Management of hypertension in twelve Oxfordshire general practices

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SUMMARY. The general practice records of 2371 hypertensive patients on drug therapy in 12 practices were reviewed retrospectively. It was found that the mean systolic blood pressure of the patients had fallen by 29 mmHg and the mean diastolic pressure by 16 mmHg after one year of treatment and that there was a further reduction of 5 mmHg in the systolic pressure and 5 mmHg in the diastolic pressure at the most recent recording of blood pressure. Half of the patients had only a single blood pressure reading recorded before treatment was started and for 56% of the patients there was no record of smoking habit and for 69% no record of weight. Twenty-seven per cent of the patients suffered from mild hypertension, that is blood pressure less than 180/110 mmHg, and 56% were over 65 years of age. These results indicate the need for policies for selection of patients for treatment and for standards of recording. It is suggested that practices should review their results and undertake to treat elderly hypertensive patients and those with mild hypertension only when they can demonstrate that their policies are effective for young hypertensive patients and for those with moderate or severe hypertension.

Introduction

THE benefits of the control of severe and moderate levels of hypertension have been well-known for at least two decades[1,2] although more recently a Medical Research Council study[3] has indicated some limits to the exent of that benefit and also some of the disadvantages of treating patients with mild hypertension. Few general practitioners or hospital doctors, however, approach the problem of hypertension management with a clearly formulated policy plan and treatment objective. Fewer still attempt to assess the effectiveness of their efforts and the extent to which policy objectives are achieved, although individual practices have reported their results.[4-6]

It was therefore considered worthwhile to make use of the practice base of a university department to examine aspects of the management of hypertension in a range of practices. At the time of this study the Department of Community Medicine and General Practice at the University of Oxford included a reader and 11 tutors all of whom were general practitioners with practices in and around Oxford. The total practice base of the Department included 60 general practitioners in 12 practices serving a total population of about 102 000 people. In the 18 months prior to the study each of the practices agreed to establish a register of diseases including hypertension and these registers contain over 3000 hypertensive patients under medical supervision. This paper reports a study of aspects of the management of hypertension in these patients, including blood pressure control and attention to associated risk factors for cardiovascular disease.

Method

Patients were entered onto the disease register by their general practitioner at any contact (including repeat prescriptions) and patients were classified as hypertensive if they had a recorded systolic blood pressure at any time of 180 mmHg or above or a diastolic pressure of 105 mmHg or above or were currently being treated for hypertension. Two pairs of part-time data collectors visited each of the 12 practices in turn and examined the records of all the patients on the hypertension register and completed data record sheets for each patient. A proforma was used to record the information extracted and to facilitate computer analysis. Use of the Hogben code allowed identification of the notes of each individual within the practice while maintaining confidentiality when the data were analysed centrally. The data were collected with no noticeable disruption to the running of the practices.

Age, sex, weight, smoking habit, pretreatment blood pressure, blood pressure one year after the start of medical treatment and the most recent blood pressure were recorded. Those patients for whom a pretreatment blood pressure recording could not be established with certainty from the available records or who were not receiving drug treatment for their hypertension were excluded from the analysis.

Results

The combined disease registers of the 12 participating practices held a total of 3042 hypertensive patients. Of these, 671 patients were excluded from the analysis either because they were not receiving medical treatment or because a satisfactory pretreatment blood pressure record was unavailable. The records and blood pressure history of the remaining 2371 patients form the substance of this report.

The recorded prevalence of hypertension in the 12 practices varied from 10.5 cases per 1000 patients to 51.0 per 1000. The mean prevalence of the whole group was 32.8 cases per 1000 patients.

The age distribution of the patients when they began hypotensive therapy compared with their age at the time of this study is shown in Figure 1. Of 2355 patients 952 (40%) were men and 1403 (60%) women (there are small differences in the total sample size in various analyses owing to coding errors).

