A FOLLOW UP STUDY OF PATIENTS WITH MILD AND MODERATE HYPERTENSION

Pages with reference to book, From 227 To 230

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Abstract

Four hundred and thirty seven cases of hypertension, 137 with moderate and 300 with mild hypertension have been reviewed for the assessment of complications as observed at the time of registration and during the period of follow up. There was evidence of target organ involvement either singly or in combination in 180 (41.20%) cases. Various cardiovascular complications included myocardial ischaemia, left ventricular hypertrophy, congestive cardiac failure, cerebrovascular accidents, nephropathy and retinopathy. Follow up was considered satisfactory in 50 (15%) cases while 49 (85%) were defaulters. The quantum of complications may have been under-estimated due to a large number of those with a poor follow up. However, it was observed that frequency of complications was greater with higher degrees of hypertension and in those with mild hypertension who had other associated risk factors such as diabetes mellitus (JPMA 30:227,1980).

Introduction

Hypertension is an important cause of cardiovascular morbidity and mortality. A Hypertension Clinic was established 6 years ago to study the pattern of disease in Pakistani patients. In earlier communications, the general profile (Haider et al., 1977) and results of diagnostic evaluation (Haider et al., 1977) in first 300 patients were reported.

In this communication the results of follow up of these patients, over a period ranging from 6 months to more than 5 years has been reported.

Material and Methods

The patients were referred by various hospital out patient departments, local general practitioners and Diabetic Clinic of this unit. Hypertension was diagnosed when the systolic blood pressure was 150 mm of Hg and diastolic above 90 mm of Hg. Severity of hypertension was categorised according to the level of diastolic blood pressure (Phase IV) as follows:-

Mild Hypertension > 90-110 mm of Hg
Moderate Hypertension110-120 mm of Hg
Moderately severe
hypertension121-130 mm of Hg
Servere Hypertension > 130 mm of Hg

In chronic uncomplicated cases, the assignment of patients to various categories was done after 3 visits to the Clinic at weekly intervals. Blood pressure was measured after 10 minutes of rest with mercury sphygmomanometer using a standard size cuff.

A detailed history and examination was recorded in each patient at entry. Routine investigations carried out at Hypertension Clinic were Hb, total and differential leucocyte count, ESR, urine analysis, blood urea, serum electrolytes, serum uric acid, cholesterol, glucose tolerance test, ophthalmoscopy, electrocardiography and chest X-Ray for heart size. ECG was interpreted according to the Minnesota code (Black Burn, 1969). The usual practice in this clinic has been to start the treatment with diuretic

therapy and subsequent addition of other anti-hypertensive drugs like methyldopa, propranolol, reserpine or prazosin if necessary. Mild hypertension was treated when it was associated with complications or other risk factors of cardiovascular disease.
At intervals during follow up each patient underwent complete physical and laboratory check up including ophthalmoscopy and electrocardiography at least once a year or whenever it was needed. Patients who failed to report for more than six months were reminded by letters to report to the Clinic for a check up and evaluation.

Results

Four hundred and thirty seven cases of mild and moderate hypertension (296 females and 141 males) have been reviewed for the assessment of complications as observed at the time of entry and during the period of follow up. One hundred and thirty seven cases had moderate and 300 mild hypertension. Majority of the patients were in the age group between 31-60 years (Table 1).

Table I: Age and Sex Distribution of 437 Cases of Hypertension

Age group (years)	*Females (296)*	*Males (141)*
0-20	3	1
21-30	16	16
31-40	68	17
41-50	114	44
51-60	76	34
Above 60	19	29

A family history of hypertension was obtained in 34%, diabetes mellitus in 25.6%, coronary heart disease in 11.5%, cerebrovascular accidents in 8.5% and of gout in 0.7% cases (Table II).

