

## Factors affecting the reporting of symptoms by hypertensive patients

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**1** Patients diagnosed as hypertensive have a high complaint rate, both on and off treatment and this has been postulated to be due to either their disease process, their being labelled as hypertensive, or to their treatment.

**2** Data from 6637 hypertensive patients being entered into clinical trials in general practice have been analysed to determine the relationship between the patient's age, sex, concurrent illnesses, concurrent medication, whether they were on antihypertensive treatment and the frequency of their reporting symptoms. The analysis was conducted using a multivariate technique.

**3** The frequency of reporting symptoms was greater in females than males.

**4** Those receiving antihypertensive therapy reported more symptoms than those who were not. This was notable with those receiving a  $\beta$ -adrenoceptor blocker (47% of such patients complaining).

**5** Patients receiving concurrent medication were more likely to report a symptom than those not (48 compared to 37%). This was particularly noticeable if central nervous system-acting drugs were prescribed where the prevalence of symptoms was 52%.

**6** Patients already on antihypertensive treatment were more likely to be taking other medication for other conditions (37 vs 31%) than those not receiving antihypertensive treatment. Females were more likely to be taking other tablets than males (38 compared to 30%).

**7** The only symptoms which were less prevalent in those receiving treatment were headache, dizziness and breathlessness. All other symptoms were increased or unchanged in patients on antihypertensive therapy.

**8** This study indicates that present treatment for hypertension produces a high complaint rate from patients and that, when patients so complain, the possibility of their symptoms being due to their concurrent medication should be considered.

**Keywords** essential hypertension antihypertensive therapy adverse effects

### Introduction

Despite the belief that essential hypertension is a symptomless condition, patients known to be hypertensive complain of many problems. It has been suggested that the frequency of complaint may be increased, due either to patients being

labelled as hypertensive or to their hypotensive treatment (Bulpitt, 1982).

Hypertensive patients are more likely to be receiving treatment with tranquillisers than the general population (Cummins *et al.*, 1982). We

therefore wished to examine whether this increased usage of tranquillisers and possibly other medications may be associated with the frequency of reported symptoms.

## Methods

Selected general practitioners within the UK were invited to participate in one of 10 trials on a new hypotensive medication (Cooper *et al.*, 1983a). Data returned by 2037 practitioners form the basis of this report. The general practitioner recruitment ensured a geographically even spread of practitioners throughout the UK, as well as including single and group practices in both rural and urban areas.

On entry to one of these studies, the general practitioner noted the patient's age, sex and general medical history including both concurrent illnesses and concurrent medications they were taking for these illnesses. The physician also noted whether they were already on antihypertensive treatment and all spontaneously reported symptoms or complaints, as well as adverse effects due to their hypotensive medication.

Patients were either newly diagnosed as being hypertensive (sitting diastolic blood pressure on two separate occasions above 95 mmHg after a 10 min rest) or were already on therapy which the general practitioner considered ethical to change. Such patients may have been uncontrolled on their previous therapy, experiencing adverse effects, or taking complex treatment regimes.

Data were tabulated by Tymshare UK and a multivariate analysis considering all the variables was performed, using the computer programme BMDP-3F for multiway frequency tables. The variables considered were: age (60 years or over—older, under 60—younger), sex, concurrent illness and concurrent therapy, previous hypotensive therapy and reported symptoms.

## Results

The data from 6637 patients, all of whom had complete data, were analysed. The multiway frequency tables used are shown in Table 1.

At baseline, the population comprised 43% males, 58% young, 65% on antihypertensive therapy, 38% with a concurrent illness and 35% receiving additional concurrent medication. Overall, 41% of patients were complaining of one or more symptoms. The relationship of the other variables to the reporting of symptoms is shown in Table 2.

These results are difficult to interpret because there are several possible confounding factors. For example, concurrent illness and concurrent medication are very strongly associated with each other so that the increased reporting of symptoms in patients on concurrent medication (48 and 37%) may be due to an increase with concurrent illness, or *vice versa*. Thus, where confounding associations may be present, the use of simple two-way tables and their associated Chi square statistics may be misleading. The full multiway table, as shown in Table 1 must be analysed—an appropriate method is using log-linear models (Fienberg, 1977).

Having adjusted for confounding effects, the likelihood of patients reporting a symptom was affected by concurrent medication, previous hypotensive therapy and sex. On their own, neither age nor concurrent illness made any significant difference to the reporting of symptoms.

In addition, the effect of previous hypotensive therapy differed between the sexes (Table 3) and the effect of concurrent medication was influenced by whether concurrent illness was present (Table 4). Those with concurrent medication but no reported illness had a 14% higher rate of reporting symptoms than those not on a concurrent medication. In those with reported illness, the difference was only 7%.

Female patients not receiving antihypertensive medication were more likely to complain of symptoms than untreated males, but when on treatment there was no such sex difference. However, previous antihypertensive treatment was associated with an increased reporting of symptoms in both sexes.

