High Blood Pressure (Hypertension)

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Burden of disease

Hypertension is a risk factor for cerebrovascular disease, ischaemic heart disease, peripheral vascular disease and renal disease (with increasing risk as blood pressure increases) and is a major contributor to the overall burden of disease in Australia.[1]

Cardiovascular disease is the leading cause of death amongst the Aboriginal and Torres Strait Islander population (both male and female) and the rate was three times higher than that for non-Aboriginal Australians in 1997–99. Cardiovascular disease explains over 30% of the excess deaths in the Aboriginal and Torres Strait Islander population and accounts for the highest proportion of excess deaths. Over half (57%) of the total deaths were due to ischaemic heart disease (heart attack, angina), and a further 18% were due to cerebrovascular disease (stroke). Aboriginal and Torres Strait Islander people also have an earlier onset of disease so that those aged 25–54 years are 7–12 times more likely to die from cardiovascular causes than other Australians.[2]

According to various cross-sectional surveys that have been conducted in the Australian general population, there has been a decline in the proportion of the population with high blood pressure (and/or receiving anti-hypertensive treatment) over the period from 1980 to 1999–2000. For men aged 25–64 years, this proportion fell from 45% to 22% and for women 29% to 16%.[1]

There are no national data available in relation to blood pressure levels in Australian Aboriginal peoples and Torres Strait Islanders.[1] However, a large prevalence survey of the Kimberley Aboriginal population, conducted in 1989, showed that the prevalence of hypertension was two to three times higher than among Caucasian Australians. In particular, hypertension in Aboriginal men was apparent at less than 30 years of age. The survey also found that many Aboriginal people with hypertension

remained undiagnosed or poorly controlled. Approximately 80% of those found to be hypertensive were previously undiagnosed. Of those previously recognised as hypertensive, only in about one-third was the condition effectively controlled.[3] A survey of two country towns in south-eastern Australia has found that hypertension was more prevalent in those of Aboriginal descent than in people of European descent.[4]

There is evidence that hypertension and ischaemic heart disease was less common in Aboriginal populations in the past. In 1951–57 the systolic blood pressure in Aboriginal people described as 'semi-tribal' was less than that seen in prevalence surveys after the 1970s.[3]

Hypertension is very common in those with diabetes, thought to be twice that in those without diabetes and is one component of the insulin resistance or 'metabolic syndrome', which is common in Aboriginal populations. Also, it has been shown that hypertension in patients with diabetes is associated with accelerated progression of both microvascular (retinopathy and nephropathy) and macrovascular (CHD, stroke, peripheral vascular disease) complications.[5]

Low socioeconomic status is also linked with higher mortality rates from hypertension-related diseases such as coronary heart disease, hypertensive heart disease, stroke and end-stage renal disease.[6] Hypertension is clearly associated with lower socioeconomic status (SES), but the magnitude of the difference is only small, with age adjusted mean systolic BP differences of about 2–3 mmHg between the highest and lowest SES groups. There is little evidence that adverse psychosocial factors associated with low SES cause chronic elevations in BP.[7]

Types of preventive intervention

- Screening blood pressure
- Counselling
- Weight loss
- Physical activity
- Low fat, high fruit and vegetable diet
- Moderate alcohol intake
- Salt restriction with high BP
- Smoking cessation (see other
- Anti-hypertensive medication
- Access to recreational facilities and possibly psychosocial mediators

Evidence of the effectiveness of preventive interventions

Screening

Hypertension is defined as systolic blood pressure of 140 mmHg or greater, and/or a diastolic blood pressure of 90 mmHg or greater, in people who are not taking anti-hypertensive medication. The diagnosis of hypertension should be based on multiple blood pressure measurements taken on several separate occasions.[8]

Screening for hypertension involves measuring blood pressure with a view towards subsequent lowering of blood pressure. There is good evidence that the early detection and management of hypertension can prevent cardiovascular morbidity and mortality (see below). The higher prevalence of undiagnosed hypertension, cardiovascular morbidity and early age of onset of hypertension-related disease in the Aboriginal and Torres Strait Islander population supports targeting preventive activities towards this population.

Counselling and medication

Lowering of blood pressure is effective in reducing stroke incidence and mortality in those with hypertension. Treatment of hypertension also decreases mortality from coronary artery disease in patients with high blood pressure. The effectiveness of drug therapy to lower blood pressure and reduce fatal and non-fatal stroke, cardiac events and total mortality has been demonstrated in a number of systematic reviews of randomised controlled trials.[9,10,11] An overview showed that lowering blood pressure by 10–12 mmHg systolic and 5–6 mmHg diastolic, on average, reduces the relative risk of stroke by about 40% and of coronary disease by about 15%. This relative reduction in risk is similar, whatever the blood pressure before treatment and the absolute risk of cardiovascular disease.[12]

Lifestyle factors are strongly associated with blood pressure control, and an epidemiological association between blood pressure and excessive alcohol consumption, obesity and cholesterol levels has been reported for one Aboriginal population.[13] At three or more standard drinks of alcohol per day, studies have consistently shown that blood pressure increases in direct proportion to alcohol intake, and reducing heavy alcohol consumption will reduce blood pressure. At lower levels of drinking the findings are less consistent.[14]

