



A CROSS SECTIONAL STUDY ON PREVALENCE OF HYPERTENSION ASSOCIATED RISK FACTORS AND HEALTH SEEKING BEHAVIOUR AMONG ADULTS IN AN URBAN SLUM COMMUNITY OF MUZAFFARPUR, BIHAR

Community Medicine

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ABSTRACT

Hypertension is one of the non-communicable diseases, which is most significant global public health problems and also the most common cardiovascular disease crisis in both developed and developing countries. **Objectives:** We aimed to do for prevalence of HTN, awareness, treatment, control and risk factors associated with HTN. **Methods:** Cross sectional study design is generally required for finding out the prevalence of any disease but to find out the association of various risk factors in causation of that disease a case control study design is an ideal one. **Results:** Out of 338 respondents included, 86 (27.2%) of them were hypertensive, of which 71 (80.6%) are known case of hypertension and 18 (21.4%) were newly diagnosed as hypertension. 48 (15.1%) of the study group were in high normal stage (pre hypertensive). **Conclusion:** These observations re-emphasize the need for tailor-made hypertension awareness programs keeping in mind the local influencing factors in the target population.

KEYWORDS

Hypertension, Associated risk factors

INTRODUCTION

Hypertension is one of the non-communicable diseases, which is most significant global public health problems and also the most common cardiovascular disease crisis in both developed and developing countries. WHO has termed hypertension as the —Silent Killer. Frequency of hypertension varies from 10–15% in rural and 25–30% in urban population.[1] Hypertension is considered more important because of its high frequency of morbidity and mortality related to cardiovascular and kidney disease. It is the leading risk factor for mortality and ranked 3rd as a cause of disability adjusted life years.[2] Hypertension prevalence is reported all around the world. Increasing pattern of growth among population each year with advanced tech growth has brought down the work opportunity and increased stress among younger generation has led to increase in prevalence of hypertension. In India, 2.3 million cardiovascular deaths has been reported out of 9 million total deaths in the year 1990, in that 1.2 million death of all death due to coronary heart disease and 0.5 million of death due to stroke. By the year 2020 it has been predicted that there will be increase of cardiovascular death by 111% in India.[3] Hypertension is considered as an iceberg disease because its unknown morbidity exceeds the known morbidity. Vast range of risk factors in relation to essential hypertension ranging from genetic to lifestyle.[4] The present study was done to estimate the prevalence of hypertension and to assess the associated risk factors among adults of rural population.

OBJECTIVES

We aimed to do a cross sectional study by opportunistic and mass screening for prevalence of HTN, awareness, treatment, control and risk factors associated with HTN in Muzaffarpur, a major metropolis in Bihar, a state in India.

Methods

Cross sectional study design is generally required for finding out the prevalence of any disease but to find out the association of various risk factors in causation of that disease a case control study design is an ideal one. Initially after calculating sample size, to find out the prevalence of hypertension a cross sectional study was undertaken. In order to find out the association of various risk factors in causation of the hypertension a case control study was later conducted. The known cases of hypertension and the cases diagnosed to have hypertension during cross sectional study from the same study sample were considered as cases and equal number of controls were selected from non hypertensive from the same study population and Matching done for Age (± 5 years) and Sex of Controls with that of the Cases and . Population under study examined cross sectionally over a period of one year from 1 January 2019 to 31 December 2020 . All adults aged ≥ 18 years in the randomly selected households were included in the study. If an adult of a household was either non-cooperative or could not be contacted even after two visits, he/she was excluded from the study. Persons < 18 years of age, pregnant women & Severely ill

persons were also excluded from study. JNC VII criteria is used for hypertension classification as it is the currently used criteria by most clinicians to diagnose, classify & treat hypertension routinely.[6] A person is considered hypertensive if :- The systolic BP ≥ 140 and/or Diastolic BP ≥ 90 mmHg. Persons already on antihypertensive treatment were also considered as Hypertensive after examination & confirming the evidences produced. The sample size to find out prevalence of hypertension was calculated by using the formula, as follows: considering the prevalence of hypertension as 21% from the National data (Study conducted by The Indian Council of Medical Research. Non Communicable disease Risk factor Survey Integrated Disease surveillance Project -phase I & II).[7] Estimated prevalence $P = 21$, Confidence interval = 95%, ($z = 1.96$) Absolute precision; $d = 5\%$; $n = z^2 [P(1-P)] \div d^2$; $n = 1.96 \times 1.96 [0.21 (1 - 0.21)] \div 0.05 \times 0.05 = 254$. Sample size (n) = 338 with an expected non response rate of 20%, the required sample size was estimated as 338 .All the subjects were personally contacted in their houses, examined and interviewed using the pretested proforma. On visiting the family, baseline data of the family members was taken and persons ≥ 18 were screened by taking two BP readings. A second visit was made to cover the missed subjects so that there was maximum participation of the subjects in all selected households. Before taking blood pressure measurement, it was ensured that the subject had not consumed food, tea, coffee, alcohol, had smoked or made any physical exertion for at least half an hour. The subject was also asked to empty the bladder, to make him/her relax & subject was made to seat for 15 minutes comfortably. Arm muscles relaxed and the forearm was comfortably supported with the upper arm at the level of the heart.