Table 5 shows the complaint rate of symptoms in four groupings and the 12 most commonly reported symptoms comparing the prevalence of those receiving and those not receiving antihypertensive medication. Seven of these symptoms were increased, two unaltered and only three reduced (headache, dizziness and breathlessness) in those receiving antihypertensive medication. Ten per cent of all patients were taking a  $\beta$ -adrenoceptor blocker alone, 6% a specific antihypertensive alone, e.g. methyl-dopa, reserpine, etc., and 17% a diuretic alone. Those receiving diuretics alone complained least, 36% having a symptom, while the complaint rates of those receiving beta-blockade and specific therapy alone were higher (47 and 54%).

More of the patients on antihypertensive therapy at the time of entry into these studies were receiving a concurrent medication (37%) than those newly diagnosed as hypertensive (31%). Co-prescribing of central nervous system drugs was noticeably greater (12 compared to

**Table 1** Multiway frequency tables showing the relationship of: age, categorised as young (under 60 years) or old (60 years or over); sex, male or female; on current medication; having a concurrent illness; symptoms reported, and on previous hypotensive therapy. All categories are yes (Y) or no (N)

Age	Concurrent illness	Concurrent medication	Previous treatment	Symptoms No	Symptoms Yes	Percentage with symptoms
<i>(a) Male</i>						
Young	N	N	N	328	132	29%
			Y	397	276	41%
		Y	N	12	19	61%
			Y	35	37	51%
	Y	N	N	50	19	28%
		Y	N	65	40	38%
Old	N	N	N	151	63	29%
			Y	221	124	36%
		Y	N	13	7	35%
			Y	26	30	54%
	Y	N	N	33	17	34%
		Y	N	44	48	52%
Young	N	N	N	298	153	34%
			Y	450	292	39%
		Y	N	23	30	57%
			Y	55	55	50%
	Y	N	N	46	28	38%
		Y	N	71	71	50%
Old	N	N	N	103	80	44%
			Y	150	167	53%
		Y	N	130	74	36%
			Y	331	219	40%
	Y	N	17	22	56%	
		Y	70	56	44%	
Young	N	N	N	39	22	36%
			Y	62	39	39%
		Y	N	83	77	48%
			Y	227	232	51%

**Table 2** The marginal relationship of the variables to the reporting of symptoms

Variable	Percentage of patients reporting a symptom	
Age	Younger 44%	Older 42%
Sex	Male 39%	Female 43%
On antihypertensive therapy	Yes 44%	No 36%
On concurrent medication	Yes 48%	No 37%
Having a concurrent illness	Yes 46%	No 38%

**Table 3** Percentage of patients reporting symptoms in relation to their sex and whether they were receiving antihypertensive medication or not

Sex	Previous antihypertensive therapy	
	No	Yes
Male	31%	43%
Female	39%	44%

**Table 4** Relationship between the reporting of symptoms and whether patients were receiving antihypertensive therapy

Concurrent illness	Concurrent medication	
	No	Yes
No	37%	51%
Yes	41%	48%

**Table 5** Relationship of various groups of concurrent medication and whether this alters the rates of reporting of symptoms

	Patients not receiving hypotensive therapy		Patients receiving hypotensive therapy
Central nervous system symptoms	26.3	*	31.8
Cardiovascular/respiratory symptoms	6.4	NS	6.7
Gastrointestinal symptoms	1.5	*	4.7
Other symptoms	5.9	*	8.5
<b>Most reported symptoms</b>			
Headache	15.4	*	12.5(-)
Dizziness	11.4	*	9.8(-)
Drowsiness	1.9	*	6.7(+)
Lethargy	1.0	*	3.9(+)
Breathlessness	4.4	*	2.7(-)
Depression	1.0	*	2.3(+)
Nausea	0.1	*	1.6(+)
Asthenia	0.6	*	1.2(+)
Dyspepsia	0.7	NS	1.0(=)
Lightheadedness	1.2	NS	1.0(=)
Sleep disturbance	0.4	*	1.0(+)
Diarrhoea	0.05	*	0.25(+)
Any other	9.9	*	15.9(+)

\*Significant difference  $P < 0.05$ ; NS = no significant difference.

9%). Being on concurrent medication significantly increased the reporting of symptoms (48 compared to 37%). This was particularly noticeable with concomitant administration of drugs affecting the central nervous system (Table 6).

The elderly were more likely to have a concurrent illness (44%) than the younger patients (33%), and were more likely to be receiving other medication (42 compared to 30%). Similarly, females were more likely to be taking concurrent medication (38%) than males (30%).

## Discussion

This study has shown that patients already receiving treatment for hypertension are being prescribed more medication for other reasons than are newly diagnosed patients with essential hypertension. Cummins *et al.* (1982) have reported that tranquilliser use is increased in patients with a doctor-diagnosed physical disease. We found that there was a similarly increased use of concurrent medications in general in our group of patients who had previously been identified as hypertensives compared to those newly presenting.

