

High blood pressure and psychiatric disorder in general practice

CHARLES HODES, F.R.C.G.P.

General practitioner, Boreham Wood, Herts.

PAULINE ROGERS, M.Sc.

Chronic Disease Control Study Unit, Department of Community Health, London School of Hygiene and Tropical Medicine

SUMMARY. A programme for the control of hypertension has been started in general practice with the principal aim of finding the most effective way of identifying and keeping patients with high blood pressure under continuing control. One objective is to determine the psychiatric state of hypertensive patients in the programme and this paper reports these results.

There was no significant difference between the percentage of psychiatric patients in a hypertensive group and a control group. There was no relationship between blood pressure recorded at the initial clinic and the psychiatric state. In both hypertensive and control groups, patients who were on hypertensive treatment at the initial clinic were more likely to be 'psychiatric' than those who were not on treatment; this appears to be less likely to occur if the hypertension is controlled.

Introduction

High blood pressure of moderate or severe degree, even if symptomless, carries a large risk of complications, particularly of coronary heart disease and stroke (Morris, 1973). Male and female patients aged 45–54 years in the group practice were identified using a computer register, and invited by letter to attend screening clinics at the practice. The examination included measurement of the blood pressure and completion of self-administered questionnaires (figure 1).

Aim

Our aim was to find out if patients who have a raised blood pressure also have an altered incidence of psychiatric conditions.

Method

For the purpose of the programme 'high blood pressure' was defined as a patient with a diastolic blood pressure at phase 4 (muffling of sound) of 105 mm Hg or more, sustained on three occasions over three months. The instruments used for determining the psychiatric state of these patients were a self-administered general health questionnaire which included psychiatric questions; a psychiatric questionnaire; and a brief interview including reference to the patients' general-practice notes.

The psychiatric questionnaire used was reported by Goldberg and Blackwell in 1970. They found that of the 20 per cent of patients with 'conspicuous psychiatric morbidity', one third were unrecognised as such at interview. The group was identified by a screening instrument (questionnaire) which the authors have shown to be a valid, sensitive, and specific test.

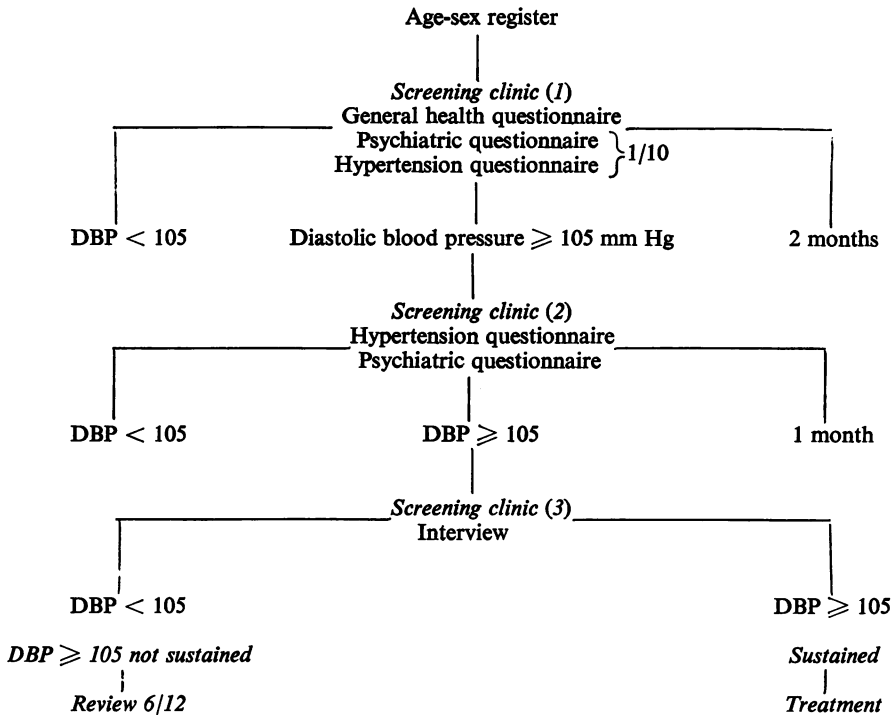


Figure 1

Plan of control of high blood pressure in a general practice

The questionnaire consists of 60 questions dealing with recent symptoms and can be completed by patients in about ten minutes. Scoring in this study was carried out by a health visitor—the total score being the number of positive responses out of 60 questions. Probable normals score 11 or less, probable cases 12 or more.