Table II: Family History of 437 Cases of Hypertension

Diseases	*No. of patients*	*Percentage*
Hypertension	148	34
Diabetes mellitus ..	112	25.6
Coronary heart disease ..	50	11.5
Cerebrovascular accident ..	37	8.5
Gout ..	3	0.7

Various associated conditions included diabetes mellitus in 34%, renal lithiasis in 5.3%, urinary tract infection in 3%, lupus erythmetosus in 0.46% and myxoedema in 0.46% cases (Table III).

Table III: Associated Disorders Among 437 Hypertensives

Diseases	*No. of patients*	*Percentage*
Diabetes mellitus ..	148	34.0
Renal lithiasis	23	5.3
Urinary tract infection ..	12	3.0
Lupus erythematosus ..	2	0.46
Myxoedema	2	0.46

Table IV: Complications in 437 Cases of Mild and Moderate Hypertension During Follow Up.

Complications	Mild hypertension n=300		Moderate hypertension n=137	
	Number of patients	Percentage	Number of patients	Percentage
1. E.C.G. changes				
(i) Myocardial ischaemia	24 (14)*	8.0	25 (10)*	18.25
(ii) Left ventricular hypertrophy	24 (8)*	8.0	32 (6)*	23.35
(iii) Left bundle branch block	1	0.33	6	4.38
2. Congestive cardiac failure	6 (2)*	2.0	15 (4)*	10.9
3. Transient ischaemic attacks	1	0.3	1	0.7
4. Cerebrovascular accidents	4 (2)*	1.33	11 (2)*	8.0
5. Nephropathy	11 (6)*	3.33	7 (3)*	5.10
6. Retinopathy**	46 (23)*	15.33	65 (20)*	47.44
7. Deaths	5	—	4	—

*Figures in parenthesis denote the number with diabetes.
**7 patients had diabetic retinopathy as well.

As shown in Table IV, 25 (18.25%) cases of moderate and 24 (8.0%) cases of mild hypertension suffered from ischaemic heart disease. Diabetes mellitus was present as an associated factor in 8 of 25 (40%) cases of moderate and 14 out of 24 (58.33%) cases of mild hypertension with evidence of ischaemic heart disease. Left ventricular hypertrophy was detected on electrocardiography in 32 (23.35%) of moderate and 24 (8.0%) cases of mild hypertension.

Left bundle branch block was observed in 6 cases of moderate and only one case of mild hypertension. Fifteen (10.9%) cases of moderate hypertension developed congestive cardiac failure while it was observed in only 6 cases (2%) of mild hypertension.

Cerebrovascular accidents occurred in 11 (8%) cases of moderate and 4 (1.33%) cases of mild hypertension with diabetes as an associated factor in 2 cases in either group.

The presence of nephropathy was considered according to:-

(i) Blood urea <145 mg% and/or

(ii) Albuminuria ++with or without microscopic inclusions such as casts in the sediment.

Thus defined nephropathy was present in 7(5.10%) cases of moderate and 11 (3.33%) cases of mild hypertension. However, this group of patients with nephropathy included 9 diabetics.

Various grades of hypertensive retinopathy were noticed in 46 (15.32%) patients of mild hypertension including 5 cases who had diabetic retinopathy as well. Out of these 46 with hypertensive retinopathy 23(50%) had associated diabetes mellitus.

Sixty five (47.44%) cases of moderate hypertension developed various grades of retinopathy which included 2 cases who also had diabetic retinopathy. Diabetes as an associated disease was present in 20(30.7%) of these 65 patients.

There were 9 deaths during the follow up period, 4 died of myocardial infarction, one of cereberal haemorrhage and another who had diabetic nephropathy died of renal failure. In the remaining 3 cases the cause of death could not be definitely ascertained.

The mean cholesterol levels were higher i.e., 235.92 mg'% in patients with moderate hypertension and coronary heart disease (CHD) and lowest i.e., 210.70 mg% in uncomplicated mild hypertension. It has also been observed that patients with moderate hypertension who developed CHD were relatively younger (average age 51.60 years) as compared to those with mild hypertension associated with CHD (average age 55.50 years) (Table V).

