

Original article:

**Assessment of Hypertension among Patients Visited in the Hospital:
A Cross-Sectional Study**

Dr. K. B. Shivamurthy

Assistant Professor, Department of General Medicine, Mamata Medical College, Khammam, Andhra Pradesh, India.

Corresponding Author: Dr. K. B. Shivamurthy, Assistant Professor, Department of General Medicine, Mamata Medical College, Khammam, Andhra Pradesh, India.

Date of Submission: 07 July 2010, Date of Acceptance: 18 September 2010

ABSTRACT

Background: Hypertension is one of the major risk factors for cardiovascular diseases. It causes morbidity and mortality accounting for a large proportion of coronary heart diseases. The aim of the present study was to assess prevalence of hypertension among patients visited in the tertiary care hospital.

Materials and Methods: The present study was conducted to assess the prevalence of hypertension in 520 adults of the age 20years and above.

Results: In the present study total participants were 520 in which 285 males were hypertensive and 235 females were hypertensive. Males were more prehypertensive than females. Stage I and Stage II hypertension was also maximum in males. In age group 20-35 years normal patients were more than other stages. In age group 36-50 years maximum patients were stage I hypertension. In age group above 50 years maximum patients were prehypertensive patients.

Conclusion: Present study concluded that males were more hypertensive than females. Males were more prehypertensive than females. Stage I and Stage II hypertension was also maximum in males. In age group 20-35 years normal patients were more than other stages. In age group 36-50 years maximum patients were stage I hypertension. In age group above 50 years maximum patients were prehypertensive patients.

Keywords: Prehypertensive, Hypertension, Cardiovascular.

INTRODUCTION

Hypertension is one of the major risk factors for cardiovascular diseases and an important cause of morbidity and mortality accounting for a large proportion of coronary heart diseases.¹ HTN is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India.² The WHO rates HTN as one of the most important causes of premature death worldwide³. Hypertension is not only an important public health problem; rather, it will also have a big economic impact as a significant proportion of the productive population becomes chronically ill and stays at home, leaves their job, or dies, leaving their families in poverty.⁴ The large burden of high blood pressure emphasises the importance of implementing both population-wide and high-risk approaches to reduction of blood pressure.⁵ Hypertension (or HTN) or high blood pressure is defined as abnormally high arterial blood pressure. Hypertension in adults aged 18 years and older is defined as systolic blood pressure (SBP) of 140 mm Hg or greater and / or diastolic blood pressure (DBP) of 90 mmHg or

greater or any level of blood pressure in patients taking antihypertensive medication diagnosed earlier.⁶ Normal BP was defined (mm Hg) as SBP <120 and DBP <80. SBP of 120-139 and/or DBP of 80-89 mm Hg was classified as pre-HTN, SBP 140-159 and DBP of 90-99 as Stage I HTN and SBP >160 and DBP >100 as Stage II HTN. Height was measured with a stadiometer following standard procedure to the nearest 0.01 kg, on a load cell-operated calibrated digital scale. BMI (weight in kg/height in m²) <18.5 was considered as underweight, 18.5-22.9 as normal weight, 23-27.5 as overweight and BMI ≥27.5 as obese.⁷ Although prehypertension is not a medical condition in itself, prehypertensive subjects are at more risk of developing HTN.⁸ The mean population blood pressure (BP) can be lowered by dietary approach by promoting food items containing fruits, vegetables, low-fat dairy products, and whole grains while limiting the amount of meat, sweets, and sugar and reducing sodium intake.^{9,10} The aim of the present study was to assess prevalence of hypertension among patients visited in the tertiary care hospital.

MATERIALS AND METHODS

The present study was conducted to assess the prevalence of hypertension in 520 adults of the age 20years and above. Informed consent was taken from the patients. Self-administered questionnaire was handed over to the participants. The questionnaire with questions included the personal history, family history of hypertension, details of major hypertension risk factors and clinical data. Blood pressure measurement: blood pressure measurement was carried out by trained medical students as per the American Heart Association guidelines.¹¹ BP was measured on the right arm in sitting position using mercury sphygmomanometer after 5 min of rest so as the bladder encircles at least 80% of the circumference of the arm at the point midway between the olecranon and acromion.¹² Three successive readings were taken at an interval of 3 min and the lowest reading was recorded as the BP. The data were analyzed using Statistical Software Package for Social Sciences (SPSS version 22).

Table 1: Distribution according to gender

Hypertension classification	Gender	
	Male	Female
Normal	42	65
Prehypertension	94	51
Stage I	79	74
Stage II	70	45
TOTAL	285	235

Table 2: Distribution according to age group

Hypertension classification	Age group		
	20-35	36-50	Above 50
Normal	72	20	15
Prehypertension	22	51	72
Stage I	28	64	61
Stage II	23	37	55
Total	145	172	203

RESULTS

In the present study total participants were 520 in which 285 males were hypertensive and 235 females were hypertensive. Males were more prehypertensive than females. Stage I and Stage II hypertension was also maximum in males. In age group 20-35 years normal patients were 72, prehypertensive patients were 22, stage I patients were 28 and Stage II patients were 23. In age group 20-35 years normal patients were more than other stages. In age group 36-50 years normal patients were 20, prehypertensive patients were 51, stage I patients were 64 and Stage II patients were 37. In age group 36-50 years maximum patients were stage I hypertension. In age group above 50 years normal patients were 15, prehypertensive patients were 72, stage I patients were 61 and Stage II patients were 55. In age group above 50 years maximum patients were prehypertensive patients.

