

A Cross-Sectional Analysis of Prevalence of Hypertension in Adults: An Institutional Based Study

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ABSTRACT

Background: With rapid urbanization, industrialization and increasing level of affluence the prevalence of life style diseases is increased in which increasing blood pressure is most common. The aim of the present study was to assess the prevalence of hypertension in adults.

Materials and Methods: The present study was conducted to investigate the prevalence of hypertension in 360 adults of the age group of 30-60 years. Pre-designed and pre-tested pro forma was used to collect the data. BP was measured on the right arm in sitting position using mercury sphygmomanometer. The data were analyzed using Statistical Software Package for Social Sciences (SPSS).

Results: In the present study total participants were 360 in which 170 males were hypertensive and 190 females were hypertensive. Maximum males and females were prehypertensive. In age group 30-40 maximum patients were stage I hypertensive, in age group 40-50 maximum patients were normal and in age group 50-60 years maximum patients were prehypertensive.

Conclusion: Our study concluded that females were more hypertensive than males and adults of age group 50-60 years were more prehypertensive, Stage I and Stage II hypertensive.

KEYWORDS: Prehypertensive, Stage I Hypertension, Stage II Hypertension.

INTRODUCTION

Cardiovascular diseases remain the top cause of global mortality, with an estimated 17.9 million attributed deaths in 2016 (31% of global deaths).¹ Hypertension is an important public health issue for economically developed and developing countries.² As per the World Health Organization (WHO) report, about 40% of people aged >25 years had hypertension in 2008.³ Around 7.5 million deaths or 12.8% of the total of all annual deaths worldwide occur due to high blood pressure.⁴ Hypertension (or HTN) or high blood pressure is defined as abnormally high arterial blood pressure. According to the Joint National Committee 7 (JNC7), normal blood pressure is a systolic BP < 120 mmHg and diastolic BP < 80 mm Hg. Hypertension is defined as systolic BP level of ≥ 140 mmHg and/or diastolic BP level ≥ 90 mmHg. The grey area falling between 120–139 mmHg systolic BP and 80–89 mmHg diastolic BP is defined as “prehypertension”.⁵ Although prehypertension is not a medical condition in itself, prehypertensive subjects are

at more risk of developing HTN.⁶ It is a common belief that hypertension, is more common among men. The truth is nearly half of all adults with high BP are women. Women with high BP have a significantly higher risk for vascular disease than men who have the same elevated BP levels.⁷ The age presentation of acute coronary syndrome is about 5–10 years earlier in the Indian population in comparison to other countries of the developed world.⁸ The aim of the present study was to assess the prevalence of hypertension in adults.

MATERIALS AND METHODS

The present study was conducted to investigate the prevalence of hypertension in 360 adults of the age group of 30-60 years. Before the commencement of the study ethical approval was taken from the Ethical committee of the institute and Informed consent was taken from the patients. Pre-designed and pre-tested proforma was used to collect the data. This proforma

included the personal history, family history of hypertension, details of major hypertension risk factors and clinical data.

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.⁹ Three successive readings were taken at an interval of 3 min and the lowest reading was recorded as the BP. Hypertension was diagnosed according to Joint National Committee 7 criteria.¹⁰ The data were analyzed using SPSS.

Table 1: Distribution according to gender

Hypertension classification	Gender	
	Male	Female
Normal	32	56
Prehypertension	67	61
Stage I	45	39
Stage II	26	34
TOTAL	170	190

Table 2: Distribution according to age group

Hypertension classification	Age group		
	30-40	40-50	50-60
Normal	22	43	23
Prehypertension	15	41	72
Stage I	24	24	36
Stage II	12	18	30

RESULTS

In the present study total participants were 360 in which 170 males were hypertensive and 190 females were hypertensive. Maximum males and females were prehypertensive.

In age group 30-40 maximum patients were stage I hypertensive, in age group 40-50 maximum patients were normal and in age group 50-60 years maximum patients were prehypertensive.

DISCUSSION

Hypertension has been associated with enlarged threat of coronary artery disease, and cardiovascular and cerebrovascular diseases are also cause by hypertension.^{11,12} A meta-analysis also reported that prehypertension, even in the low range is associated with higher risk of cardiovascular disease and also with chronic kidney diseases.^{13,14}

In the present study total participants were 360 in which 170 males were hypertensive and 190 females were hypertensive. Maximum males and females were prehypertensive. In age group 30-40 maximum patients were stage I hypertensive, in age group 40-50 maximum patients were normal and in age group 50-60 years maximum patients were prehypertensive.

Vasan et al., in their study, conducted among 1298 participants also found the significant association of hypertension with age.¹⁵

According to World Health Organization (2015), the overall prevalence of hypertension in India was 23.5%

and gender specific prevalence was 24.2% and 22.7% among the men and women, respectively.¹⁶

With increasing age, the aorta and arteries walls will be stiffened and this contributes to the high prevalence of hypertension in older age groups.^{17,18}

The prevalence of hypertension estimated in Nellore was 22.3%²⁰ and Bihar was 37.95%.¹⁹

Srinivas et al. reported a strong relation between family history and hypertension, i.e., 42%.²⁰ Todkar et al. and Sadhukhan et al. reported significant association between salt and hypertension in their studies.^{21,22} Todkar et al. study conducted reported a much higher prevalence of hypertension of 55.2% among women.²¹ Among risk factors, a significant association of hypertension was found with tobacco products intake.^{23,24} Alcohol has been reported as an independent risk factor of hypertension.^{25,26}

It is estimated that around 17.6% of patients with hypertension globally live in India, which suggests an expected large increase in cardiovascular diseases burden in the near future. This mandates early detection and treatment, as adequate BP control can avert almost a third of all cardiovascular-related mortality.^{27,28}

CONCLUSION

Our study concluded that females were more hypertensive than males and adults of age group 50-60 years were more prehypertensive, Stage I and Stage II hypertensive.

