

Assessment of Hypertension among Known Population: An Hospital Based Prospective Study

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ABSTRACT

Introduction: Hypertension, defined as a systolic blood pressure ≥ 140 mmHg and/or a diastolic pressure ≥ 90 mmHg, is one of the most common chronic diseases. In Indian subcontinent, the overall prevalence for hypertension in India has been reported to be 29.8% in one of the past study. Hence; the present study was conducted to assess the prevalence and risk factors hypertension among Known Population.

Materials & Methods: A total of 692 patients who reported to the Department of General Medicine, Government Medical College, Barmer, Rajasthan (India) were enrolled in the present study. Modified Kuppuswamy scale was used for assessing the socio-economic status of the patients. Complete demographic and clinical details of all the patients were obtained. Details regarding various epidemiological factors and medical details were obtained through the questionnaire. Blood samples were obtained from all the patients and were sent to pathology department for assessment of serum lipid profile. Prevalence and risk factors of hypertension was recorded. All the results were compiled in Microsoft excel sheet and were analyzed by SPSS software.

Results: The overall prevalence of hypertension was found to be 28.47% (197 patients). Although non-significant, an increasing trend of occurrence of hypertension with increasing

age was found. Although non-significant, an increasing trend of occurrence of hypertension among higher class patients was found. Hypertension was found to be present in significantly higher proportion among patients of urban residence (68.53%) in comparison to the patients of the rural residence (31.47%). Also, dyslipidemia was found to be a significant risk factor for presence of hypertension (86.8%) in the present study population.

Conclusion: Urbanization and dyslipidemia are a significant risk factor for occurrence of hypertension.

Key Words: Hypertension, Risk Factors.

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INTRODUCTION

Hypertension, defined as a systolic blood pressure ≥ 140 mmHg and/or a diastolic pressure ≥ 90 mmHg, is one of the most common chronic diseases. The overall hypertension prevalence among the adult population was estimated at 26.4% in 2000; moreover it has been reported that this prevalence increased from 23.9%, in 1994, to 29.0%, in 2008, in the USA; from 25.0%, in 1993, to 43.2%, in 2006, in Mexico; and from 15.3%, in 1995, to 24.5%, in 2005, in Canada among other countries.¹⁻³ In Indian subcontinent, the overall prevalence for hypertension in India has been reported to be 29.8% in one of the past study.⁴

The regional variations (between urban and rural) reported in prevalence of HTN are also seen in cardiovascular diseases. Published literature reports regional variations in mortality and prevalence of CHD and stroke in India (south India has higher CHD mortality and eastern India has higher stroke rates). Similar

variations are also seen among urban and rural areas with CHD prevalence being higher in urban parts of India.⁵

Hence; the present study was conducted to assess the prevalence and risk factors hypertension among Known Population.

MATERIALS & METHODS

The present study was conducted in the Department General Medicine, Government Medical College, Barmer, Rajasthan (India) with the aim of assessing the prevalence and risk factors hypertension among Known Population. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. A total of 692 patients who reported to the medicine department were enrolled in the present study. Modified Kuppuswamy scale was used for assessing the socio-

economic status of the patients.⁶ Complete demographic and clinical details of all the patients were obtained.

Exclusion Criteria

- Patients with history of any hematological malignancy,
- Patients with presence of any metabolic disorder,
- Patients of more than 65 years of age,
- Patients who didn't gave informed consent

Details regarding various epidemiological factors and medical details were obtained through the questionnaire. Blood samples

were obtained from all the patients and were sent to pathology department for assessment of serum lipid profile. Blood pressure was evaluated in all the patents and criteria described in the previous literature was used for defining hypertension in the present population.¹

All the results were compiled in Microsoft excel sheet and were analyzed by SPSS software. Chi- square test was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

Table 1: Age and gender-wise distribution

Parameter		Number of patients	Percentage of patients	p- value
Gender	Males	101	50.76	0.12
	Females	96	49.24	
Age group (years)	Less than 25	43	21.83	0.53
	25 to 35	46	23.35	
	36 to 50	49	24.87	
	more than 50	59	29.95	

Table 2: Socioeconomic status and residence as a risk factor for hypertension

Parameter		Number of patients	Percentage of patients	p- value
Socioeconomic status	Upper	86	43.66	0.39
	Middle	62	31.47	
	Lower	49	24.87	
Residence	Rural	62	31.47	0.02
	Urban	135	68.53	

Table 3: Dyslipidemia as a risk factor of hypertension

Dyslipidemia	Number of patients	Percentage of patients	p- value
Present	171	86.80	0.00
Absent	26	13.20	

RESULTS

In the present study, assessment of a total of 692 patients was analyzed. The overall prevalence of hypertension was found to be 28.47% (197 patients). 50.76 percent of the patients with hypertension were found to be males while the remaining 49.24 percent of the patients were found to be females. 29.95 percent of the patients belonged to the age group of more than 50 years, while 24.87 percent of the patients belonged to the age group of 36 to 50 years. Although non-significant, an increasing trend of occurrence of hypertension with increasing age was found to be present in our study.

In the present study, by dividing the patients with hypertension according to Modified Kuppuswamy scale, it was found that 43.66 percent of the patients belonged to upper class, while 31.47 percent of the patients and 24.87 percent of the patients belonged to middle class and lower class respectively. Although non-significant, an increasing trend of occurrence of hypertension among higher class patients was found to be present in our study. In the present study, hypertension was found to be present in significantly higher proportion among patients of urban residence (68.53%) in comparison to the patients of the rural residence (31.47%). Also, dyslipidemia was found to be a significant risk factor for presence of hypertension (86.8%) in the present study population.

