

## BLOOD PRESSURE; SURVEY OF SENIOR CIVIL SERVANTS

**DR. MUHAMMAD RASHID CHAUDHRY,**  
**MBBS, MRCP, FRCP**  
Associate Professor of Cardiology  
Shaikh Zayed Postgraduate Medical Institute,  
Lahore.

**MR. FARHAD A. CHAUDHRY,**  
Final year medical student  
Aga Khan Medical University, Karachi

### ABSTRACT

We investigated Blood Pressure of asymptomatic senior sedentary civil servants. **Aims & Objectives:** 1-To find out Blood Pressure trends in the normal working people. 2- To offer antihypertensive treatment to hypertensive people. **Study Design:** A prospective study, descriptive in design. **Subjects:** 120 senior civil servants that have been in job for 25 or more years were included in this trial. **Setting:** Garden Clinic, Garden town, Lahore. **Period:** January February March 2001. Results: There were total 120 patients in this study. There were 39(32.5%) hypertensive patients, out of these, 20(51.2%) were diagnosed and put on treatment but only 16(41.02%) had their BP controlled and 4(10.25%) had uncontrolled BP on treatment. 19(48.71%) patients out of 39 were not diagnosed. In this way 23(58.97%) patients were effectively untreated, only 16(41.02%) patients were adequately treated. **Conclusion:** Hypertension in our population is undiagnosed and untreated, mostly. Much wider and extensive network of health services is needed to detect and treat these patients earlier to halt their progression to complications which require more expensive treatment and have poor prognosis.

### INTRODUCTION

Hypertension can go unnoticed, as it may not produce any symptoms. It should be detected and treated before time to reduce the risk of developing complications<sup>1</sup>. As age advances prevalence of hypertension as well as its complications, rises<sup>2</sup>. Blood Pressure increases steadily with age in industrialized countries but not always in non-industrialized nations<sup>3</sup>. If continues uncontrolled it can cause very serious organ

damage. Heart failure, ischemic heart disease, aortic aneurysm, stroke, dementia, encephalopathy, retinopathy, renal failure, and peripheral vascular disease resulting in limb loss are some of the consequences of uncontrolled hypertension. The effect can be mild discomfort to severe loss of function of the organs resulting in very high morbidity and mortality. Treatment on the other hand has proved to be extremely rewarding. Meta-analysis of trials of treated

hypertensive has shown the relative risk reduction of 40% in stroke, 20% in coronary heart disease<sup>4,7</sup>, and 46% in cardiovascular mortality<sup>8, 9</sup>. The treatment is life long, and expensive hence causes frequent breaks in compliance especially in financially constrained societies like ours. In this backdrop our study will provide ideas to safe guard against harmful effects of this silent disease

**MATERIAL & METHOD**

The Medical Officer of an Institute referred all patients for health survey. Their past medical history was provided on the referral paper. All patients were thoroughly examined by consultant cardiologist after taking thorough history. Their present and past medications were recorded. Special attention was paid on physical examination to target organ damage. Cardiac apex, fundoscopy, and peripheral pulses of limbs were checked. Their blood pressure was recorded at the end of the history and physical examination. Mercurial Sphygmomanometer was used. Korotkov sounds phase 1/V (start of sounds and disappearance of sounds) was used for systolic and diastolic phase of BP. The WHO/ISH definition of hypertension was followed as systolic BP  $\geq 140$  mmHg and/or a diastolic BP  $\geq 90$  mmHg, Isolated systolic hypertension which is common in older people, was diagnosed when the systolic BP  $\geq 140$  mmHg with diastolic BP  $< 90$  mmHg. Electrocardiograph was recorded by a trained technician on automatic Electrocardiography machine. Their ECG's were recorded on heat sensitive paper. A consultant cardiologist reported all electrocardiograms with special attention to left ventricular hypertrophy and other signs of heart damage. Any further tests were carried out or advised if indicated. All the patients were advised treatment where appropriate.

**RESULTS**

There was 120 patients of both sexes in this study. There were 119 males and 01 female with M: F ratio of 119:01. Their age ranged from 40 years to 59 years with mean age of 50.65 years SD  $\pm 4.08$  CI [95%] 0.73. Their weight ranged from 50 kgs to 105 kgs mean 72.18, 50  $\pm 11.19$ , CI [95%] 2.02. There were 39 (32.5%) hypertensive people.

