Study of Hypertension in Nepalese and Its Treatment

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Uptil now no attempt has been made in Nepal to throw light on the incidence of an important condition like hypertension that demands so much knowledge, acumen and judgement of the physician for its rational management specially in presence of the increasing number of potent hypotensive agents. That systemic hypertension is not an uncommon entity of this place is revealed by this report. It appears to be mainly essential in type. Complications like myocardial insufficiency, heart failure and cerebral vascular accidents occur quite frequently.

We fear if our investigations are academically adequate. Due to limited resources available to us, detailed and elaborate investigations like i) urinary white cell excretion test (Haughten & Pears 1957, 1958) noting the effect before and after the use of pyrogen and/or steroids (Katz & Moore 1962), ii) Renal tomography (Hudson), iii) renal biopsy (iv) aorto and renography v) Cinecinomatography for vesical reflux could not be done in all our cases. But the investigations like urine examinations in all the cases and kidney function test, other biochemical tests, skiagrams of abdomen and chest, excreting pyelography and E.C.G. were performed as and when necessary. Another major handicap in the confirmation of certain etiological factors is the lack of necropsy study which according to the custom is not permitted to be done.

METHODS AND MATERIALS:—

40 patients admitted to medical ward and 34 cases attending medical out-patient department of Bir Hospital were studied from April 1966 to January 1967. The admitted cases were either acutely ill or those needing close supervision and or further investigations.

The presenting complaints with the duration of the illness and any illness specially of urinary system were noted down. Clinical examinations included a review of all systems. Several readings of B.P. were recorded both in lying and standing positions before resorting to therapy. The systolic pressure was taken at the point at which the sound was first audible on auscultation and that of diastole when the sound became muffled. Hypertension was thought to be present when the diastolic pressure was at or above 100 mm of Hg. except in two young patients who had the B.P. below 100 mm of Hg. but above 95 mm of Hg. Systolic pressure was at or above 160 mm of Hg. in all but 5 cases Funduscopy was done invariably. Clinical examinations were done to see any abnormality of the urogenital tracts in the male. But per vaginum examination in the famle patients could not be done to exclude the possible source of infection. Routine clinical examination including frequent B.P. measurements nothing the time taken to bring B.P. to maintenance level with different theraphy were done during the hospital stay and at follow-up examinations. Apart from above figures, 31 more cases came under the observation. Since they could not be examined from our criteria, they have been included in the not-well followed up group.

INVESTIGATIONS:—

Mid-stream urine examinations were done in all patients as far as possible for albuminuria glycosuria and for any abnormalities in centrifuged deposit. A routine blood examination was done in the neepy patients. Case of malignant hypertension and impaired kidney functions were subjected to blood urea estimations. Blood sugar was done in the suspected and know diabetics. wasserman reaction and Kahn tests were performed in three cases of cerebral thrombostic of which one showed positive results. Intravenous pyelography and assessment of renal function, from urine concentration and dilutson were carried in some cases. Renal biopap was not done. A routine x-ray chest was done in all hospitailshed cases and in few of the other follwed up cases sparing none with clinical heart failure and enlarged heart. Lumber puncture was done in suspected casec of cerebral haemorrage and positive in five cases. Selective E.C.G. was done in young and middle aged persons with high B.P., and praecordial pain, dyspnoea and one case of

malignant hypertension.

Diagnosis was made from assessment of clinical findings and investigations. Differentiation from Conn's disease, Cushing syndrome pheochromocytoma and coarctation of aorta were mainly clinical.

RESULTS:—

In all, 104 cases were studied of which only 74 cases were well followed and the rest was not followed. The features described are related to well followed up cases only unless otherwise specially mentioned. (Age and sex distributions are shown in fig no) 43 out of 74 cases were seen in 5th & 6th decades and age ranged from 18 years to 80 years. There were 41 males and 33 females; 51 of them belonged to middle class, 21 to poor class and 2 to high class, 25 of the females were housewives, There were 13 labourers and farmers, 26 males were doing office work skilled and unskilled work or technical job. In three professionals of not well followed up group, it was observed that systolic B.P. tended to remain at normal level while diastolic B.P. remained high. Two families of husband and wife were found to be affected. Five persons excluding one in not well-followed up group were obese. There were two arteriosclerotics in follwed up series and 3 in not well-followed up group, Familie history was obtained in two excluding 3 cases in the not well followed up group.

