

Long-surviving hypertensives—a 15-year follow-up

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SUMMARY. In a London suburban general practice 87 hypertensives have been followed up for more than 15 years. These represented one third of all those (270) aged 30–59 diagnosed as being hypertensive. Females outnumbered males by 2.5 : 1. Most (85 per cent), had mild or moderate high blood pressure at first diagnosis with a diastolic blood pressure less than 120mm Hg.

At assessment 15–25 years from first diagnosis, 58 (78 per cent) were still alive and of these 51 (58 per cent) were well and had no obvious ill effects; 17 (20 per cent) had complications from their high blood pressures. Deaths occurred in 19 (22 per cent) after more than 15 years of observation.

I suggest that within the condition which we label as hypertension there are many in whom the condition is relatively benign and may be left untreated with hypotensives. These tend to be women rather than men, the older rather than the younger, and those with lower diastolic blood pressures.

Once diagnosed, high blood pressure is not necessarily a progressive condition. In one third (30 per cent) of this group the diastolic blood pressures fell during the period of observation, in 18 per cent it remained unchanged and in 52 per cent it rose.

Introduction

High blood pressure is a condition of uncertainties. Its nature, course, outcome and management are all open to debate and discussion, with differences of opinion. What is certain is that in some people hypertension may be a serious and dramatic disease with complications and death, and yet other hypertensives live for many years at terms with their high blood pressure, apparently without any serious ill-effects.

In a general study of the natural history of high blood pressure (Fry, 1974 (a)) I found that there were three definable factors associated with a bad prognosis, namely, those who are first diagnosed under 60 years of age, males, and a high diastolic blood pressure.

This study is on those at the other end of the spectrum, namely, those in whom the outlook is good and who have lived for many years unaffected by a raised blood pressure.

It is of some importance that these benign long-term hypertensives should be studied and their characteristics defined if we are to be in a better position to select those who may not require long-term hypotensive therapy.

Method

The area from which this study has been carried out is a South-east London suburb, ten miles from the centre of London. It is predominantly middle and lower-middle class (social classes 3 and 4). For many years the practice records system has made it possible to identify and follow those suffering from high blood pressure and many other diseases (Fry, 1966 and 1974b).

High blood pressure was defined as a diastolic blood pressure of 100mm Hg or more recorded on at least three occasions in a sitting position.

The hypertensives were diagnosed during 1949–1959 and followed until 1974. Since the objective of the study was to review those who had survived 15 years or longer, it was unrealistic to enter those who were 60 years or older when first diagnosed since their natural life expectancy would have been less than 15 years. Therefore only those under the age of 60 at diagnosis were studied. Those who moved away or died before the 15 years period of observation was completed were also excluded. Those who died after 15 years of follow-up were included in the analysis.

During the period under review hypotensive drugs were not used routinely, but only where there was considered to be some important indication present. The three individuals who were treated with long-term hypotensives were excluded from the analysis. This review therefore is of a group of long-term hypertensives who were *not* treated with specific hypotensive drugs and in whom the course represents part of the natural history of the condition.

The data recorded were sex; age at first diagnosis; the levels of diastolic blood pressures at first diagnosis, and during the period of observation; and the clinical condition at the end of follow-up, that is, either 'no ill effects', 'complications' attributable to the high blood pressure and 'death' and its causes.

Results

Population at risk

During the period in which the hypertensives were being diagnosed, the average population at risk, aged 30–59, was 3,040. During this same period 270 people aged 30–59 were diagnosed as hypertensive. These 270 hypertensives represent the group from which came those who were observed for more than 15 years (table 1).

TABLE 1
HYPERTENSION IN 30–59 AGE GROUP—NUMBERS AND RATES PER 1,000

<i>Age</i>	<i>Males</i>		<i>Females</i>		<i>Total</i>	
	<i>Number</i>	<i>Rate per 1,000</i>	<i>Number</i>	<i>Rate per 1,000</i>	<i>Number</i>	<i>Rate per 1,000</i>
30–39	11	22	15	27	26	25
40–49	38	75	51	98	89	84
50–59	57	124	98	204	155	165
Total	106	70	164	104	270	88

Table 1 shows that in these hypertensives aged 30–59 at first diagnosis there were more females than males (1.5 : 1) and there was a progressive rise in incidence, represented as rates per 1,000 at risk, in both sexes.