The questionnaire was given to one in ten patients attending the first screening clinic—the controls, and to all patients attending the second screening clinic—the hypertensives. At the third screening clinic patients were seen by the general practitioner and their psychiatric state was determined and coded as normal; sub-clinical; mild clinical (receiving psychotropic drugs); moderate (attending a psychiatric outpatient clinic).

The duration of the psychiatric state was also recorded as chronic (more than one year); recent (within one year); resulting from the invitation to be screened; or resulting from attending the screening clinics.

It was at this third screening clinic, if a diastolic blood pressure of 105 mm Hg or more has been sustained, that hypotensive treatment was advised; if this level of blood pressure had not been sustained the patient was reviewed in six months. It is intended that patients who have been started on treatment will complete the same psychiatric questionnaire and have an interview at the end of a two-year period.

The general health questionnaire given to all patients at the first clinic includes some psychiatric questions. The hypertension questionnaire asked about family history and diseases which may be associated with hypertension.

Results

The psychiatric questionnaire was given to a ten per cent random sample of patients who attended the initial screening clinic, the controls, and to all patients who attended the second clinic because their diastolic blood pressure (phase four) was greater than or equal to 105 mm Hg at the first examination, the hypertensives.

There were 132 patients in the hypertensive group and 195 in the control group. Fourteen of the control patients had an initial diastolic blood pressure (phase four) greater than or equal to 105 mm Hg and are thus included in both groups.

A comparison of the control group with the total population of responders to the study showed them to be an unbiased sample with regard to initial diastolic pressure and sex. In the control group, 7.2 per cent were 'hypertensive' and 47.7 per cent were male compared with 7.3 per cent and 46.9 per cent respectively in the total population.

There were no differences between the control and hypertensive group for marital status or social class. Table 1 summarises the psychiatric score in the control and

TABLE 1
SUMMARY OF PSYCHIATRIC SCORE

<i>Score</i>	<i>Hypertensive group</i>	<i>Control group</i>
0-11 (normal)	110	165
12-60 (psychiatric)	22	30
Score 12-60%	16.7	15.4
Mean score	5.52	4.86
Range	0-45	0-47

TABLE 2
PSYCHIATRIC STATE AND ITS DURATION AT THE THIRD CLINIC

<i>Psychiatric state</i>	<i>Psychiatric score</i>	
	0-11 (normal)	12-60 (psychiatric)
Patient did not attend third clinic	2	1
Normal	82	1
Subclinical	11	2
Mild clinical	11	16
Moderate	0	0
Total psychiatric	26	20
Psychiatric (per cent)	23.6	90.9

<i>Duration of psychiatric state (all combined)</i>	<i>Psychiatric score</i>	
	0-11 (normal)	12-60 (psychiatric)
Chronic	19	17
Recent	6	1
Invitation	0	1
Clinics	1	0
Not recorded	0	1

hypertensive groups. There is a minimum score of 0 and a maximum score of 60. Patients who score under 12 are defined as normal or non-psychiatric. There was no significant difference between the percentage of psychiatric patients in the two groups.

In the hypertensive group, the patients' true psychiatric state and its duration were recorded at the third clinic and this is compared with the psychiatric score in table 2. 90.9 per cent of the patients classified as psychiatric by the score, were true psychiatric and 23.6 per cent of the patients classified as non-psychiatric were in fact psychiatric. In all, 56.5 per cent (26 out of 46) of the psychiatric patients were missed by the questionnaire, that is over half of the chronic cases (19 out of 36) and nearly all the recent cases (six out of seven) were missed by the questionnaire. This confirms Goldberg's report that chronic psychotic patients and some patients with very long-standing neurotic disorders will have scores in the normal range.

Table 3 shows the relationship between psychiatric score and sex. There are significantly more women with a high score in the control group ($p < 0.05$) and the difference is in the same direction in the hypertensive group, although it is not significant. Women are therefore more likely to be classified as 'psychiatric' than men.