PRIMARY AND SECONDARY:—

Diastolic B.P. is usually higher in secondary from, 10 out of 11 cases had diastolic B.P. higher than 130 mm of Hg. The sex distribution in the secondary from is almost equal. (The incidence of primary & secondary hypertension in relation to age is seen in fig. 2). Essential hypertension appears uncommonly in the younger age group. It was encountered in 53 cases from 5th to 8th decades, of which 38 were present in 5ht and 6th decades. Males and females have almost equal incidence in both types except for the fact that·/. essential hypertension tends to occur more in males in 7th and 8th decades. Though the diastolic pressure range was not high, maximum incidence of 43 out of 73 cases was noted in 5th and 6th decades. From 2nd to 5th decades, severe cases in terms of raised diastolic pressure

and also malignant hypertension were found to be more common. Though incidence of hypertension is low (4 cases only) in 2nd decade, two cases were detected to be of malignant hypertension. There were 15 cases only in 2nd-4th decades.

As to the (Fig. 3 shows) the relationship of diastolic pressure to abnormality in the optic funds, 13 out of 15 cases had severe retinal changes; aneuroretinopathy and papilloedema are associated with diastolic pressure higher than 140 mm of Hg, in 8 out of these 13 cases, (and diabetic retinopathy was noted in one without any sclerotic changes and had diastolic B.P. above 160 mm of Hg.

In the secondary hypertension, there were two cases of K.W. syndrome, 4 of chronic pyelonephritis of and six cases of acute exacerbation over chronic nephritis. There were 5 out of 6 cases of malignant hypertension in the latter.

PRESENTATIONS:—

Majority of the patients had symptoms at the time of consultation. Onla 8 cases did not have any difinite complaint and was detected on routine check up. 20 people had headache & giddines, also being present in 16 cases. 9 people were admitted with cerebral vascular accidents with neurological deficit and only one had hypertensive encephalophathy amongst them. 5 out of six deaths were due to vascular accidents and 4 out of six were taken against medical advice as they were serious. 9 cases were brought with features of Lt. ventricular failure. Apart from it, three people had exertional dyspnoea as well. 8 people had features of impaired renal functions e.g., oliguria. Frequency of urine was noted in two besides cramps in the legs in one. One had clinical features suggestive of coronary attack with negative E.C.G. findings. Haematuria, heametemesis, black spot in front of the eyes and temporary blindness was seen in one case each. Nervousness was found to be present in two persons. There was history of nervous shock in one due to demotion. Two people were cognizant of hypertension and one was very apprehensive. Three people were recognised to have fits. Only one had insomnia during the illness. Besides in few people there were symptoms related to arterial pressure viz., epistaxis, failing vision, pain-eye, palpitation. Table II

I. B.P. recorded before theraphy shows that 49 cases in 160-210/110-150 mm of Hg. and 5 cases have systolic 160-270/110-170. They fall in the B.P. charting as shown in the figure malignant hypertensive cases of had diastolic pressure at or above 140 mm of Hg. and systolic 200 or more

INVESTIGATION:— (TABLE III)

Only 15 cases had abnormal urine albumin was present in 15 cases, pus cells in urine', in 10, r.b.c. in 7, cases and low & fixed sp.gr. in one. E.S.R. was markedly raised in one case only. Blood sugar was markedly raised in two. Blood urea was raised in 8 cases. Blood was presen' in csf in 5 cases. One case of carebral thrombosis had positive (moderately) W.R and Kahn tests. 21 cases had normal x-ray chest except one with calcification in the aortic knuckle and at the base of the rt. lung. 20 cases had enlarged heart. In the latter group, two had bilateral pleural effusion, one with rt. sided pleural effusi n and six had pulmonary hypertension radiologically. No x-ray chest was done in 33 cases, IVP. done in few case was normal except is one-which shown Non-functing Rt. Kidney.