**Table-I. Blood pressure of study population-mmHg (n-120)**

120/80-130/80	131/81-140/90	141/91-160/110	161/111-200/140	>200/140
66 (55%)	22 (18.3%)	17 (14.16%)	12 (10%)	03

There were 20 (51.02%) patients out of 39 who knew about their hypertension and were put on treatment. Blood pressure of those 20 on treatment was controlled in 16 (41.02%) patients, remaining 4 (10.25%) patients were still carrying high Blood Pressure. There were 19 (48.71%) patients who did not know about their high blood pressure and therefore were not on any treatment. Blood pressure distribution in our study is given in Table-I

**Table-II. ECG changes in Hypertensive patients (n=39)**

ECG changes	Number	% age
Normal ECG	11	28.20
LVH	07	17.9
High Voltage	01	2.56
RBBB	01	2.56
S. Tachy	02	5.12
S.Brady	01	2.56
Q-III	03	7.69
Q-avl	01	2.56

Q-avf	02	5.12
-------	----	------

Table-III. Stratification of risk to quantify prognosis (adopted from WHO/ISH) <sup>15</sup>			
Other risk factors and disease activity	BP mmHg		
	Mild HTN SBP140-159orDBP90-99	Mod. HTN SBP160-179orDBP100-109	Severe HTN SBP>=180 orDBP>=110
No other risk factor	Medium risk	Medium risk	High risk
1 -2 risk factors	Medium risk	Medium risk	Very high risk
3 or > risk factors Target organ damage or Diabetes	High risk	High risk	Very high risk

**DISCUSSION**

In this study 39 (32.5%) people out of 120 were hypertensive. 20 patients (51.2%) out of these 39 were on treatment, BP of 16 patients (41.02%) out of these 39 was adequately controlled, while 04 (10%) patients had uncontrolled BP either due to poor compliance or inadequate treatment. The 19 (48.71%) out of these 39 hypertensive patients were not on any treatment because their disease was undiagnosed. A total 23 (58.90%) of hypertensive patients were without treatment. This much lack of detection and inadequate treatment prevails all over the World. A survey in England has shown that while most hypertensive get detected there but they either did not continue treatment or had not proper control on treatment<sup>10</sup>. A recent US military veterans study has also showed that many hypertensive patients do not receive sufficient treatment".

Hypertension is insidious in onset and mostly asymptomatic. Essential Hypertension is usually a chance finding while secondary hypertension can

produce symptoms of causative disease and be detected earlier. Since 90% of hypertension is of essential type this disease has to be sought and treated to protect people from its harmful effects. The beneficial effects of treating hypertension are proven by WHO/ISH<sup>12</sup>. The US Joint National Committee on prevention, Detection, Evaluation and treatment of High BP (JNC-VI)<sup>13</sup> and revised British Hypertension Society (BHS) guideline<sup>14</sup>. The management of hypertension has to take into account risk factors along with the degree of Hypertension. The adversely associated factors are age. 55(men) > 65(women) smoking, diabetes, obesity, left ventricular hypertrophy, proteinuria, raised creatinine >150mol/l stroke, dementia, ischemic heart disease and peripheral vascular disease<sup>15</sup>.

The management of hypertension should include life style modification, which is cheaper, hence suits more to our society. By simply decreasing sodium chloride (common salt) intake from 10g to 5g, a reduction in BP around 5/3mmHg in

hypertensive patients can be achieved<sup>16</sup>. The effects are greater in older population and in those with higher BP. This much decrease in sodium intake occurs by avoiding processed food and by not adding salt at table. By increasing fruits and vegetables consumption total body potassium is increased and body weight is reduced. A diet high in fruits, vegetables and low in saturated fats lowers BP<sup>18</sup>. BP can also be reduced by taking regular exercise. A 30-45 minutes brisk walk most days of a week reduces weight as well as BP<sup>19,21</sup>. All patients should be advised to stop smoking as it accelerates hypertension into malignant phase. Alcohol intake should also be reduced, it is an important risk factor for hypertension<sup>22</sup>. causes resistance to anti-hypertensive drugs<sup>23</sup> and is a risk factor for stroke<sup>24</sup>. Present day anti-hypertensive drugs are very effective and have fewer side effects.