The subject was also asked to avoid wearing anything with tight sleeves. Sphygmomanometer was kept at the eye level to avoid the effect of parallax. A standard adult size cuff of 20" x 6" inches applied evenly on the exposed right arm so that it will cover two third of the length of arm and two third of its circumference. Systolic blood pressure was recorded by palpatory method at the start to rule out auscultatory gap. Blood pressure was recorded as per standard guidelines.[6] The readings are made close to 2mm mark on the scale. Two such readings were recorded at an interval of 10 minutes and the average of the two readings was taken as the blood pressure of the person examined. Additional Dietary Salt Intake was accessed by enquiring whether they had the habit of consuming salted food, pickle, papad or adding extra table salt during meal routinely. Physical Activities were classified into sedentary, moderate and heavy work according to recommendations of the National Institute of Nutrition, ICMR Hyderabad.[8] B.G Prasad socioeconomic Classification adopted and modified according to all India consumer price index (AICPI) for the month of March 2013.[9] After collecting the information and doing the clinical examination of the individuals health education regarding risk factors, investigations, treatment, complications and preventive measures of hypertension was given to the family. The importance of regular treatment emphasized to the

subjects on anti-hypertensive drugs and newly detected cases. All the subjects detected as hypertensive were referred to the urban health Training Centre for further investigations, management and follow-up.

RESULTS

Out of 338 respondents included, 86 (27.2%) of them were hypertensive, of which 71 (80.6%) are known case of hypertension and 18 (21.4%) were newly diagnosed as hypertension. 48 (15.1%) of the study group were in high normal stage (pre hypertensive). The proportion of hypertension showed increased trend with age. Prevalence of hypertension was high among age group 51 to 60 years (42.8%). No individuals in the age group 18 to 20 were found to be hypertensive. More than 63% of prevalence was observed in individuals aged 40 to 60. Though the proportion of hypertension was high among males (31.2%) as compared with females (24.9%), it was not statistically significant ($p > 0.05$). Statistically significant difference ($p < 0.05$) were found in the prevalence of hypertension between individuals with a high BMI (33%) as compared to those with a normal or low BMI. Out of 338 individuals, 173 (51.1%) of individuals had normal/expected weight, 26 (7.6%) were under weight, 96 (28.4%) were pre-obese, 31 (9.3%) were class I obese and 9 (2.7%) were class II obese. Only 3 (0.8%) individuals were in class III obesity.

The prevalence of hypertension was higher 33.5% among those who were in the habit of smoking tobacco. Out of 338 individuals, 105 (31.1%) were found to be consuming alcohol. Among those who consume alcohol, 27 (30.5%) had hypertension. 19.7% of individuals had positive history of hypertension, risk of developing of hypertension among those individuals who gave positive history of stress person is greater than those who did not, the difference were significant ($p < 0.005$). These differences were found to be statistically significant. Risk of hypertension is greater among study participants with positive family history of hypertension than those who gave negative family history to hypertension OR=2.283, 95% CI: 1.062, 4.894 and the difference are statistically significant as p value is 0.02. The difference is statistically significant is p value is < 0.05 .

Table 1: Socio Demographic Profile In Relation To Hypertension.