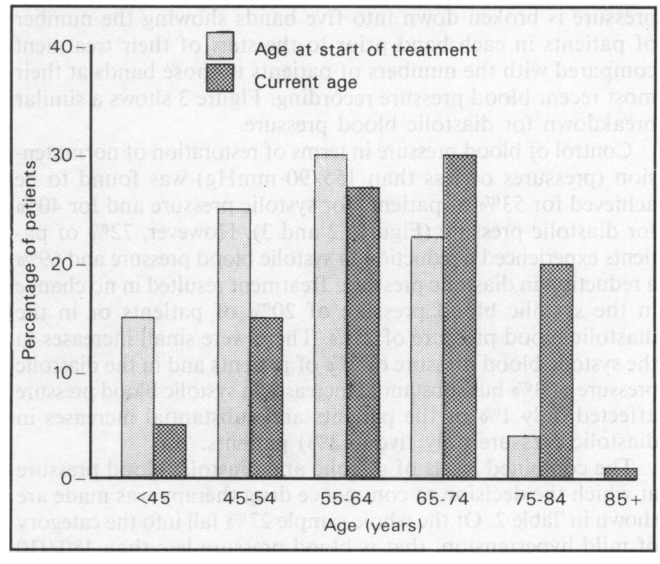

Figure 1. *The age distribution of the patients (n = 2371) at the start of their treatment and at the time of the study.*

Of 2369 patients 813 (34%) had started their treatment for hypertension during the years 1980–84, 1248 patients (53%) during the years 1970–79 and 308 (13%) prior to 1970. Of 2355 patients 1142 (49%) had been started on treatment on the basis of one blood pressure reading, 528 patients (22%) had two readings and only 685 (29%) had a record of three pretreatment readings. There was considerable variation between individual practices in the number of pretreatment readings recorded. The proportion of patients with three readings varied from 10% to 50% in the 12 practices. Conversely the proportion of patients started on treatment on the basis of one recorded reading varied from 29% to 67%.

Of 2371 patients 1329 (56%) had no record of their smoking habit in their notes. The failure to record smoking habit varied from 28% to 92% of patients in the 12 practices. Of the remaining 1042 patients (44%) for whom a record was present 38% were recorded as non-smokers, 32% as current smokers and 29% as ex-smokers.

Of 2371 notes 1631 (69%) had no record of the patient's weight. The failure to record weight varied from 43% to 91% of patients in the 12 practices.

The mean blood pressure levels recorded in the study population are shown in Table 1. The pretreatment level shown is the mean of one, two or three readings (depending on availability) taken over a period up to three months prior to the start of hypotensive therapy. The pretreatment level is compared with the single reading taken approximately one year after the start of treatment and with the most recent blood pressure recording available. The mean is shown together with the range of means found in the 12 practices.

Table 1. Mean systolic and diastolic blood pressures for 2371 patients in 12 practices (with range for the 12 practices in parentheses) before treatment, after one year of drug treatment and at the most recent recording.

	Mean blood pressure (range) (mmHg)		
	Pretreatment	After one year	Most recent
Systolic	185 (178–196)	156 (147–169)	151 (136–161)
Diastolic	108 (102–114)	92 (88–95)	87 (84–88)

Mean blood pressure figures, while useful, conceal the extent to which the blood pressure of individual patients varies from the mean for the whole group. In Figure 2 the systolic blood pressure is broken down into five bands showing the number of patients in each band prior to the start of their treatment compared with the numbers of patients in those bands at their most recent blood pressure recording. Figure 3 shows a similar breakdown for diastolic blood pressure.

Control of blood pressure in terms of restoration of normotension (pressures of less than 155/90 mmHg) was found to be achieved for 53% of patients for systolic pressure and for 40% for diastolic pressure (Figures 2 and 3). However, 72% of patients experienced a reduction in systolic blood pressure and 69% a reduction in diastolic pressure. Treatment resulted in no change in the systolic blood pressure of 20% of patients or in the diastolic blood pressure of 27%. There were small increases in the systolic blood pressure of 7% of patients and in the diastolic pressure of 3% but substantial increases in systolic blood pressure affected only 1% of the patients and substantial increases in diastolic pressure only five (0.2%) patients.