The beneficial effects of treating hypertension greatly outweigh adverse effects in the published trials<sup>25,31</sup>. The cheaper and the long standing drugs should be started at first. Patients should be advised to bring a BP record on next visit, an alternate is ambulatory BP monitoring. Since there were (48.9%) 23 patients in need of effective treatment of hypertension in an institute where in house medical care is available. It is advisable to increase medical check ups of this study population. It is also proper to point out here that we had studied a working population where the employer had arranged medical care at the premises and found 48.7% patients without treatment. The treatment facilities are not available at work place or nearby at most places hence our population needs a lot more medical services to cover the hypertensive patients in the society, especially our rural population

## CONCLUSIONS

Hypertension in our population is undiagnosed and untreated. Much wider and extensive network of health services is needed to detect and treat these patients earlier to halt their progression to complications which require more expensive treatment and have poor prognosis.

## REFERENCES

1. Cholesterol, diastolic blood pressure and stroke: 13,000 strokes in 450,000 people in 45 prospective cohorts. Prospective studies collaboration. *Lancet* 1995;346:1647-53.
2. Mac Mahon S, Peto R, Cutler J, Collins R, Sorlie P, Neaton J, et al. Blood pressure stroke and coronary heart disease. Part 1, Prolonged differences in blood pressure prospective observational studies corrected for the regression dilution bias. *Lancet* 1990; 335:765-74.
3. Carvalho JJ, Baruzzi RG, Howard PF, Poulter N, Alpers MP, Franco LJ, et al. Blood pressure in four remote populations in the INTERSALT Study. *Hypertension* 1989; 14:238-46.
4. Thijs L, Fagard R, Lijnen P, Staessen J, Van Hoof R, Amery A. A meta-analysis of outcome trials in elderly hypertensives. *J Hypertens* 1992;10:1103-9.
5. Insua JT, Sacks HS, Lau TS, Lau J, Reitman D, Pagano D. et al. Drug treatment of hypertension in the elderly: a meta-analysis. *Ann Intern Med* 1994; 121: 355-62.
6. Pearce KA, Furberg CD, Rushing J. Does antihypertensive treatment of the elderly prevent cardiovascular events or prolong life? A meta-analysis of hypertension treatment trials. *Arch Fam Med* 1995; 4: 943-9.
7. Holme I, Ekelund LG, Hjermmann I, Leren P. Quality-adjusted meta-analysis of the hypertension/coronary dilemma. *Am J hypertens* 1994; 7: 703-12.
8. Gueyffier F, Froment A, Gouton M. New meta-analysis of treatment trials of hypertension;

