DRUG & THERAPEUTICS LETTER

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Drug Information Unit (DIU)
Department of Clinical Pharmacology
Tribhuvan University Teaching Hospital
Institute of Medicine, Maharajgunj, Kathmandu

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Lifestyle management of hypertension

Hypertension is a major risk factor for stroke and coronary heart disease, and is a major contributor to the onset and progression of chronic heart failure and chronic kidney failure.

Lifestyle modification is indicated for all patients with hypertension, regardless of drug therapy, because it may reduce or even abolish the need for antihypertensive drugs. In addition to the immediate goal of lowering blood pressure, the recommended lifestyle changes confer a range of health benefits, including better outcomes of common chronic diseases.

Smoking

Smoking is a strong independent risk factor for cardiovascular disease. Quitting is acknowledged to be one of the most effective lifestyle interventions for preventing cardiovascular disease and premature deaths.

Elevated blood pressure and smoking are two most important risk factors for subarachnoid haemorrhage in the Asia-Pacific region. The risk of myocardial infarction is 2-6 times higher and the risk of stroke is three times higher in people who smoke, compared with non-smokers.

Smoking cessation markedly reduces overall cardiovascular risk, including the risk of coronary heart disease and stroke, compared with continued smoking. In patients with coronary heart disease, smoking cessation is associated with a 36% reduction in the risk of all-cause mortality. Although smoking is known to increase the risk of developing hypertension, there is currently no evidence that smoking cessation directly reduces blood pressure in people with hypertension.

Nutrition

While some relationships between food and cardiovascular health have not yet been clearly quantified, there is sufficient evidence to recommend that people with hypertension should avoid salty foods and aim for a healthy eating pattern.

Restricting salt intake

High dietary sodium intake is associated with an increased incidence of stroke and with increased risk of death due to

coronary heart disease or cardiovascular disease. Reducing dietary sodium by approximately 1700 mg (75 mmol) per day can lower systolic blood pressure by 4-5 mmHg in hypertensive individuals and 2 mmHg in normotensive individuals. This may reduce the need for antihypertensive drugs.

There is weak evidence suggesting that weight loss combined with reduced dietary sodium may be more effective at lowering blood pressure than salt reduction alone. Reduced-salt diets in combination with thiazide diuretics may predispose elderly patients to hyponatraemia, so electrolytes should be monitored regularly.

Dietary potassium

Some clinical trials suggest that increasing dietary potassium by approximately 2100 mg (54 mmol) per day can reduce systolic blood pressure by 4-8 mmHg in hypertensive individuals and 2 mmHg in normotensive individuals. Potassium-rich whole foods, such as bananas, kiwi fruit, avocado, potatoes (with skin), nuts and yogurt, are more effective in reducing blood pressure than potassium supplements, which are potentially toxic.

High potassium intake can produce hyperkalemia in people with impaired renal function. It should be recommended only for those with known normal renal function.

Healthy eating

Blood pressure reductions in people with and without hypertension can be achieved by a healthy eating pattern based on Dietary Approach to Stop Hypertension (DASH) diet, in addition to reduced salt intake. The DASH diet emphasizes fruits, vegetables, whole grains, low-fat dairy products and dietary fibre, while being low in dietary sodium, cholesterol and saturated fat.

High-dose (at least 3 g/day) omega-3 polyunsaturated fatty acid supplement (fish oil) may also lower blood pressure in hypertensive individuals. Evidence is insufficient to recommend calcium and magnesium supplements or increasing dietary fibre intake alone (for example, taking supplemental fibre rather than increasing fruit and vegetable intake) to reduce blood pressure.

Alcohol

Evidence for cardiovascular benefits of light drinking has been challenged by a recent meta-analysis. Regardless of this debate, evidence is emerging that all levels of alcohol intake increase blood pressure. Moderate drinking can increase blood pressure, while binge drinking appears to increase the risk of hypertension. Epidemiological data show a linear relationship between alcohol consumption and hypertension prevalence. Reducing alcohol consumption can lower systolic blood pressure by an average of 3.8 mmHg in patients with hypertension. The Heart Foundation of Australia recommends that patients with hypertension limit their alcohol intake to maximum of two standard drinks per day for men, and one standard drink per day for women.

Physical activity

It is clear that physical activity lowers resting and daytime ambulatory blood pressure. In clinical trials of people with hypertension, regular aerobic activity reduced systolic blood pressure by an average of 6.9 mmHg and diastolic blood pressure by 4.9 mmHg.

Regular physical activity has an independent cardioprotective effect. Regular exercise is associated with an increase in high density lipoprotein cholesterol and with reductions in body weight, waist circumference, percentage body fat, insulin resistance, plasma noradrenaline and plasma renin activity.

Body weight

There is a direct association between blood pressure and body weight and/or abdominal adiposity. Weight loss studies show that clinically significant blood pressure reductions can be achieved by modest weight loss in people with and without hypertension and that blood pressure reduction is proportional to weight loss. Every 1% reduction in body weight lowers systolic blood pressure by an average of 1 mmHg.

Conclusion

In addition to the significant lowering of blood pressure achieved through changes to eating patterns, moderating alcohol intake, weight loss and regular physical activity, lifestyle measures (including smoking cessation) confer other significant cardiovascular health benefits. Regardless of other treatments indicated, all patients who need to lower their blood pressure should be given advice and support to achieve and maintain healthy behaviours.

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Adverse drug reaction (ADR) monitoring in TUTH

The Drug Information Unit (DIU) under the department of clinical pharmacology has reported 49 adverse drug reaction cases, mainly from the medical and dermatological OPD and wards of TUTH during Mangsir, 2062 to Poush, 2065.

Table 1. Reported cases of adverse drug reactions

S.N	Name of the drug	No of cases
1.	Phenytoin	7
2.	Ciprofloxacin	6
3.	Diclofenac	4
4.	Isoniazid	4
5.	Furosemide	2
6.	Chloramphenicol	2
7.	Amoxycillin	2
8.	Paracetamol	2
9.	Others	20
Total cases		49

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Chief Editor :
Prof. Kumud Kumar Kafle
Editors :
Dr. Sanu Maiya Shakya, Dr. Sangha Ratna Bajracharya, Dr. Satish Deo,
Dr. Sammodavardhana K., Dr. Naba Raj Simkhada
Department of Clinical Pharmacology, Drug information Unit, Room Number: 1-85
Doctors' Room Block, TU Teaching Hospital, P.O.Box: 3578, Maharajgunj, Kathmandu

Phone No.: 4412404 Extn 1093, **E-mail:** diu@iom.edu.np