DISCUSSION

Hypertension has been associated with enlarged threat of coronary artery disease, and cardiovascular and cerebrovascular diseases are also cause by hypertension.¹³ Study conducted in Jeddah, Egypt where the magnitude of hypertension was 25.2% respectively.¹⁴ Vasan et al., in their study, conducted among 1298 participants also found the significant association of hypertension with age.¹⁵

In the present study total participants were 520 in which 285 males were hypertensive and 235 females were hypertensive. Males were more prehypertensive than females. Stage I and Stage II hypertension was also maximum in males. In age group 20-35 years normal patients were 72, prehypertensive patients were 22, stage I patients were 28 and Stage II patients were 23. In age group 20-35 years normal patients were more than other stages. In age group 36-50 years normal patients were 20, prehypertensive patients were 51, stage I patients were 64 and Stage II patients were 37. In age group 36-50 years maximum patients were stage I hypertension. In age group above 50 years normal patients were 15, prehypertensive patients were 72, stage I patients were 61 and Stage II patients were 55. In age group above 50 years maximum patients were prehypertensive patients.

A study was done among university students in Dammam, Saudi Arabia reported a comparable overall prevalence with a prevalence of 13.8% for systolic hypertension and 3.7% for diastolic hypertension.¹⁶

Recent studies from India have shown that HTN is significantly more prevalent in the lower education group when compared with higher education group.¹⁷ Excess salt intake was correctly thought to be associated with high blood pressure in the present study, which has been proven in a study done on British Population.¹⁸

Literature supports that although lifestyle modifications are essential for controlling hypertension, but adequate control of patients require appropriate medicines and compliance.¹⁹

CONCLUSION

Present study concluded that males were more hypertensive than females. Males were more prehypertensive than females. Stage I and Stage II hypertension was also maximum in males. In age group 20-35 years normal patients were more than other stages. In age group 36-50 years maximum patients were stage I hypertension. In age group above 50 years maximum patients were prehypertensive patients.

REFERENCES

1. Padwal R, Straus SE, McAlister FA. Evidence based management of hypertension. Cardiovascular risk factors and their effects on the decision to treat hypertension: evidence based review. *BMJ* 2001;322:977-80.
2. Gupta R. Trends in hypertension epidemiology in India. *J Hum Hypertens* 2004; 18:73–78
3. Mackay J, Mensah G. Atlas of heart disease and stroke. Geneva: World Health Organization; 2004.
4. Elliott WJ. The economic impact of hypertension. *J Clin Hypertens (Greenwich)* 2003;5(3 Suppl 2):3–13.
5. Lim SS, Gaziano TA, Gakidou E, et al. Prevention of cardiovascular disease in high-risk individuals in low-income and middle-income countries: health effects and costs. *Lancet*. 2007;370:2054–2062.
6. JNC VII The Seventh Report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure U.S. department of health and human services National Institutes of Health. National Heart, Lung, & Blood Institute. National High Blood Pressure Education Program. NIH Publication No. 04-5230 August 2004.
7. WHO expert consultation. Appropriate body-mass Index for Asian populations and its implications for policy and intervention strategies. *Lancet*. 2004;363:157–63.
8. C. Erem, A. Hacıhasanoglu, M. Kocak, O. Deger, and M. Topbas, “Prevalence of prehypertension and hypertension and associated risk factors among Turkish adults: trabzon hypertension study,” *Journal of Public Health*; 31(1): 47–58, 2009.
9. Appel LJ, Brands MW, Daniels SR, et al. Dietary approaches to prevent and treat hypertension: a scientific statement from the American Heart Association. *Hypertension*. 2006;47:296–308.
10. Srinath Reddy K, Katan MB. Diet, nutrition and the prevention of hypertension and cardiovascular diseases. *Public Health Nutrition*. 2004;7(1):167–186.
11. Pickering TG, Hall JE, Appel LJ, et al. Recommendations for blood pressure measurement in humans and experimental animals: Part 1: Blood pressure measurement in humans: A statement for professionals from the subcommittee of professional and public education of the American Heart Association Council on High Blood Pressure Research. *Circulation* 2005;111:697-716.
12. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr., et al. The seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure: The JNC 7 report. *JAMA* 2003;289:2560-72.
13. Qureshi AI, Suri MF, Kirmani JF, Divani AA, Mohammad Y. Is prehypertension a risk factor for cardiovascular diseases? *Stroke* 2005;36:1859-63.
14. Ibrahim NK, Hijazi NA, Al-Bar AA. Prevalence and Determinants of Prehypertension and Hypertension among Preparatory and Secondary School Teachers in Jeddah. *J Egypt Public Health Assoc*. 2008;83(3–4):183–203.

15. Vasan RS, Beiser A, Seshadri S, Larson MG, Kannel WB, D'Agostino RB, et al. Residual lifetime risk for developing hypertension in middle-aged women and men: The Framingham heart study. *JAMA* 2002;287:1003-10.
16. Sabra AA, Taha AZ, Al-Sebiany AM, Al- Kurashi NY, Al-Zubier AG. Coronary heart disease risk factors: Prevalence and behavior among male university students in Dammam city, Saudi Arabia. *J Egypt Public Health Assoc* 2007;82:21-42.
17. Reddy KS, Prabhakaran D, Jeemon P, Thankappan KR, Joshi P, Chaturvedi V, et al. Educational status and cardiovascular risk profile in Indians. *Proc Natl Acad Sci U S A* 2007; 104:16263–16268
18. Beard TC, Blizzard L, O'Brien DJ, Dwyer T. Association between blood pressure and dietary factors in the dietary and nutritional survey of British adults. *Arch Intern Med* 1997;157;234-8.
19. Israili ZH, Hernandez-Hernandez R, Valasco M. The future of antihypertensive treatment. *Am J Ther* 2007;14:121-34.