- improving the estimate of therapeutic benefit. *J Hum Hypertens* 1996; 10:1-8.
9. Hebert PR, Moser M, Mayer J, Glynn RJ, Hennekens CH. Recent evidence on drug therapy of mild to moderate hypertension and decreased risk of coronary heart disease. *Arch Intern Med* 1993; 153:578-81.
  10. 1999 World Health Organisation - International Society of Hypertension Guidelines for the Management of Hypertension, Guidelines subcommittee. I. *Hypertension* 1999; 17:151-83.
  11. The sixth report of the Joint National Committee on prevention, detection, evaluation and treatment of high blood pressure. *Arch Intern Med* 1997; 157: 2413-46.
  12. Ramsay L, Williams B, Johnston G, MacGregor G, Poston L, Potter J, et al. Guidelines for management of hypertension: report of the third working party of the British Hypertension Society. *J Hum Hypertens* 1999; 13:569-92.
  13. 1999 World Health Organisation-International Society of Hypertension Guidelines for the Management of Hypertension, Guidelines subcommittee. I. *Hypertension* 1999; 17: 151-83.
  14. Colhoun MM, Dong W, Poulter NR, Blood pressure screening, management and control in England: results from the health survey for England 1994; *J Hypertens* 1998; 16: 747-52.
  15. Berlowitz DR, Ash AS, Hickey EC, Friedman RH, Glickman M, Kader B, et al. Inadequate management of blood pressure in a hypertensive population. *N Engl J Med* 1998; 339:1957-63.
  16. Whelton PK, Appel LJ, Espeland MA, Applegate WB, Ettinger WH JR, Kostis JB, et al. Sodium reduction and weight loss in the treatment of hypertension in older persons: a randomized controlled trial of non-pharmacological interventions in the elderly (TONE). TONE Collaborative Research Group, *JAMA* 1998; 279: 839-46.
  17. Modgley JP, Matthew AG, Greenwood CM, Logan AG. Effect of reduced dietary sodium on blood pressure: a meta-analysis of randomized controlled trials. *JAMA* 1996; 275:1590-7.
  18. Appel LJ, Moore TJ, Obarzanek E, Vollmer WM, Svetkey LP, Sacks FM et al. A clinical trial of the effects of dietary patterns on blood pressure. DASH Collaborative Research Group. *N Engl J Med* 1997; 336:1117-24.
  19. Braith RW, Pollock ML, Lowenthal DT, Graves JE, Limacher MC. Moderate and high-intensity exercise lowers blood pressure in normotensive subjects 60 to 79 years of age. *Am J Cardiol* 1994; 73:1124-85.
  20. Kokkinos PF, Narayan P, Collier JA, Pittaras A, Notargiacoma A, Reda D, et al. Effects of regular exercise on blood pressure and left ventricular hypertrophy in African-American men with severe hypertension. *N Engl J Med* 1995; 333:1462-7.
  21. Paffenbarger RS, Hyde RT, Wing AL, Lee IM, Jung DL, Kampert JB. The association of changes in physical-activity level and other lifestyle characteristics with mortality among men. *N Engl J Med* 1993; 329:538-45.
  22. Stamler J, Caggiula AW, Grandits GA. Relation of body mass and alcohol, nutrient, fiber and caffeine intakes to blood pressure in the special intervention and usual care groups in the Multiple Risk Factor Intervention Trial. *Am J Clin Nutr* 1997; 65(suppl 1): 338S-365S.
  23. Puddey IB, Parker M, Beilen LJ, Vandongen R, Masarie JR. Effects of alcohol and caloric restrictions on blood pressure and serum lipids in overweight men. *Hypertension* 1992; 20: 533-41.
  24. Gill JS, Shipley MJ, Tsementzis SA, Hornby RSA, Gill SK, Hitchcock ET, et al. Alcohol consumption a risk factor for hemorrhagic and non-hemorrhagic stroke. *Am J Med* 1991; 90: 489-97.
  25. Medical Research Council trial of treatment of

- hypertension in older adults: principal results. MRC Working Party. *BMJ* 1992; 304:405-12.
26. Thijs L, Fagard R, Lijnen P, Staessen J, Van Hoof R, Amery A. A meta-analysis of outcome trials in elderly hypertensives. *J Hypertens* 1992; 10:1103-9.
27. Dahlof B, Lindholm LH, Hansson L, Schersten B, Ekblom T, Wester PO. Morbidity and mortality in the Swedish Trial in Old Patients with hypertension (STOP-Hypertension). *Lancet* 1991; 338: 1281-5.
28. Staessen JA, Fagard R, Thijs L, Celis H, Arabi dze GG, Birkenhager WH et al. Randomised double-blind comparison of placebo and active treatment for older patients with isolated systolic hypertension. The systolic hypertension in Europe (Syst-Eur) Trial Investigations. *Lancet* 1997; 350: 757-64.
29. Prevention of stroke by antihypertensive drug treatment in older persons with isolated systolic hypertension. Final results of the systolic hypertension in the elderly program (SHEP). SHEP Cooperative Research Group. *JAMA* 1991; 265: 3255-64.
30. Kostis JB, Davis BR, Cutler J, Grimm RH, Berge KG, Cohen JD, et al. Prevention of heart failure by antihypertensive drug treatment in older persons with isolated systolic hypertension. SHEP Cooperative Research Group. *JAMA* 1997; 278:212-6.
31. Levy D, Larson MG, Vasan RS, Kannel WB, Ho KK. The progression from hypertension to congestive heart failure. *JAMA* 1996; 275:1557-62.