

Patients' views of high blood pressure, its treatment and risks

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OBJECTIVE To examine the understanding and beliefs of a sample of Australian patients about high blood pressure and its therapy, and to examine the accuracy of their assessment of their own risk.

METHOD A cross sectional study in two general practices in Perth, Western Australia. Interviews were conducted with 55 consecutive patients aged 40-80 years of age with uncomplicated hypertension. Qualitative and quantitative data were collected on patients' beliefs about the nature, symptoms, causes and treatment of high blood pressure as well as their adherence to antihypertensive medications during the preceding month. Patients also estimated their own risk of stroke or myocardial infarction.

RESULTS Two-thirds of the patients (65%) described high blood pressure within an appropriate biomedical definition. Forty-five percent attributed a variety of symptoms to their high blood pressure while 55% believed that stress was a cause of their high blood pressure. Three-quarters (73%) were fully adherent to their medications in the preceding month. Seventy-one percent and 62% of patients were aware that stroke and heart attack respectively are possible consequences of high blood pressure. They significantly overestimated their risk of stroke and myocardial infarction.

CONCLUSION One-third of treated hypertensive patients are poorly informed about the causes and effects of hypertension, and overestimate their risk of both stroke and heart attack, as well as the benefit derived from treatment.

Hypertension is the most commonly managed problem in Australian general practice.¹ A major impediment in the management of hypertension is non-adherence to treatment.² There is a large body of research on this subject. However, few interventions have resulted in major improvements to adherence or treatment outcomes.³ Largely missing is adequate research on patients' understanding of, and beliefs about, hypertension – upon which all their reactions depend. This includes patients' understanding and beliefs about the nature of hypertension. Some have focussed on anthropological factors in special groups, including African Americans,^{4,5} West Indian immigrants in the United Kingdom⁶ and American vet-

erans.⁷ There are no such studies on Australian patients.

Patients' acceptance of treatment also depends on their assessment of the risks and benefits associated with compliance. Much of this information is provided by the patient's doctor, but general practitioners and specialists vary in their accuracy in assessment of risk.^{8,9} We examined the understanding and beliefs of Australian patients about high blood pressure and its therapy, and the accuracy of their assessment of their own risk.

Methodology

A descriptive cross sectional study was conducted in two metropolitan academic general practices; one in an underprivileged area, the other in an affluent

suburb. Participants were sequential patients aged 40–80 years of age who had been prescribed antihypertensive medication for at least six months, and had no history of stroke, myocardial infarction, transient ischaemic attacks or renal failure. The University of Western Australia Human Research Ethics Committee approved the project and all participants signed a consent form.

We audited the patients' medical records, noting average blood pressure over the preceding year and their most recent lipid levels, diabetes, presence of left ventricular hypertrophy, atrial fibrillation and coronary artery disease. We interviewed the patients to assess their understanding and beliefs about high blood pressure in terms of its nature,

causes, consequences, treatment and likelihood of cure. The interviews lasted between 45 and 60 minutes and were tape-recorded. They were transcribed, and responses to each question were scrutinised and themes identified. Patients were encouraged to discuss these issues in detail and all relevant ideas that emerged were noted. We used 'high blood pressure' rather than 'hypertension' throughout because lay persons may consider the terms distinct.⁴⁻⁶ Adherence was assessed by self report. Patients who missed more than 20% of their pills in the previous month were considered noncompliers.¹⁰

Risk assessment was measured by asking patients about the consequences of high blood pressure. Patients who mentioned stroke, heart attack or both were asked to estimate their risk of these events in the next 10 years, both if their high blood pressure was untreated, and if it was treated. Risk was estimated on a scale between 0 and 10, where 0 represented no chance of stroke, and 10 represented certainty. Data were coded and, where applicable, entered into a database for analysis.¹¹