Hypertensives followed for 15 years

From these 270 hypertensives there were 87 (24 males and 63 females) who have been followed for more than 15 years. The rates per 1,000 of these long-term survivors rose with age, suggesting that there was a greater chance of living longer with high blood pressure the older one was when the condition was first diagnosed. The chances of surviving more than 15 years were 2.5 times greater in females than in males. These M : F ratios also increased with age. Thus, in the hypertensives first diagnosed at 30–39 there were no real differences in the two sexes; at 40–49 there were twice as many long-term female survivors; and at 50–59 there were three times as many long-term female survivors (table 2).

TABLE 2
LONG-TERM (15 YEARS PLUS) HYPERTENSIVES

Age	Males		Females		Total	
	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
30-39	3	6	4	8	7	7
40-49	10	19	24	44	34	32
50-59	11	24	35	73	46	50
Total	24	16	63	40	87	30

Clinical condition of the long-term hypertensive survivors

Of the 87 long-term hypertensive survivors, 68 (78 per cent) were alive at follow-up in 1974 and 19 (22 per cent) had died after more than 15 years of observation.

Table 3 shows that among the 68 who were alive in 1974, 51 (58 per cent) had 'no ill effects' from their high blood pressure and 17 (20 per cent) had some 'complications' possibly related to their high blood pressure.

TABLE 3
CLINICAL STATE OF LONG-TERM HYPERTENSIVES

Age	No ill effects		Complications		Deaths		Total	
	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
30-39	3	3	3	3	1	1	7	7
40-49	21	21	6	5	7	6	34	32
50-59	27	29	8	9	11	12	46	50
Total	51	17	17	6	19	7	87	30
	58%	—	20%	—	22%	—	100%	—

The 17 *complications* comprised—five with coronary artery disease, six with cardiac failure, two with cerebrovascular disorders, three with eye complications and one with complications from long-term steroids for rheumatoid arthritis.

The 19 *deaths* comprised—two from coronary artery disease, four from less specific cardiac failure, six from cerebrovascular incidents, four from cancers, two from complications (bleeding) of duodenal ulcer and one suicide.

Blood pressure levels at first diagnosis

Table 4 shows the levels of diastolic blood pressure at first diagnosis. In most instances the hypertension was not severe. In 56 per cent the initial diastolic blood pressure was 100-109 mm Hg, in 29 per cent it was 110-119 mm Hg, in eight per cent it was 120-129 mm Hg, and in seven per cent it was 130 mm Hg and over.

The rates of complications and mortality were related directly to the high diastolic blood pressure levels. From tables 4 and 5 it is seen that there were six hypertensives with

initial diastolic blood pressures of over 130 mm Hg who survived without specific treatment for over 15 years and of whom two only have died in subsequent follow-up.

In table 5, although the numbers were small, the percentages of complications and deaths were related directly to the diastolic blood pressure levels, but even so, the proportions with 'no ill effects' were surprisingly high.

TABLE 4
LONG-TERM HYPERTENSIVES—DIASTOLIC BLOOD PRESSURES AT ONSET

	<i>Diastolic blood pressure at first diagnosis (mm. Hg)</i>				<i>Total</i>
	<i>100-109</i>	<i>110-119</i>	<i>120-129</i>	<i>130 and over</i>	
30-39					
Male	2	1	—	—	3
Female	2	1	—	1	4
Total	4	2	—	1	7
40-49					
Male	7	1	1	1	10
Female	12	9	2	1	24
Total	19	10	3	2	34
50-59					
Male	7	3	1	—	11
Female	19	10	3	3	35
Total	26	13	4	3	46
Total (30-59)	49 56%	25 29%	7 8%	6 7%	87 100%

TABLE 5
OUTCOMES AND INITIAL DIASTOLIC BLOOD PRESSURE

	<i>100-109</i>		<i>110-119</i>		<i>120-129</i>		<i>130 and over</i>		<i>Total</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
No ill effects	30	60	16	64	3	44	2	34	51	58
Complications	9	19	4	16	2	28	2	33	17	20
Deaths	10	22	5	20	2	28	2	33	19	22
Total	49	100	25	100	7	100	6	100	87	100

Blood pressure levels—trends

During the period of follow-up (table 6) the diastolic blood pressures remained unchanged in 18 per cent; in a half (52 per cent) the diastolic blood pressures increased and in a third (30 per cent) they fell.

It is wrong to assume therefore that once diagnosed the diastolic blood pressure will inevitably rise with age. In only one half did this happen. Of special interest were those one third in whom the diastolic blood pressure fell naturally during the period of observation.