DISCUSSION

The current definition of hypertension (HTN) is systolic blood pressure (SBP) values of 130mmHg or more and/or diastolic blood pressure (DBP) more than 80 mmHg. Hypertension ranks among the most common chronic medical condition characterized by a persistent elevation in the arterial pressure.^{6,7}

Hypertension has been among the most studied topics of the previous century and has been one of the most significant comorbidities contributing to the development of stroke, myocardial infarction, heart failure, and renal failure. The definition and categories of hypertension have been evolving over years, but there is a consensus that persistent BP readings of 140/90mmHg or more should undergo treatment with the usual therapeutic target of 130/80mmHg or less.^{8,9} Hence; the present study was conducted to assess the prevalence and risk factors hypertension among Known Population.

In the present study, assessment of a total of 692 patients was analyzed. The overall prevalence of hypertension was found to be 28.47% (197 patients). 50.76 percent of the patients with hypertension were found to be males while the remaining 49.24 percent of the patients were found to be females. 29.95 percent of the patients belonged to the age group of more than 50 years, while 24.87 percent of the patients belonged to the age group of 36 to 50 years. Although non-significant, an increasing trend of

occurrence of hypertension with increasing age was found to be present in our study. Anchala R et al searched Medline, Web of Science, and Scopus databases searched for 'prevalence, burden, awareness, and control of blood pressure (BP) or hypertension (≥ 140 SBP and or ≥ 90 DBP) among Indian adults' (≥ 18 years). Of the total 3047 articles, 142 were included. Overall prevalence for hypertension in India was 29.8% (95% confidence interval: 26.7–33.0). Significant differences in hypertension prevalence were noted between rural and urban parts [27.6% (23.2–32.0) and 33.8% (29.7–37.8); $P=0.05$]. Regional estimates for the prevalence of hypertension were as follows: 14.5% (13.3–15.7), 31.7% (30.2–33.3), 18.1% (16.9–19.2), and 21.1% (20.1–22.0) for rural north, east, west, and south India; and 28.8% (26.9–30.8), 34.5% (32.6–36.5), 35.8% (35.2–36.5), and 31.8% (30.4–33.1) for urban north, east, west, and south India, respectively. Overall estimates for the prevalence of awareness, treatment, and control of BP were 25.3% (21.4–29.3), 25.1% (17.0–33.1), and 10.7% (6.5–15.0) for rural Indians; and 42.0% (35.2–48.9), 37.6% (24.0–51.2), and 20.2% (11.6–28.7) for urban Indians. About 33% urban and 25% rural Indians are hypertensive.¹⁰

In the present study, by dividing the patients with hypertension according to Modified Kuppaswamy scale, it was found that 43.66 percent of the patients belonged to upper class, while 31.47 percent of the patients and 24.87 percent of the patients belonged to middle class and lower class respectively. Although non-significant, an increasing trend of occurrence of hypertension among higher class patients was found to be present in our study. Lacruz ME et al evaluated the prevalence and incidence of hypertension within an adult population-based cohort. The sample included 967 men and 812 women aged 45 to 83 years at baseline, 1436 subjects completed follow-up1 after 4 years and 1079 completed follow-up2 after 9 years. BP was measured according to a standardized protocol with oscillometric devices and hypertension was defined as mean systolic BP (SBP) ≥ 140 mmHg and/or diastolic BP (DBP) ≥ 90 mmHg and/or use of antihypertensive medication if hypertension was known. The age-standardized prevalence of hypertension at baseline was 74.3% for men and 70.2% for women. The age-standardized annual incidence rate of hypertension for men was 8.6 (95% confidence interval [95% CI] 4.3–12.9) for follow-up period1 and 5.4 (95% CI 2.8–10.6) for follow-up period2 and for women 8.2 (95% CI 3.6–12.8) for follow-up1 and 5.6 (95% CI 2.7–11.4) for follow-up2. A clear decrease in SBP and DBP between baseline and follow-up1 and follow-up2 was seen, accompanied by an increase in anti-hypertensive medication consumption and a higher awareness of the condition.¹¹

In the present study, hypertension was found to be present in significantly higher proportion among patients of urban residence (68.53%) in comparison to the patients of the rural residence (31.47%). Also, dyslipidemia was found to be a significant risk factor for presence of hypertension (86.8%) in the present study population. Singh S et al assessed the prevalence of hypertension and its associated factors. A modified WHO STEPS interview schedule on 640 study subjects aged 25–64 years was used. The prevalence of hypertension was 32.9% (male: 40.9%, female: 26.0%). Mean systolic and diastolic BP were 124.25 ± 15.05 mmHg and 83.45 ± 9.49 mmHg, respectively. Higher odds of being hypertensive were found in male subjects, eldest age group, married subjects, subjects of upper socioeconomic status,

illiterate subjects, and retired subjects. Tobacco and alcohol consumption, overweight, obesity, and abdominal obesity were also associated with hypertension. Out of the total hypertensive 211 subjects, only 81 (38.4%) were aware about their hypertension status; out of those, 57 (70.4%) were seeking treatment and 20 (35.08%) had their blood pressure adequately controlled. Around one-third of the subjects were hypertensive and half of the study subjects were prehypertensive.¹²

CONCLUSION

From the above results, the authors concluded that urbanization and dyslipidemia are a significant risk factor for occurrence of hypertension. However; further studies are recommended for better exploration of results.

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