Data analysis

Descriptive data were presented for the patients' views and beliefs. Patients' estimations of their risk of stroke were compared to estimations of risk of cerebrovascular events derived from the Framingham population study¹² which was based on age, gender, systolic blood pressure, diabetes, smoking, atrial fibrillation and left ventricular hypertrophy. Estimations of the risk of heart attack were compared to calculated risks of coronary heart disease hospitalisation or death based on the Busselton population study.¹³ The Busselton based risks take into account age, gender, medication, HDL/total cholesterol ratio, smoking, blood pressure, left ventricular hypertrophy and previous history of coronary heart disease. In these calculations, the

Australian National Heart Foundation's defined level of 'severe' hypertension, 180/110 mmHg, was used to represent untreated blood pressure.¹⁴ The patients' average blood pressure over the previous year was used to represent treated blood pressure. Calculations of risk were only completed where all required parameters were available. To allow comparison between estimated and calculated percentage risks, patients' estimates were multiplied by 10.

Results

Seventy-six patients were approached, 16 declined and five did not meet the inclusion criteria, leaving 55 patients (25 from the underprivileged and 30 from the more affluent practice). Their mean age was 66 years, 55% were women, 75% were retired and 58% were born in Australia.

Understanding of and beliefs about high blood pressure

Nearly half the patients (45%) correctly knew their own blood pressure level, and 78% knew their own cholesterol level. Two-thirds (65%) were able to describe 'high blood pressure'. Nine patients described a 'pressure' building up in the body. Other explanations of the nature of high blood pressure are shown in Table 1. Of the 19 patients who could not describe high blood pressure, nine did not believe that they ought to know.

Slightly less than half the patients (45%) attributed symptoms to their high blood pressure (Table 2). Most (85%) attributed high blood pressure to a specific cause (other than age), the most frequent being stress and heredity. The most well known consequences of hypertension were heart attack and stroke, although nine patients were unaware of either consequence and two believed they were synonyms.

Two-thirds of the patients (65%) did not know how their medication worked,

Table 1. Patients' explanations of the nature of high blood pressure

Explanations	(n=55) %*
No explanation known	35
Pressure feeling	16
Heart straining	15
Heart beating too fast	15
Vessels too narrow	11
Blocked vessels	9
Hardening of the arteries	7
Pressure of the blood too high	5
Heart beating too slowly	2

* Percentages add to more than 100% due to multiple responses

and 14 of these did not care to know. Side effects were attributed to antihypertensive medication by 20%, (a diuretic effect for three, feeling cold for two, and one each described dizziness, constipation, diarrhoea, swollen ankles, cough, easy bruising and photosensitivity). Most (71%) of the patients believed their high blood pressure would never be cured, while 18% believed that it would be, and 11% were unsure. Half (55%) believed that 'hypertension' and 'high blood pressure' are synonymous while a third (31%) believed that 'hypertension' is a condition involving excessive stress.

Compliance

Three-quarters of the patients (73%) stated they had not missed any pills in the month preceding the interview while 22% claimed to have missed between one and five pills. Only 5% (n=3) had missed more than six pills, (10, 12 and 31 pills respectively). Forgetting was the commonest reason for missing pills (18%), usually due to a disruption in routine. Two patients had run out of medication. One patient did not know which medication should be taken with food, so no pills

Table 2. Perceived symptoms, causes and consequences of patients' high blood pressure (n=55 patients)

	% of patients experiencing each factor*
Perceived symptoms of high blood pressure	
Headaches	20
Feeling hot/flushed	11
Dizziness	9
Blurred vision	7
Feeling light-headed	7
Irritability	5
Lethargy	5
Dizziness on standing	5
Insomnia	2
Nose bleeds	2
Nausea	2
Snoring	2
Racing heart	2
None mentioned	55
Perceived causes of high blood pressure	
Stress	55
Heredity	45
Smoking	16
Overweight	15
Diet	11
Age	9
Other medications**	5
Lack of exercise	5
High cholesterol	4
Alcohol	4
Sunlight	2
Caffeine	2
Salt	2
None mentioned	6
Perceived consequences of high blood pressure	
Stroke	71
Heart attack	62
Eye problems	9
Dizziness or fainting	9
Vascular problems	5
Clots	5
Bleeding	5
Liver problems	2
None mentioned	0

* Percentages add to more than 100% due to multiple responses

** Other medications were the combined oral contraceptive pill, sumatriptan and atorvastatin

were taken when meals were missed. Another did not take medication when he was going to the doctor, in order to find out 'how it was going under normal conditions'. Of the three patients who had missed more than six pills, the first had run out, the second did not consider it important to take the medication regularly, and the third believed that she did not require the medication at all. Very few patients (4%) had ever taken extra pills. One did so when her blood pressure monitor showed that her blood pressure was high. The other took extra medication in response to dizziness. Six patients had experimented by ceasing their medications in the past without their doctor's knowledge.