A recent randomised controlled trial in the US showed that dietary sodium restriction, in combination with a diet rich in vegetables, fruits, and low-fat dairy products, can lower systolic blood pressure. The effects of sodium restriction were observed in participants with, and in those without, hypertension, African Americans, those of other races, and women and men.[15] However, meta-analysis of trials did not demonstrate significant blood pressure reduction from salt restriction in those with or without hypertension.[16] Other meta-analysis in hypertensive subjects showed that sodium reduction reduces systolic blood pressure in the general population by a small amount, but the effect is greater among older, previously hypertensive subjects.[17] A more recent meta-analysis involving 58 trials of hypertensive persons showed that reduced sodium intake (mean reduction of 6.7 g/day for 28 days) dropped SBP by 3.9 mmHg (95% CI: 3.0–4.8 mmHg) and DBP by 1.9 mmHg (95% CI: 1.3–2.5 mmHg). In 56 trials of normotensive persons the effect of reduced sodium intake on SBP was 1.2 mmHg (95% CI, 0.6–1.8 mmHg) and on DBP was 0.26 mmHg (95% CI: -0.3–0.9 mmHg). The trials involved subjects aged between 23–73 years. The results did not support a general recommendation to reduce sodium intake, but reduced sodium intake may be used as a supplementary treatment in hypertension.[18] These results have evoked criticism because the trials were of too short duration, or because dietary sodium intake was not lowered sufficiently in the study populations.[19]

Other lifestyle factors also have important preventive implications. Weight loss, and increase in physical activity, have been shown to improve blood pressure control in systematic reviews,[11] and are supported by the US Surgeon General.[20] The effectiveness of counselling in persuading people to use these means has not been adequately shown, particularly in the long term. However, even modest improvements from counselling in primary care could have large public health benefits. A large randomised controlled trial confirmed that a low saturated and total fat, high fruit and vegetable diet results in modest reductions in blood pressure.[21,22]

Stress management to lower blood pressure has been examined in a number of trials, but meta-analysis did not confirm a significant reduction.[16]

Mediating psychosocial causes of cardiovascular disease is particularly relevant in Aboriginal and Torres Strait Islander population in view of the much greater relative deprivation.

Frequency of BP checks

Testing the blood pressure of Aboriginal people and Torres Strait Islanders at every clinic visit is recommended in view of this recommendation for the general population.[23] It is important to minimise missed opportunities to screen as clinic visits may be infrequent.

The minimum recommended blood pressure screening interval for adults who are not being treated for hypertension varies according to the initial blood pressure reading. Generally, those with an initial 'high-normal' or 'normal' reading and without related significant co-morbidities (e.g. diabetes, chronic renal disease or overt proteinuria), should be re-screened within one to two years respectively (see table 1).

However, many Aboriginal and Torres Strait Islander people have coexisting risk factors — such as family history of cardiovascular disease, smoking and obesity — as well as co-morbidity and blood pressure screening should occur annually in this population, commencing at an early age.

Table 1: Suggested follow-up for untreated individuals in relation to various ranges of blood pressure[24]

[Editor: Note that this table has been simplified for use in the CARPA STM, and the prompted recall times have been shortened in view of the added logistical difficulties encountered in remote practice.]

Systolic (mmHg)	Diastolic (mmHg)	Action
<130	<85	'normal' BP, recheck in 1–2 years
130–139	85–89	'high-normal' BP, recheck in 1 year. Offer lifestyle advice.
140–159	90–99	confirm within 2 months – lifestyle advice
160–179	100–109	evaluate or refer within 1 month – lifestyle advice
>180	>110	evaluate and refer within 1 week (or immediately depending on

NB: If systolic and diastolic categories are different, allow recommendations for shorter follow-up (e.g. BP 160/86 evaluate or refer within 1 month).
Table modified from: National Heart Foundation of Australia, 1999, Guide to Management of Hypertension for Doctors, NHFA (cited in reference to the table: 'Modified with permission from: The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure. Arch Int Med 1997; 157:2413–46).

Summary of recommendations

Recommendation	Level of evidence
The Aboriginal and Torres Strait Islander population has a much higher risk of developing cardiovascular (CV) disease and an earlier age of onset than the general Australian population. Ischaemic heart disease (also known as coronary heart disease) is a major contributor to mortality and morbidity in this population.	III
There is some evidence that hypertension is more common and often unrecognised in the Aboriginal and Torres Strait Islander population.	III
Treatment of hypertension decreases mortality from coronary artery disease and stroke in patients with high blood pressure.	I
Modification of risk factors can reduce blood pressure: • reducing heavy alcohol consumption will reduce blood pressure; • reduced sodium intake may be used as a supplementary treatment in those with hypertension; • weight loss, • increase in physical activity, • diets low in saturated fats and high in fruit and vegetables.	I
The effectiveness of counselling as part of a preventive health assessment to persuade people to modify risk factors has not been adequately shown, particularly in the long term. However, even modest modifications from counselling delivered in primary health care services could have large public health benefits.	V
Adult (> 18 years) Aboriginal people and Torres Strait Islanders should have blood pressure assessed at every visit (at least every 1–2 years). Those with raised blood pressure detected through screening will require more intensive follow-up.	V

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