The combined levels of systolic and diastolic blood pressure at which the decision to commence drug therapy was made are shown in Table 2. Of the whole sample 27% fall into the category of mild hypertension, that is blood pressure less than 180/110 mmHg, and 73% were commenced on drug treatment with a blood pressure of 180/110 mmHg or over.

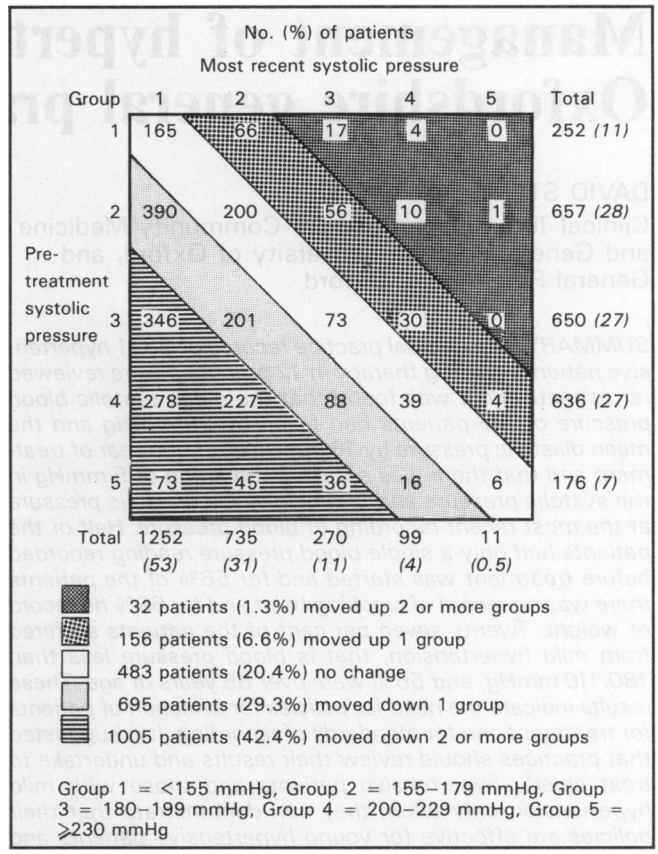

Figure 2. *Change in systolic blood pressure of patients (n = 2371) between pretreatment and the most recent recording.*

Discussion

This was a large retrospective study of general practitioners' records and was subject to the limitations that affect all such studies. However, all 12 practices involved take part in undergraduate teaching and form part of a department with considerable interest in the prevention of cardiovascular disease. It was particularly disappointing therefore to find that the effectiveness of the overall management of hypertension in these practices was compromised by a number of deficiencies.

Nearly half of the patients were started on hypotensive treatment on the basis of only one recorded blood pressure reading, although all the participating doctors would undoubtedly agree that this is undesirable, and only 29% of the patients had three pretreatment figures recorded. There was considerable variation between the individual practices but the level of recording was unsatisfactory even in those with the best figures.

The level of recording of the patients' weight was even worse. Although it is recognized that weight loss in overweight patients can reduce their blood pressure weight was not recorded for 69% of the patients in this study.

The advanced age of hypertensive patients currently receiving treatment was striking. At the start of their treatment 70%

Table 2. Levels of systolic and diastolic blood pressures at which patients (*n* = 2371) were started on drug treatment.

Pretreatment diastolic pressure (mmHg)	No. (%) of patients Pretreatment systolic pressure (mmHg)		
	<180	180–229	230+
<110	645 *(27.2)*	446 *(18.8)*	16 *(0.7)*
110–129	225 *(10.7)*	699 *(29.5)*	66 *(2.8)*
130+	9 *(0.4)*	141 *(5.9)*	94 *(3.9)*

