions of fruits and 4-5 portions of vegetables per day. One small size fruit constitutes one portion while one bowl of cooked vegetables constitutes 2 portions (depending on the size of the bowl). One glass of fruit juice (250 ml) constitutes 2 portions. People with diabetes mellitus are advised to take the whole fruit instead of taking fruit juice in view of the high 'glycaemic index' of the latter. Scientific analysis of the DASH diet found that the potassium and magnesium in the fruit and vegetables are useful in reducing the blood pressure while sodium has the opposite effect. Calcium in food, such as dairy products, can also reduce blood pressure. In addition, people in Hong Kong do not pay much attention to nuts. They are in high in potassium, magnesium and polyunsaturated fatty acids and low in sodium and saturated fat. It is thus helpful in blood pressure reduction and vascular protection. It only needs to be taken in small quantities on a regular basis (Fig. 1).

Figure 1: Nuts are useful in blood pressure reduction.

The high fibre and polyunsaturated fats ingredients probably do not have direct hypotensive effects. They are useful in the blood vessel protection. High intake of vegetables and low in red meat would help to reduce the incidence of colonic cancer. Hence contrary to its name, the DASH diet helps to reduce cardiovascular and colonic cancer risks in addition to blood pressure reduction.

It is important to stress that the DASH diet only applies to people with normal renal function. For patients with impaired renal function due to hypertensive damage or due to *de novo* renal diseases, dietary potassium and phosphate restriction may be necessary and the DASH diet may not be suitable or even harmful to them.

The DASH diet does not stress on what foods to avoid, but on what food items one should take more. The WHO recommended salt intake of less than 5 gram per day (about one teaspoonful) but the average salt intake of Hong Kong people is about double the amount than recommended. If the DASH diet is combined with a low salt diet, the hypotensive effect will be enhanced. Most of the dietary sodium is from the additives in processed foods such as sausages, ham and canned foods. It is important to look at the food label to avoid the foods that are high in sodium.

Medication

If after the above measures, the blood pressure does not reach the target level of 120/80 mm Hg, then medications may need to be considered. There are different classes of hypertensive drugs and the patient's own 'profile' would help the choice of medications. Patients with proteinuria and diabetes mellitus should have angiotensin converting enzyme inhibitors (ACEI) or angiotensin receptor blockers (ARB) as first line treatment; Patients with prostate symptoms may benefit from an alpha-blocker for its action on prostate. For a patient with history of asthma, beta-blocker is contra-indicated.

The Framingham Chart – a Holistic Approach to Risks

In the treatment of hypertension, one has to bear in mind that hypertension is only one of the risk factors. Other factors such as age, sex, smoking, diabetes mellitus and lipid status also have impact on the cardiovascular risk and need to be taken into account. The Framingham Study Group offered a holistic approach to the problem. They released a multivariable risk equation in 2008 by which the 'Framingham Cardiovascular Disease CVD Risk Score' can be calculated and the patient are classified into high risk, moderate or low cardiovascular risks. This will greatly facilitate communication with the patients. A patient in the high risk category will need to have stricter control of the treatable parameters. If the patient was shown to be in the high risk category, he/she will be more motivated to adhere to treatment regimen.

To enable the clinicians with the calculation, simple charts are available and the risk stratification can be read off the chart (Fig. 2). They are particularly useful in mass screening campaigns. Alternatively, mobile applications are available to provide doctors with 10-year CVD risk and also an estimate of the 'vascular age'.

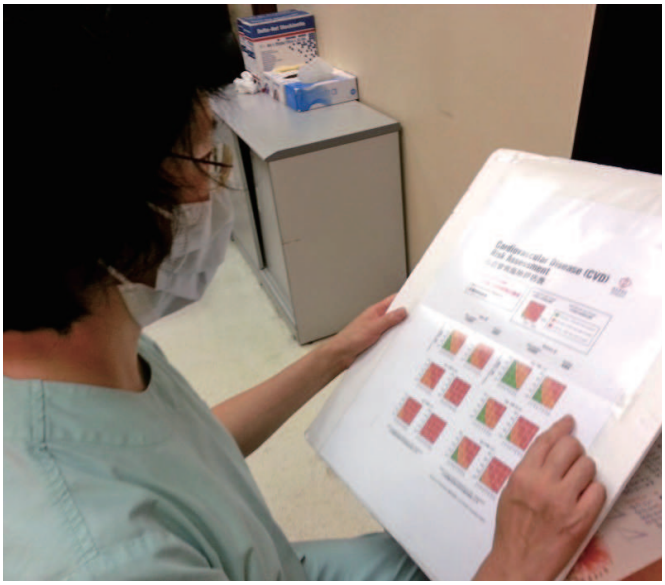

Figure 2: Using the Framingham Chart to estimate the cardiovascular risk.

In the above case, the Framingham Risk Score was calculated with the Framingham Risk Score (2008) equation [3]. His 10-year Global CVD risk was estimated to be > 30%. This is a high risk category and his vascular age was estimated at > 80 years though his chronological age was only 64. The patient was shocked as he was totally asymptomatic and the systolic blood pressure of 170 mm Hg did not appear alarming to him. It is the constellation of the risk factors that would put him to the high risk category. There are some unmodifiable elements such as age and sex but some are amenable to lifestyle modification and treatment. He gave up smoking; he adopted the DASH diet; he took hypertension medication and statin for the lipid abnormalities.

At follow-up visit after three months, his blood pressure was 140/80 mm Hg, his total cholesterol was 4 mmol/L, HDL cholesterol 1.3 mmol/L. His 10 year CVD risk was 21.6% and his vascular age estimation was 72 years.

Conclusion

Hypertension is an important health risk and its treatment is one of the most important tasks of the family physicians. The DASH diet may prevent the development of hypertension and is an important adjuvant to hypertension medications.

Hypertension is only one of the health risk factors and should never be viewed in isolation. Other factors including the lipids would also need to be taken into account. The Framingham Risk Score is a convenient tool for communication with the patients and follow up on the treatment.

References

1. Hong Kong reference framework for hypertension care for adults in the primary care settings. Available at: http://www.pco.gov.hk/english/resource/professionals_hypertension_pdf.html. Accessed 11th June, 2014.
2. Ho Chung Ping, Back to the Basics – the Hypertension Hong Kong Model - the Forum, the HKMA news, July, 2012.
3. 3National Heart Lung and Blood Institute, Updated Framingham Risk Score http://cvdrisk.nhlbi.nih.gov/calculator.asp. Accessed 11th June, 2014.