E.C.G. was abnormal in 10 cases, showing lt. ventricular strain in 3 and lt. ventricular hypertrophy in 7. One of the hypertrophied case had atrial tachycardia as well. Out of 4 normal E C G., one had attack of coronary thromdosis clinically.

Apart from urine and x-ray chest examinations no other investigations were done in 33 cases.

TREATMENT:—

Out of 43 cases in 5th and 6th decades 24 cases which had diastolic pressure ranging from 110-129 mm of Hg. were treated with adelphane-esidrex alone with quite satisfactory results and in six guanethidine was resorted to and, 4 to the combination of adelphane-esidrex and ismelin. In all, 14 cases weretreated with ismelin including six patients with malignant hypertension. To only one case of diastolic B.P., below 120 mm of Hg. ismelin had to be given due to fluctuating B.P. Cases were originally treated with aldomet before switching on to ismelin therapy due to failure of B.P. control by other treatments, or excessive drowsiness. Two cases each of 2nd, 3rd and 4th

decades were treated by ismelin. 6 out of nine were treated with the combination of adelphane esidrex and ismelin belong to 5th decades onwards. Two cases were serious enough to warrant the use of ansolysen as well, of which one with cva expired. None had postural hypotension which necessitated the withdrawal of ismelin though one had diarrhoea controlled by antrenyl. The highest dose of ismelin used was 100 mg/day. 12 treated cases had diastolic pressure above 140 mm of Hg. and only three of them were under adelphane-esidrex, aldmost.

II ALDOMET:—

Out of three treated with this drug, two were of secondary type having one death due to uraemia. During his life time the latter had an episode of postural hypotension.

PHENOBARB:—

Two cases having diastolic B.P. below 119 were treated with only,

IV) DIURETIC:—

Only 2persons were put on diuretics alone (Navidrex one tab twice a week). Both of them had high systolic pressure, But one in 6th decade had diastolic pressure between 95-100 and other in the 3rd decade between 130-139.

V)

Multiple therapy was given in a case of CVA whohad preciplate fall B.P. and succumbed to death.

VI)

No therapy was given to five cases and their diastolic B.P. did not excced 129 mm of Hg. Amongst them, one and marginal B.P. of 155/95; one had coronary attack clinically, and two had CVA. one of CVA. with haemorrhage expired. A case of chronice cor-pulmonale with it. ventricular failure improved simply on digital is preparation considerably and no treatment was instituted for hypertension as he could not afford long term therapy. Raised diastolic pressure with symptoms rather than the factors of age and atheromatosis appeared to be significant for th initiation of therapy.

Of the 16 people in 7th and 8th decade,4 patients were acutely ill and three were diabetic including 2 of k.w. syndrome. all but three diastolic B.P. above 121 mm of Hg. were treated as they had symptoms. Those two cases were of cerebral thrombosis and of clinical coronary attack. so also the cases of 5th & 6th decades except one who was treated.

MAINTENANCE LEVEL:—

Time taken to bring B.P. to the maintenance level has been showu in Tbale III) The time interval could not be knowu in 21 cases. It was not be known in of cases (24 out of 50) took 4-12 days. only 21 of the remaing took 15 to more than 21 days. It appears from this data that maintenace level of B.P. can be attained on average of 21 days irrespective of the type and mode of the hppotensive agents used including the time taken by the changing of the drugs in severe and fluctuating case . Systolic pressur was maintaned at 121-160 in 44 cases and over 160 mm of Hg in 17 cases. The diastolic pressure was maintained between 80-95 in 30 cases and from 96-100 mm of Hg. in 15 cases. In 12 people it was maintained between 105,100 mm of Hg. Only three cases had the maintenance B.P. above 110 mm Hg. B.P. could not be known in three, due to death soon after It was fluctuating in 5 cases.

MORTALITY:—

Cases of CVA were found to be quite sever and maximum death rates were due to it.

DISCUSSION.