TABLE 3
RELATIONSHIP BETWEEN PSYCHIATRIC SCORE AND SEX

<i>Psychiatric score</i>	<i>Hypertensives</i>		<i>Controls</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
0-11	49	61	84	81
12-60	8	14	9	21
Score 12-60%	14.0	18.7	9.7	20.6
Male %	43.2		47.7	

TABLE 4
RELATIONSHIP BETWEEN BLOOD PRESSURE AND PSYCHIATRIC SCORE

<i>Group</i>	<i>Mean blood pressure</i>	<i>Psychiatric score</i>	
		0-11	12-60
Hypertensive	Diastolic blood pressure (phase four)	110.15	112.55
	Systolic blood pressure	183.65	188.00
	η	110	22
Control	Diastolic blood pressure (phase four)	86.07	85.00
	Systolic blood pressure	141.41	137.20
	η	165	30

There was no relationship between the blood pressure recorded at the initial clinic and psychiatric score, as shown in table 4. The mean blood pressures are the same in low and high psychiatric score groups. However, in both the hypertensive and control groups, patients who were on hypotensive treatment at the initial clinic are more likely to be 'psychiatric' than those who are not on treatment (table 5). There is no difference between the groups in the percentage of patients who are psychiatric and have never had treatment, 13.6 per cent and 13.8 per cent respectively.

It seems then that the treatment may cause patients to become 'psychiatric' and this is less likely to occur if the hypertension is controlled, as 28.6 per cent of the control patients with previous treatment (probably patients where the hypertension is

TABLE 5
RELATIONSHIP BETWEEN CURRENT BP TREATMENT AND PSYCHIATRIC SCORE

Group	Current blood pressure treatment	Psychiatric score		Per cent score 12-60	Significance
		0-11	12-60		
Hypertensive	Yes	8	6	42.9	P<0.01
	No	102	16	13.6	
Control	Yes	15	6	28.6	Not significant
	No	150	24	13.8	

under control) are psychiatric compared with 42.9 per cent of the hypertensive patients with previous treatment (probably patients where the hypertension is not controlled).

There was no relationship between psychiatric score and mean number of children, smoking, or age.

At the initial clinic each patient was given a self-administered questionnaire which included questions on possible psychiatric symptoms. These questions were about being absent minded, waking in the early hours, difficulty in concentration, and for women, crying easily, whether they were menopausal, or whether they had a raised blood pressure in pregnancy. A high psychiatric score was related to positive replies to all the questions except for the menopause and raised blood pressure in pregnancy. Table 6 gives the results to the question "Have you found it difficult to concentrate recently?" and table 7 the results for the menopause.

TABLE 6
'HAVE YOU FOUND IT DIFFICULT TO CONCENTRATE RECENTLY?'

Psychiatric score	Hypertensives		Controls	
	Yes	No	Yes	No
0-11	21	89	17	148
12-60	11	11	15	15
Score 12-60%	34.4	11.0	46.9	9.2

TABLE 7
MENOPAUSE (WOMEN ONLY)

Psychiatric score	Hypertensives		Controls	
	Menopausal	Not Menopausal	Menopausal	Not Menopausal
0-11	41	20	36	14
12-60	7	7	13	7
Score 12-60%	14.6	25.9	26.5	33.3

It was hoped to discriminate between psychiatric and non-psychiatric patients using variables such as sex, blood pressure, age, smoking, social class and number of children. A discriminant analysis was attempted but, as expected from the negative results given above, no discriminant function was found.

Discussion

Ingham, Robinson and Rawnsley (1961) in a study in South Wales reported that when blood pressures and emotional instability scales (using the Maudsley personality inventory) were examined no significant relationship was found in most age groups, but the

41–50 age group was a conspicuous exception. When the emotional instability scores of the clinic hypertensives were compared with those of the random group they were found to be significantly higher (but this was not confirmed in larger groups). They suggested:

(1) That of those individuals who have various vague symptoms, only the more emotionally unstable consult a doctor.

(2) Emotionally unstable individuals tend in any case to consult a doctor more often and therefore any incidental sign (such as high blood pressure) will be discovered.

(3) The test scores are affected somehow, either by treatment or by attendance at hospital with its concomitant anxieties.

Patients in our study are responders to a screening invitation and are often symptomless. The third suggestion was made when hypotensive drugs were not so extensively in use.

Robinson (1962) in a further study in which hypertensives had high neuroticism scores suggested that the hypertensives might have had scores more like those of a random group had they had tests before becoming outpatients. He also suggested that the hypertensive's knowledge of his own hypertension may be important. In our study 80 per cent have not previously been identified as hypertensives requiring treatment.