Table V: Mean Age and Mean Cholesterol Values in Hypertensive with and without Coronary Heart Disease.

Parameters	Hypertensives without C.H.D. n=388		Hypertensives with C.H.D. n=49	
	Mild Hypertension n=276	Moderate Hypertension n=112	Mild Hypertension n=24	Moderate Hypertension n=25
Average age (years)	46.90	47.17	55.5	51.6
Average cholesterol levels in mg%	210.70	216.10	216.26	235.92

These patients with hypertension were followed for a period varying from 6 months to more than 5 years. Thus 36.39% patients had been followed up for 2 to 5 years, and 32.20% for less than 2 years while 31.35% cases defaulted after registeration (Table VI).

Table VI: Duration of Follow Up of 437 Hypertensive Patients

Duration of follow up	No. of patients n=437	Percentage
1-1 year	55	12.58
1-2 year	86	19.68
2-3 years	56	12.81
3-4 years	42	9.85
5 years and above ..	60	13.73
Lost after registration ..	138	31.35

The follow up status was assessed according to the following criteria :-
(i) "Regular" if the patient appeared regularly for more than 4 times/year.
(ii) "Satisfactory" if at least once in three months i.e., 4 times/year.
(iii) "Irregular" if less than 4 times/year.

According to these criteria 27.50% patients were regular during follow up period, in 22.65% eases follow up was satisfactory while 18.33% patients were irregular. 31.52% were lost to follow up after initial registration despite repeated postal requests (Table VII).

Table VII: Status of Follow Up among 437 Hypertensive Patients

Status of follow up	No. of patients n=437	Percentage
Regular . .	120	27.50
Satisfactory . .	99	22.65
Irregular . .	80	18.33
Lost to follow up . .	138	31.52

Control of blood pressure was called satisfactory if during 60% attendance at the Clinic-blood pressure was within normal limits (<140 mm of Hg systolic and <90 mm of Hg diastolic) in mild cases and 15 mm Hg lower than at entry in moderate hypertension. Thus control was satisfactory in 80.8% cases out of the 50.15% patients who attended the Clinic for observation.

Discussion

Experience with Hypertension Clinics in Pakistan is somewhat limited and follow up of these patients presents considerable problems. Besides, the treatment of hypertension itself imposes economic burden on a large number of patients.

Our own follow up of the patients was done under conditions of a special Hypertension Clinic with some incentive to the patients including free consultation, investigations and help in the management and medications. Inspite of this we have fallen short of the ideal and regular follow up is hard to achieve.

In general ischaemic heart disease was the most common complication followed by congestive cardiac failure and cerebrovascular accidents. Due to a large number of defaulters at follow up the quantum of complications may have been underestimated. Of the patients with mild hypertension who developed various complications, a significant number had associated diabetes.

Another interesting feature was that mean cholesterol values were higher in patients with moderate hypertension developing CHD, who were also relatively younger compared to cases of mild hypertension who developed ischaemic heart disease. This indicates that combination of high cholesterol values with higher degrees of hypertension can accelerate the process of atherosclerosis.

As mentioned earlier the magnitude of all the complications is probably underestimated due to a sub-optimal follow up and this is one of the shortcomings of this study. However, considering the fact that substantial percentage had cardiovascular complications at some stage, the problem of hypertension and its complications needs further attention. There are numerous problems in detection, investigation and the expense involved in drugs therapy. One of the tentalising questions is whether or not to treat those cases of mild hypertension who have no evidence of target organ involvement

A recent study carried out in U.S.A. on community basis has strongly recommended the need for active treatment of mild hypertension showing nearly 17% reduction in mortality rate of those who had active treatment for mild hypertension. The protective effects of antihypertensive drugs may be more striking when hypertension is severe and the risk of cardiovascular events greater, but according to this study even patients with diastolic pressures of 90-104 mm of Hg would be helped by appropriate drug treatment(Relman, 1980). However, in view of the differences in the biological behaviour of disease in different communities, the need for prospective studies in different regions is stressed.

References

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