REFERENCES

1. WHO Cardiovascular Diseases (CVDs). WHO. <http://www.who.int/mediacentre/factsheets/fs317/en/>.
2. Kearney PM, Whelton M, Reynolds K, Whelton PK, He J. Worldwide prevalence of hypertension: A systematic review. *J Hypertens* 2004;22:11-9.
3. World Health Organization. Global Brief on Hypertension. WHO; 2013. Available from: <http://apps.who.int/iris/bitstream/10665/79059/1/WHODCOWHO>.
4. S. Mendis. Global status report on non communicable diseases 2010. Tech. Rep., World Health Organisation, 2010, <http://www.who.int/nmh/publications/ncdreport2010/en/>.
5. A. V. Chobanian, G. L. Bakris, H. R. Black et al. Seventh report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure. *Hypertension* 2003; 42(6): 1206–52.
6. C. Erem, A. Hacıhasanoglu, M et al. Prevalence of prehypertension and hypertension and associated risk factors among Turkish adults: trabzon hypertension study. *Journal of Public Health* 2009; 31(1): 47–58.
7. Reckelhoff JF. Gender differences in the regulation of blood pressure. *Hypertension* 2001;37:1199-208.
8. Yusuf S, Reddy S, Ounpuu S, Anand S. Global burden of cardiovascular diseases: Part I: General considerations, the epidemiologic transition, risk factors, and impact of urbanization. *Circulation* 2001;104:2746-53.
9. Huffman MD, Engelgau MM. Economic impact of non communicable diseases in India. *India Health Beat* 2012;6:2-3.
10. 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.
11. Qureshi AI, Suri MF, Kirmani JF, Divani AA, Mohammad Y. Is prehypertension a risk factor for cardiovascular diseases? *Stroke* 2005;36:1859-63.
12. Wu S, Huang Z, Yang X, Li S, Zhao H, Ruan C, et al. Cardiovascular events in a prehypertensive Chinese population: Four-year follow-up study. *Int J Cardiol* 2013;167:2196-9.
13. Huang Y, Wang S, Cai X, Mai W, Hu Y, Tang H, et al. Prehypertension and incidence of cardiovascular disease: A meta-analysis. *BMC Med* 2013;11:177.
14. Kim MJ, Lim NK, Park HY. Relationship between prehypertension and chronic kidney disease in middle-aged people in Korea: The Korean genome and epidemiology study. *BMC Public Health* 2012;12:960.
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. World Health Organization, "Global Health Observatory data repository 2015," Tech. Rep., 2015, <http://apps.who.int/gho/data/view.main.2464EST?lang=en>.
17. S. M. Abebe, Y. Berhane, A. Worku, and A. Getachew. Prevalence and associated factors of hypertension: a cross sectional community based study in Northwest Ethiopia. *PLoS ONE* 2015; 10(4): Article ID e0125210.
18. J. Prabakaran, N. Vijayalakshmi, and E. VenkataRao. Prevalence of hypertension among urban adult population (25–64 years) of Nellore. *International Journal of Research & Development of Health* 2013; 1(2): 42–9.
19. R. Singh, R. K. Sinha, C. Mani, R. Singh, and R. Pal. Burden and vulnerability of hypertension in a rural population of Patna, Bihar, India. *South East Asia Journal of Public Health*, vol. 1, no. 1, 2013.
20. Srinivas S, Satyavaraprasad K, Ramdas G, Krishna CP, Tajuddin R, Rao P. Prevalence of prehypertension in adult population of rural Andhra Pradesh. *Asian J Biomed Pharm Sci* 2013;3:45-8.
21. Todkar SS, Gujarathi VV, Tapare VS. Period prevalence and sociodemographic factors of hypertension in rural Maharashtra: A cross-sectional study. *Indian J Community Med* 2009;34:183-7.
22. Sadhukhan SK, Dan A. Multifactorial analysis of blood pressure variations in rural community of West Bengal. *Indian J Community Med* 2005;30:2.
23. Pandey A, Patni N, Sarangi S, Singh M, Sharma K, Vellimana AK, et al. Association of exclusive smokeless tobacco consumption with hypertension in an adult male rural population of India. *Tob Induc Dis* 2009;5:15.
24. Shanthirani CS, Pradeepa R, Deepa R, Premalatha G, Saroja R, Mohan V. Prevalence and risk factors of hypertension in a selected South Indian population – The Chennai urban population study. *J Assoc Physicians India* 2003;51:20-7
25. Manimunda SP, Sugunan AP, Benegal V, Balakrishna N, Rao MV, Pesala KS. Association of hypertension with risk factors and hypertension related behaviour among the aboriginal Nicobarese tribe living in car Nicobar Island, India. *Indian J Med Res* 2011;133:287-93.
26. Khan RJ, Stewart CP, Christian P, Schulze KJ, Wu L, Leclercq SC, et al. A cross-sectional study of the prevalence and risk factors for hypertension in rural Nepali women. *BMC Public Health* 2013;13:55.
27. G. Danaei, M.M. Finucane, J.K. Lin, et al. National, regional, and global trends in systolic blood pressure since 1980: systematic analysis of health examination surveys and epidemiological studies with 786 country-years and 5.4 million participants. *The Lancet*, 2011; 377 (9765): 568-77, 10.1016/S0140-6736(10)62036-3
28. Lewington S, Clarke R, Qizilbash N, Peto R, Collins R; Prospective Studies Collaboration. Age-specific relevance of usual blood pressure to vascular mortality: a meta-analysis of individual data for one million adults in 61 prospective studies. *Lancet*. 2002; 360 (9349):1903-13.

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