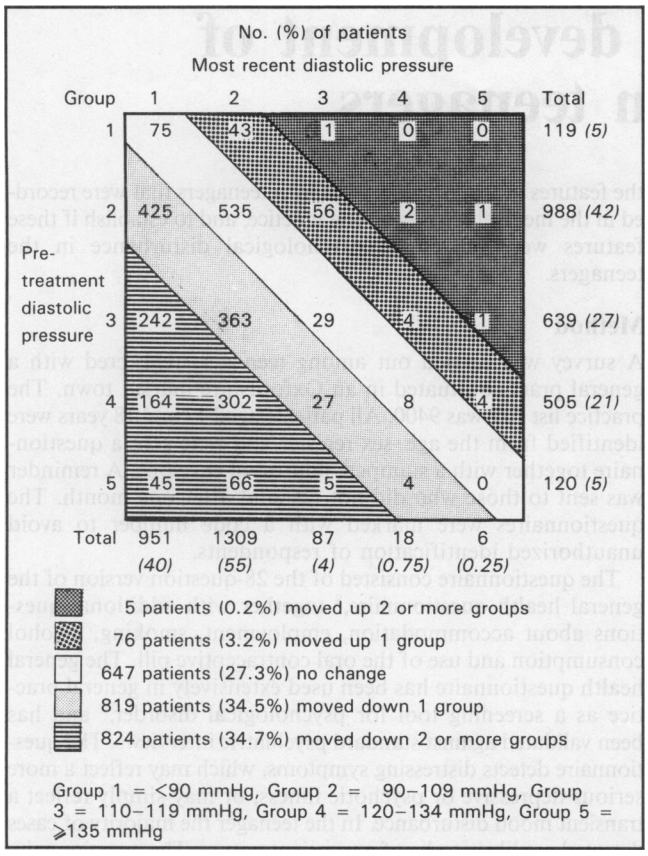

Figure 3. *Change in diastolic blood pressure of patients (n = 2371) between pretreatment and the most recent recording.*

of the patients were under 65 years of age (Figure 1). Of those currently being treated, however, 51% are aged 65 years plus and 21% 75 years plus, suggesting that once therapy has been started it tends to be continued indefinitely into advancing age. Although the European Working Party report on high blood pressure in the elderly[7] favoured active treatment for hypertension in the elderly, treatment was only moderately effective and certainly it appears that general practitioners are spending a disproportionate effort on this age group. It may be that there is a case for actively reviewing elderly hypertensive patients to see where treatment and supervision can be reduced or discontinued.

It was found that 27% of the patients were started on treatment on the basis of a blood pressure of 180/110 mmHg or less. The MRC trial[3] has shown that the benefits of drug treatment may be small at diastolic pressures below 110 mmHg and once again considerable effort would appear to be directed to an area of minimal gain. Furthermore, the MRC trial demonstrates that the benefit of being a non-smoker exceeds the benefit conferred by treatment of mild hypertension with drugs. It was disappointing therefore to find that for the whole group of practices smoking status was only recorded for 44% of the patients and only for 72% in the practice with the highest level of recording. A major opportunity for health education and prevention has clearly been lost.

The mean blood pressure control of patients receiving treatment appeared to be acceptable. Table 1 shows a substantial fall in both mean systolic and mean diastolic pressures after the first year of treatment with a further slight fall after subsequent treatment, despite the accepted tendency for blood pressure to rise with advancing age. It must be remembered that these observations are not subject to placebo control. Perhaps the proportion of patients experiencing a reduction in blood pressure (Figures 2 and 3) provide a more realistic criterion by which the effectiveness of treatment should be assessed. One of the advantages of restricting the selection of patients for treatment would be to enable more effort to be directed at those patients who are presently not benefiting by having their blood pressure effectively lowered.

The informal care of other chronic disorders such as diabetes and asthma has been shown to be unsatisfactory in general practice[8,9] and it is not surprising to find similar inadequacies in the management of hypertension however well informed and well intentioned the doctors concerned may be. The Lothian Health Group[10,11] has shown how protocols can be used to formalize and improve management. The adoption of a protocol will not of itself, however, ensure effective management and a process of thorough assessment of outcome and appropriate modification of management is also needed.

Only general practices have the capacity to monitor outcome and this is a responsibility that they should accept. It would be sensible for practices to demonstrate their effectiveness in the management of younger patients with moderate and severe levels of hypertension before accepting the large burden of the control of elderly hypertensives and those with mild hypertension.

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