

TREATMENT OF HIGH BLOOD PRESSURE

High blood pressure (also known as hypertension) is very common in Australia, estimated at 1 in 3 people aged 18 and over. About 23% of Australians have uncontrolled high blood pressure and 11% have medication-controlled hypertension. Men are more likely to have uncontrolled high blood pressure than women.

The prevalence of uncontrolled high blood pressure increases the age. About half of people aged 75 years and older have uncontrolled high blood pressure. Hypertension is usually an asymptomatic condition.

High blood pressure should be viewed as a risk factor rather than a disease itself. It is a risk factor for stroke, coronary heart disease, heart failure, peripheral vascular disease, and chronic kidney disease.

Clinical trials demonstrate antihypertensive drug therapy reduces the risk of cardiovascular disease (CVD). Lowering blood pressure by only 1-2 mmHg is known to markedly reduce cardiovascular morbidity and mortality among younger and middle-aged adults. For every 10 mmHg reduction in blood pressure there is a 17% reduction of coronary heart disease, 27% reduction of stroke, 28% reduction of heart failure, and 13% reduction in death from any cause.

Blood pressure-lowering medicines should target those at the highest cardiovascular risk, not just those with highest blood pressure levels.

Cardiovascular risk is determined by family history, cholesterol levels, diabetes, body weight, smoking status, and safety risk as well as actual blood pressure values. It is important to consider safety risk in older people especially if frail and high falls risk.

Definitions

Blood pressure is the force that is exerted by the blood on the walls of arteries.

Blood pressure is measured by the level of systolic pressure (pressure in the arteries when the heart beats, pumping blood into the arteries) and diastolic pressure (pressure in the arteries when the heart is relaxed between beats).

Normal blood pressure is defined as less than 130/85 mmHg. Uncontrolled high blood pressure is defined as 140 mmHg or greater systolic blood pressure (SBP) and/or diastolic blood pressure (DBP) 90 mmHg or more following repeated measurement. People with high-normal BP (130-139/85-89 mmHg) will benefit from lifestyle interventions and may require drug treatment.

Isolated systolic hypertension (ISH) is the most common form of hypertension in older people and is defined as elevated SBP (>140 mmHg) and low DBP (<90 mmHg). ISH in older people reflects age-related stiffening of the large arteries with an increase in pulse pressure – the difference between SBP and DBP.

Target blood pressure levels will vary according to patient characteristics, such as age, comorbidities, and frailty. Ideal systolic blood pressure in older people is generally considered to be less than 150 mmHg to reduce the risk of mortality, stroke and cardiac events.

A target systolic blood pressure of less than 140 mmHg is recommended to reduce the risk for recurrent stroke. Treatment to lower BP targets increases the risk of hypotension and syncope and may increase the risk of falls.

Lifestyle management

Lifestyle advice is recommended for all patients with hypertension. Modifications in lifestyle can also enhance the effects of antihypertensive treatment.

There is strong evidence for a relationship between high salt intake and increased blood pressure. A healthy diet, rich in whole grains, fruits, vegetables, polyunsaturated fats and dairy products and reducing food high in sugar, saturated fat and trans fats, such as the DASH diet, is recommended.

Body weight control is indicated to avoid obesity, particularly abdominal obesity. A weight loss of 10kg in an overweight person may reduce SBP by 6–10 mmHg.

Smoking is a major risk factor for CVD, COPD and cancer. Smoking cessation and referral to smoking cessation programs are advised.

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Medicine management

Medicines used to treat high blood pressure include:

- ACE inhibitors
- Angiotensin receptor blockers (ARBs)
- Calcium channel blockers
- Diuretics
- Beta-blockers

Peripheral alpha blockers such as doxazosin, prazosin and terazosin should be avoided in frail older people.

It is the reduction in BP that is most important for reducing cardiovascular events, rather than the antihypertensives chosen.

Other modifiable cardiovascular risk factors should be treated appropriately, such as obesity and high lipids.

Treatment is usually started with a single medicine at the lowest recommended dose.

This is especially important in older people. After 4 to 6 weeks treatment response should be assessed.

A second antihypertensive is often required to reach target BP. If both medicines are well tolerated, the dose of one agent should be increased towards the maximum recommended dose. Three or more antihypertensives from different classes may be needed.

Resistant hypertension, which is uncontrolled BP despite 3 or more optimally tolerated antihypertensives (including a diuretic), occurs in more than 10% of patients and increases the risk of coronary artery disease. Spironolactone is an effective add-on medicine for resistant hypertension uncontrolled by a combination of first-line agents.

Comorbidities

Choice of antihypertensives is often determined by other common comorbidities and complications.

For people with chronic kidney disease, ACE inhibitors or ARBs are preferred. In residents with heart failure, ACE inhibitors or ARBs, beta-blockers and thiazide diuretics have dual benefits.

After heart attacks, beta-blockers, calcium channel blockers and ACE inhibitors are indicated. Beta-blockers, calcium channel blockers and ACE inhibitors are indicated for people with hypertension and angina.

Calcium channel blockers diltiazem and verapamil should not be used in people with heart failure. Thiazide diuretics, especially in higher doses, should be avoided in people with a history of gout.

Adverse effects

Medications to treat hypertension have well-known adverse effects, including hypokalaemia, hyperkalaemia, hyponatremia, hypotension, dizziness, headache, oedema, erectile dysfunction, and cough.

Frailty and end-of-life

Aggressive treatment of high blood pressure is not necessary and may be harmful in frail older patients. Declining blood pressure is common in the oldest old. A higher BP may be needed to ensure sufficient cerebral blood flow. A lower blood pressure in older people has been associated with an increase the risk of cognitive decline and psychological and general daily dysfunction.

Deprescribing

Many older people on antihypertensive therapy can cease medication without return of hypertension for 2 years or more. In people with dementia, cognitive impairment or functional limitations, tight blood pressure control is not recommended, and the use of three or more antihypertensives should be avoided.

Reduction and cessation should focus on one medicine at a time.

References

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- Hypertension* 2020;75:1334-1357.
- National Heart Foundation of Australia. *Guideline for the diagnosis and management of hypertension in adults – 2016.*

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