A further interesting finding was that the use of other, non-hypotensive, agents was significantly related to the reporting of symptoms by patients. This relationship should be considered when patients on antihypertensive medication complain of problems. This is in agreement with

**Table 6** The effect of being on a concurrent medication and the percentage of patients complaining of symptoms

Type of concurrent medication	Percentage of patients reporting a symptom
No concurrent medication	37%
CNS-acting drugs	52%*
Hypnotic	54%*
Tranquilliser	52%*
Antidepressant	47%*
Other CNS-acting drugs	51%*
Other drugs	
Cardiovascular (non-hypotensive)	53%*
Gastrointestinally-acting	52%*
Anti-inflammatory drugs	44%*
Antibiotics	43% NS
Other	49%*

\*Significant difference from no concurrent medication  $P < 0.05$ ; NS = not significantly different.

the observation of Williamson & Chopin (1980) that the rate of reporting of adverse drug reactions increases in patients receiving more than one drug.

It is not clear why those known to be hypertensive were receiving more concurrent medications than those newly diagnosed. It is possible that either the former group complained more to their doctor in general, possibly prior to being treated for hypertension, or that the attendances at the surgery (to get their blood pressure checked) increased the doctor/patient contacts and, therefore, the likelihood that additional medication would be given. It is also conceivable that the hypotensive medication produced symptoms for which treatment was given.

Symptoms were greater in those already receiving therapy for their hypertension than in those newly diagnosed. This is in agreement with the suggestion that antihypertensive therapy increases reporting of symptoms by hypertensive patients. Patients may also be influenced by whether they are aware of the diagnosis or not—those unaware have a similar prevalence of symptoms to the general population (Robinson, 1969). Informed physicians now believe that hypertension, especially when mild, is a symptomless condition (Gill & Beevers, 1983).

This difference between the aware and unaware hypertensive patient has been attributed to either biased attendance of symptomatic patients at their physicians' surgeries, the labelling of patients as hypertensive or due to the hypotensive therapy. Patients who are referred to hospitals have a still higher complaint rate as

they are a further selected subpopulation of patients that general practitioners find difficult to treat (Bulpitt, 1982). Within such patients referred to hospital, age, sex and race were found to influence the reporting of symptoms (Bulpitt *et al.*, 1974).

The finding that headache, dizziness and breathlessness were the only symptoms which occurred less often in those on treatment is in line with the report from Bulpitt *et al.* (1979) that headache, unsteadiness and depression are the only symptoms reduced by therapy. The latter was only rarely reported in our study.

We asked the general practitioners only to note spontaneously reported symptoms; this should be considered when interpreting the results, as the method by which symptoms are collected can have a profound influence on the complaint rate. The rate alters depending on whether no question, a standard question, many individual questions or a questionnaire is used. The reporting rate of cold extremities in patients taking  $\beta$ -adrenoceptors has varied from 0 to 70%. [However, irrespective of the method used the rate of reporting is always higher in those receiving  $\beta$ -adrenoceptor blockers compared with those not receiving  $\beta$ -adrenoceptor blockers (Marshall *et al.*, 1976; VandenBurg *et al.*, 1983)]. Cross-comparisons between different reports can therefore be difficult. McMahon (1978) states that 15% of patients receiving guanethidine discontinued their therapy due to side-effects. Bai *et al.* (1982) report that 22% of patients on  $\beta$ -adrenoceptor blockers stopped therapy as a result of major adverse effects.

However, when the two drugs were compared using a standardised technique, although both were associated with a significantly higher prevalence of complaints, guanethidine appeared to be associated with more symptoms than propranolol (Bulpitt *et al.*, 1979).

We did not monitor how the doctors related to their patients. This would be unlikely to alter the rate of spontaneous reporting as Cooper *et al.* (1983b) have failed to show that verbal discussion alters the reporting of symptoms. It may be that, as in the case of compliance, written communication would also have to be given (Myers & Calvert, 1984) to alter the rate significantly.

Females were more likely to have complaints than males, and more likely to be on concurrent medication. The MRC trial in mild hypertension (Miall *et al.*, 1982) showed that, when on  $\beta$ -adrenoceptor blockers, females had an increased incidence of non-specific side-effects, such as lethargy, nausea, dizziness and headache, but they did not consider the possible role of concurrent prescribing.

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Not surprisingly in our study elderly patients had a higher incidence of other illnesses than the younger patients and were more likely to be prescribed concurrent medication.

This study indicates that current treatment for hypertension produces a high complaint rate from the patients and that, when patients complain, the possibility of their symptoms being due to their concurrent medication should be considered. Physicians should also be aware of their tendency to prescribe more drugs to antihypertensive patients. They should strive to minimise the use of unnecessary medication because of the possibility that this increases patient symptoms.

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