Sainsbury (1964) suggested that people who develop the conditions commonly called 'psychosomatic' are more emotionally labile than others, and that hypertension appears to be one of these conditions. Ostfeld and Shekelle (1967) concluded that blood pressure measurements made in uncertain situations are higher than those under well-understood circumstances, other factors being roughly equal. A study in general practice perhaps provides the best environment.

However, about one fifth of patients attending a surgery are emotionally disturbed, the commonest disturbances encountered being anxiety and depression. Only a minority of patients with emotional disorders present exclusively with psychiatric symptoms. Most of them have somatic complaints, which may obscure the underlying affective disturbance.

Heine in a study of 40 patients concluded that repeated spells of depressive illness, when characterised by marked anxiety and agitation, are accompanied by repeated increases of blood pressure and, as Pickering has suggested, that repeated exposure to stimuli that increase blood pressure may well lead to a maintained increase. Both Kessel (1960) and Kreitman *et al.* (1966) in general-practice studies did not find a positive correlation between physical and psychiatric disorder. Eastwood and Trevelyan (1971) as part of the South-east London Screening Study did find a positive association between psychiatric and physical morbidity.

Heine (1971) in an extensive review of the psychosomatic aspects of hypertension, noted that "it needs to be demonstrated that repeated depressive illness leads to a sustained hypertension, an inquiry beset with methodological problems and reflected in the paucity of such studies".

Cochrane (1973) pointed out that the groups studied had been selected on the basis of having received a diagnosis of essential hypertension and they are therefore not representative of the total population of hypertensives, many of whom remain undiscovered. His study used volunteers in a hospital survey. From his study of 32 subjects he concluded that neuroticism and hostility are not related to blood pressure levels.

The object of this study was to test the hypothesis that there is a positive association between high blood pressure and psychiatric disorder, but this has not been demonstrated.

Acknowledgements

This study was supported by a grant from the Department of Health and Social Security. We wish to thank all the staff of the group practice where the survey was conducted and Professor J. N. Morris, Head of Department of Community Health, London School of Hygiene and Tropical Medicine, for their support and advice.

REFERENCES

- Cochrane, R. (1973). *Journal of psychosomatic Research*, **17**, 215–218.
 Eastwood, M. R. & Trevelyan, H. (1971). *Journal of Psychosomatic Research*, **15**, 289–292.
 Goldberg, D. P. & Blackwell, B. (1970). *British Medical Journal*, **2**, 439–443.
 Heine, B. (1970). *Proceedings of the Royal Society of Medicine*, **63**, 1267–1270.
 Heine, B. (1971). *Postgraduate Medical Journal*, **47**, 541.
 Ingham, J. G., Robinson, J. O. & Rawnsley, K. (1961). *Advancement of Science*, **18**, 265–272.
 Kessel, W. I. N. (1960). *British Journal of Preventive and Social Medicine*, **14**, 16–22.
 Kreitman, N., Pearce, K. I. & Ryle, A. (1966). *British Journal of Psychiatry*, **112**, 569–579.
 Morris, J. N. (1973). *Proceedings of the Royal Society of Medicine*, **66**, 225–232.
 Ostfeld, A. M. & Shekelle, R. B. (1967). *Epidemiology of Hypertension*. New York and London: Grune and Stratton.
 Robinson, J. O. (1962). *British Journal of Clinical Psychology*, **2**, 56.
 Sainsbury, P. (1964). *Journal of Psychosomatic Research*, **8**, 225.

WHAT MAKES A GOOD TEACHER?

Questionnaires were sent to 7,000 graduates from three years in 19 Canadian universities asking which professors and teachers had been excellent: 1,000 replied and their main conclusions were as follows:

- (1) Their most important role is to stimulate students to become active learners on their own.
- (2) An attitude of concern for students is more important than any particular method of teaching.
- (3) They must be not only knowledgeable in a field, but also enthusiastic about it.
- (4) They do not lecture from scripts, though the majority do lecture.
- (5) They used educational aids sparingly, but do give out course outlines.
- (6) They believe strongly that teacher interaction with students is an essential part of the learning process.
- (7) They believe in examining students, but find it difficult.
- (8) They value student feedback and are always seeking to improve.
- (9) They prepare their lessons with great thoroughness.

Other points brought out in the discussion are the importance of matching teachers to students (not all good teachers are good for all students); students in different faculties tend to look for rather different things in their teachers; teaching performance is difficult to evaluate.

REFERENCE

- Sheffield E. F. (Ed.) (1974). *No one way: teaching in the universities*. Montreal: McGill University Press.