Patient risk assessment

Seventy-one percent and 62% of patients respectively were aware that stroke and heart attack can be consequences of hypertension (Table 2). Most who mentioned stroke (92%) and heart attacks (94%) were able to estimate their risk. Patients tended to grossly overestimate their risk (Table 3). They tended to overestimate their risk by a large amount when predicting their risk with untreated blood pressure. However, they also tended to overestimate the beneficial effects of treatment on outcomes.

Discussion

We found patients were adherent with medications despite a considerable lack of understanding of high blood pressure. Many justified their lack of knowledge by their trust in their doctor. Stress as the most common perceived cause of high blood pressure confirms previous studies.^{4,7} The proportion of the patients who perceived symptoms, and the nature of the symptoms were also similar to past research.^{4,7} Some medication side effects may be perceived as symptoms and this was the case in the present study where five patients believed that dizziness is a symptom of high blood

Table 3. Patients' estimates and calculated assessments of the absolute risk of stroke and heart attack in the next 10 years

	Treated blood pressure		Untreated blood pressure	
	Mean %	(95% CI)	Mean %	(95% CI)
Risk of stroke (n=20)				
Patients' estimates	30.0	(23.7–36.3)	75.5	(64.4–86.5)
Calculated risk ¹²	8.4	(5.6–11.1)	16.0	(12.9–19.1)
Risk of heart attack (n=28)				
Patients' estimates	35.0	(27.7–42.3)	74.5	(65.9–83.4)
Calculated	7.9	(5.7–10.2)	10.3	(7.5–13.0)

pressure, and one took more medication in response to dizziness. In contrast, only one patient mentioned dizziness as a medication side effect.

This study may have been biased toward compliant patients because of the method of recruitment. Nevertheless, 15 patients were identified who had missed one or more medications in the previous month, and six had previously ceased medication in the past.

The belief that doctors' advice and prescriptions can be taken without question may have reflected the older age of this patient sample, although at odds with the current trend toward patient empowerment.

Most patients were aware of the major cardiovascular complications of high blood pressure and all but two overestimated their risk of stroke and heart attack in comparison to epidemiological predictions. The magnitude of their overestimate was large, some estimating their risk to be 4–6 times that which is predicted by epidemiological data. Doctors do not always accurately assess cardiovascular risk,^{8,9} so patients' overestimates may have been a reflection of their GPs' inaccurate estimates. In addition, risk descriptions are not well understood by the lay community.¹⁵ There was a disparity between what the patients in this study considered to be 'high risk' and medical definitions of 'high risk'. Patients in this study tended to choose values around

eight out of 10 for 'high risk' whereas the National Heart Foundation defines 'very high risk' as greater than 30% over 10 years.¹³ Doctors may inform patients that they are at 'very high risk' without actually stating the figures. True patient involvement requires a meaningful explanation of risk.

Patients tended to have biomedically oriented beliefs and accepted conventional western treatment for their high blood pressure. Common notions that deviate from biomedical teaching included the high incidence of symptoms, the emphasis on stress as an aetiological factor, and the differentiation between 'high blood pressure' and 'hypertension'. Hypertensive patients grossly overestimate their risks of stroke and heart attack, and the benefit of antihypertensive treatment. How would they accept treatment if accurate risk data were explained?

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Implications of this study for general practice

- Many patients have little understanding of hypertension.
- Patients have an inflated perception of their cardiovascular risk.
- Reasons for medication noncompliance include: forgetting pills, running out of pills, being unsure which pills to take with meals, missing pills before doctor visits or simply believing the medication to be unnecessary.

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