In the 26 in whom there was a fall in diastolic blood pressure there were seven

deaths, a similar rate to the other groups. In 12 out of the 26 there were associated diseases that may have affected the blood pressure levels—there was a history of coronary artery disease in four, heart failure in five, cerebrovascular disorder in one, and fatal cancer in two.

TABLE 6
TRENDS OF DIASTOLIC BLOOD PRESSURE

<i>Age</i>	<i>No change</i>	<i>Rise</i>	<i>Fall</i>	<i>Total</i>
30-39				
Male	1	1	1	3
Female	1	—	3	4
Total	2	1	4	7
40-49				
Male	1	7	2	10
Female	5	13	6	24
Total	6	20	8	34
50-59				
Male	2	8	1	11
Female	6	16	13	35
Total	8	24	14	46
30-59				
Male	4	16	4	24
Female	12	29	22	63
Total	16	45	26	87
	18%	52%	30%	100%

Discussion

General practice offers special opportunities for long-term observation of people and their diseases. High blood pressure is a condition in which long-term observation offers opportunities for clarification of its natural history. In general practice there are other advantages. The whole spectrum of the condition can be observed and all grades are seen in an unselected manner. Research in general practice is relatively new and there has not been enough time for many long-term studies.

In this report a special group of hypertensives has been studied—those who have survived more than 15 years from time of diagnosis of their high blood pressure. They have not been treated and they represent a group of hypertensives who have lived at terms with their raised blood pressures. An examination of this group may help us to discover some characteristics of those hypertensives who do not require specific therapy.

This study shows that one third of hypertensives aged 30-59 had been followed for more than 15 years and that at the time of final assessment, which was 25 years in some instances, 58 per cent were still free from any apparent ill effects; another 20 per cent were still alive but had developed some complications that may have been related to the high blood pressure. Death had occurred in 22 per cent after more than 15 years of follow-up.

Who were the long-term survivors? There were 2.5 times as many females as males and the proportion of these individuals increased with age. That is, more long-term survivors occurred in those aged 50-59 than in 40-49 and these were more than in the 30-39 age group.

High blood pressure in general practice tends to be mild or moderate and in 85 per cent the initial diastolic blood pressures were between 100–120 mm Hg, but a good prognosis was noted also in those few whose diastolic blood pressures were higher than 120 mm Hg. There are therefore some hypertensives with very high diastolic pressures who can live for many years with such blood pressures.

Following these hypertensives, it was notable that in 30 per cent the diastolic blood pressures fell during the 15 years. Stewart (1971) noted a similar trend in his group of young male hypertensives. It should not be assumed that once high blood pressure is diagnosed it will go on rising with time.

Conclusions

The conclusions of this study are as follows. There is a group of individuals in whom the condition of hypertension is evidently benign and who will go on living for many years at terms with their high blood pressures.

In applying the art of medicine to the management of hypertension we have to accept that not all hypertensives will require long-term, possibly life-long specific hypotensive drugs. Taking this study with a previous one (Fry, 1974a) those hypertensives who can probably be left untreated are women, those who are over 60, and those with lower diastolic blood pressures (less than 120 mm Hg).

REFERENCES

- Fry, J. (1966). *Profiles of Disease*. E. & S. Livingstone: Edinburgh.
 Fry, J. (1974a). *Lancet*, 2, 431–433.
 Fry, J. (1974b). *Common Diseases: Their nature, incidence and care*. Lancaster: MTP.
 Stewart, I. Mc D. G. (1971). *Lancet*, 1, 355–359.

TRIMETHOPRIM-SULPHAMETHOXAZOLE [BACTRIM] IN GENERAL PRACTICE

A controlled comparison was made between trimethoprim-sulphamethoxazole (Bactrim) and penicillin V, tetracycline and nitrofurantoin, short courses being given to 200 patients in a London general practice.

In these five-day courses, penicillin was found to be somewhat superior to trimethoprim-sulphathoxazole in upper respiratory tract infections, but trimethoprim-sulphamethoxazole was more successful than nitrofurantoin in the treatment of urinary tract infection.

No great advantage was shown for any of the four drugs in cases of bronchial infection. Bacteriological examination of all patients before and after therapy was in agreement with the clinical findings.

Depression of the total white cell count, the neutrophil count and platelet count to levels often considered pathological occurred equally whichever drug was administered.

REFERENCE

- Seifert, M. (1973). *Clinical Trials Journal* No. 2, 11. (Author's summary).