Category	No. of Individuals	Percentage (%)	No. of hypertensive	Percent age (%)
Gender				
Male	180	53	53	28.1
Female	158	47	36	23.8
Age in years				
< 20	09	3.8	-	-
21-30	47	14.8	03	4.4
31-40	72	22.3	11	12.9
41-50	81	25	21	24.7
51-60	77	23.7	36	41.7
61-70	39	12.5	15	18
> 70	14	05	03	4.3
Occupation				
Government	03	0.8	-	-
Non government.	63	19.7	11	17.6
Self employed	111	33.9	35	32
Student	12	4.6	-	-
Home maker	119	36.1	34	28.1
Retired	18	6.3	09	51
Unemployed	28	4.6	-	-
Type of family				
Nuclear	169	75	39	23
Joint	23	10	10	43.4
Extended	33	15	10	30.3
Marital status				
Married	162	72	42	25.9
Unmarried	25	11.1	03	12
Widow/widower	37	16.4	13	35
Divorced	1	0.4	01	100

Table 2: Association Of Hypertension With Selected Variable.

Risk Factor	HYPERTENSION		NOT HYPERTENSION	
	YES	NO	YES	NO
FAMILY HISTORY OF HT	26	63	38	212

SMOKING	18	71	38	212
ALCOHAL INTAKE	27	62	78	171
BMI-ABOVE NORMAL	47	42	93	156
STRESS	62	27	127	122
MIXED DIET	78	11	240	9

DISCUSSION

The present cross-sectional study was conducted in normal population who attended along with the patient to our hospital, it was conducted to create awareness about HTN as a part of that campaign demographic data was also collected which showed that the prevalence of HTN is 62% in contrast to the peer studies in the area done by Anchala et al has shown that over all prevalence of HTN in India is around 29% and in south Indian urban population it is around 30%, Singh has shown that prevalence of HTN was 36%, but in contrast our study showed that prevalence is around 62%, in our study blood pressure recording was taken with calibrated AOBPM apparatus with a standard protocol, in contrast to other studies where they used manual techniques for the recording of blood pressure. 8,9 Thus, the prevalence rates of HTN are variable from place to place depending on the cut-off point used and the method employed in measurement of blood pressure.

Peak age of prevalence of HTN in our study is 61-70 years of age males, they had 82% prevalence of HTN and 71-80 years age group females where they had 79% prevalence of HTN. These findings may be due to changes in the vascular system as age advances.

Men exhibit higher prevalence of HTN than their female counterparts (M: 75% and F: 25.9%) (OR=1.3223) Similarly, various studies done by Thankappan et al, Krishnan et al has also shown that male gender is associated with more prevalence of HTN.[10,11] One of the possible explanations for this gender disparity in HTN prevalence could be partially due to biological sex difference and partially due to behavioral risk factors like smoking, alcohol consumption, or physical activity. We speculate that abstinence from alcohol and smoking might be few of those protective factors against HTN in women. Other than that, women are more interested in health care services utilization and more frequently report their poor health and therefore they are more likely to have better health.

In the present study age, male gender, BMI, tobacco use was significantly associated with the HTN. This study showed that overweight and obesity measured by BMI was a major modifiable risk factor for HTN. There was positive relation observed between increasing BMI and increasing rate of HTN, which was consistent with other studies by Rani et al, Singh et al.[10,11] One of the probable reasons behind this positive relation between obesity and HTN could be that increased weight increases cardiac output and increased peripheral resistance of arterioles. Other than that, urbanization is also a cause of changes in dietary habits and reduced physical activity which leads to obesity and subsequently results in HTN.

This study indicated the positive association between tobacco use and HTN. HTN was more prevalent in tobacco users (OR: 1.74) as compared to nonusers. These findings are in similar line with studies done by Dhungana et al, Reddy et al, where they found a significant association between smoking and HTN.[11]

Present study has shown that HTN awareness (awareness to use medication for control of HTN) is present in only 45%, HTN control is present in only 17% of hypertensives, studies done by Anchala et al also demonstrated that awareness and usage of medication for HTN was only 41% and HTN control was present in only 21% The low awareness and treatment levels among hypertensive patients signify a lower knowledge, attitude, and practice levels among patients, reliable information on prevalence of HTN and its control in the present scenario is needed for development of national and regional health policies for prevention and control of HTN.

CONCLUSION:

These observations re-emphasize the need for tailor-made hypertension awareness programs keeping in mind the local influencing factors in the target population. It also brings to light the need for follow-up, counselling and monitoring of hypertensive's to reduce non-compliance to anti-hypertensive medication and lifestyle modification in urban areas. This has to be supplemented by the use of

opportunistic blood pressure screening by various registered medical practitioners located in the local area. However further research is still required in this area to consolidate and enhance the knowledge in respect to an ice-berg of the disease called hypertension in real sense.

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