From this study of 104 cases including the few, seen in other parts of the country, it can be roughly said that hypertension is not an uncommon entity in Nepal particularly in Kathmandu valley. It appears mainly to be essential in type as evidenced by 62 cases out of 74 well followed patients. That essential hypertension usually shows more or less gradual rise of pressure with age, is in consistent with our finding of 59 cases from 5th-8th decade A lower proportion of cases (7 out of 62 cases from 2nd- 4th decades) has been observed in the present stuay as compared to platt's series of 16 out of 64 hypertensive patients (1948). Kidney disease has been found

to be the chief cause of secondary hapertension (12 cases) . Six patients had acute exacerbation on chronic nephritis, 4 had pyelonephritis and two due to K.W., syndrome. In one patient with acute exacerbation of chronic nephritis, urine examination did not show any cast. Such a finding has been found by Goerge Pickering in his series also.

We came across a 18 year old who had headache gradually increasing in severity over two months and developed fits and blindness with 270/170 B.P. on the day of admission. He was found to be secondarily hypertensive due to pyelonephritis. A rapid rise of pressure according to Pickering, over a short period should arouse of the possibility of a new development of pyelonephritis or renal artery stenosis. As examplified by the above cases and another girl of 19 years of age having acute exacerbation of ch. nephritis with 200/140 B. P., we agree with PLATT'S law stating that young patients with gross hypertension nearly always have a form of secondary hypertension We could not exclude the possibility of concomitant renal artery stenosis in the former by aortography as it usually produces considerable elevation of pressure developing very quickly. However renal artery stenosis is more commonly seen in the older age group than the younger patients (Peart et al 1960) probably due to increased tendency to atheromatosis (De Camp and Birchill 1958).

Professions involving the mental work carried the definite risk for hypertensions .30 out of 50 cases) in 3rd& 5th decades are found to be hypertensive though the number of cases studied was not adequate, incidence of both types of hypertension appeared slightly more in males. The people with higher social status were usually obese probably because of sedentary habits. Renal hypertension is more common in poor class of people. Three families had the family background of hypertension. Inmost of the cases, family, history of hypertension could not be known.

Only in 8 cases detected on routine check up, hypertensive agents were used because of high diastolic pressure though they were symptom free. As majority of the patients coming to hospital for admission with major episodes like CVA and it. Ventricular failure or infraction, did not give any previous history suggestive of hypetrension, it indicates either they remain

symptom free for some time, in spite of raised pressure or they do not give much importance to the minor symptoms like headache, giddiness, etc.

Compared to males, females needed higher doses of more potent drugs. We did not find any haemorrhage or exudate in benign essential hypertensive group.

As to the relationship of cardiac pain with hypertension, we had only one patient who had proecordial pain related to exertion. One patient who had definite E.C.G. evidence of posterior inftraction had no history of pain. The other patient whose pressure fell from (190/110) to 70/40 mg of Hg. and persisted for about 48 hrs in spite of pressure amines had no severe praecodial pain.

Sevree hypertension with more than 140 diastolic pressure usually needed ismelin for the satisfactory control excepting two cases who responded to adelphane esidrex and one to aldomet. Few people with high pressure treated initially with methyldopa did not give satisfactory response and had to be treated with ismelin.

In the 2nd and 3rd decades, we had 4 cases each, out of which two were malignant in the second decade. Majority of the cases were in the 5th and 6th decades with highest mortality rate.

It took an average two to three months for the malignant phase to revert back to the benign phase.

As to the duration of the treatment to bring the pressure to satisfatory livel, on an average it took 21 days, though only in one cases it could not be brought down to the satisfactory lavel even after two months.

In most of the cases, the pressure could be maintained below 160 mm systolic & below 95 diastolic though in few cases diastolic pressure had to be maintained between 100mm and 110 mm Hg.

SUMMARY:-

Total number of cases studies were 1o4 out of which 74 were well followed up cases. of the 74 cases, 12 were of secondary hypertension, 5 out of 6 malignant hypertension were renal in origin. Malignant hypertension was not seen in age groups above 60 yrs. Haemorrhages and or exudates were not seen even in a singie cases of benign essential hypertension. Other cases of hypertension like renal artery steonsis, collagen disease or coarctation of aorta were not encountered in our series though one cases of coarctation of aorta and one of systemic D.L.E. were encountered without hypertension. In severe hypertension, guanathidine proved to be a more useful drug.