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STUDY OF PREVALENCE OF HYPERTENSION AND ITS ASSOCIATED RISK FACTORS AMONG THE ELDERLY POPULATION OF URBAN FIELD PRACTICE AREA OF KATIHAR MEDICAL COLLEGE, KATIHAR

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ABSTRACT

Background: Hypertension poses a significant public health challenge and reflects a global epidemiological transition from infectious to non-communicable diseases. Hypertension, a chronic health condition, is the leading cause of premature deaths among adults worldwide. In 2000, it was estimated that 1 billion adults globally had hypertension, and this number is projected to rise to 1.56 billion by 2025. Ageing, alcohol consumption, a sedentary lifestyle, obesity, and excessive salt intake all contribute to the global epidemiological transition of hypertension. High blood pressure is a significant risk factor for peripheral vascular disease, heart failure, stroke, cardiovascular disease, and chronic kidney disease. The objective of the present study was to estimate the prevalence of hypertension and its associated risk factors among the elderly.

Material and Methods: A community-based cross-sectional study was conducted at, Sharifganj, an urban field practice area of Katihar Medical College, Katihar. The sample size of the present study was 373. Data was collected using a predesigned and pretested proforma, focusing on socio-demographic characteristics and risk factors related to hypertension. This was done through oral questionnaires, supplemented by general physical examinations.

Results: In the present study the prevalence of Hypertension was observed at 49.59%. Prevalence of hypertension was highest among age group ≥ 80 years (54.17%), followed by age group 60 – 69 (50.71%) and age group 70 – 79 (43.47%). The prevalence of hypertension was higher among individuals from nuclear families, non-vegetarians, those with high salt consumption, and widows.

Conclusion: A high prevalence of hypertension was found in this study. Regular health checkups, along with treatment and modifications in diet and lifestyle, are necessary for effective management.

Keywords: Hypertension, Elderly, Urban, Risk factors.

INTRODUCTION

Hypertension is a massive burden to public health and is a part of an epidemiological shift from communicable to non-communicable diseases globally.

The most significant factor in adult premature deaths worldwide is hypertension, a chronic health condition.[1] In 2000, it was estimated that 1 billion adults globally had hypertension, by 2025, that figure is expected to increase to 1.56 billion.[2] Ageing, alcohol use, a sedentary lifestyle, obesity, and excessive salt intake all play a role in the

epidemiological transition of hypertension around the globe.[3] High blood pressure is a major risk factor for peripheral vascular disease, cardiac failure, stroke, cardiovascular disease, and chronic renal disease.[4]

It is one of the most important modifiable risk factors for cardiovascular diseases, which accounts for one in every eight death globally.[5] 9.4 million fatalities worldwide each year are caused by complications from hypertension.[6] In India, 57% of all stroke deaths and 24% of all coronary heart disease deaths are directly attributable to hypertension.[7]

Over the past 40 years, research that is being conducted internationally has shown an apparent decline in the occurrence of uncontrolled hypertension in developed countries. But cases of uncontrolled hypertension have increased significantly in low- and middle-income nations (LMICs), mainly in Africa, South Asia, and central and eastern Europe.[8]

Hypertension becomes progressively more common with increasing age. As people get older, they adopt more comfortable, sedentary lifestyles, which cause them to gain weight and put them at a higher risk of getting hypertension, hence it is crucial to conduct research on this condition to offer updated information.

However in our present field practice area the adequate and sufficient information regarding disease prevalence, socio-demographic factors and its associated risk factors among the elderly was not available hence the objectives of the present study was to estimate the prevalence of hypertension and its associated risk factors among the elderly in the urban field practice area of Department of Community Medicine, Katihar Medical College, Katihar.

MATERIAL AND METHODS

A community based cross sectional study was conducted at, Sharifganj, an urban field practice area of Katihar Medical College, Katihar, during the study period of January 2021 to December 2021. The sample size of the present study was calculated by adopting the following formula:

$n = 4pq/L2$

Where n = Sample size.

p = Prevalence of hypertension amongst the elderly.

q = (1-p)

L = Margin of error.

Calculation

p = 51.8% is the prevalence of hypertension among elderly.9

q = (1 − p) = (100 − 51.8) = 48.2

L = allowable error is 10 % of prevalence =5.18

n =(4 x 51.8 x 48.2)/(5.18 x 5.18)= 372.20, approximately 373

Hence the required sample size is 373.

Houses that are having at least one elderly or more were numbered serially. Then the houses, where survey was to be undertaken, were selected by systematic random sampling technique. Detailed information was collected on a predesigned and pretested proforma, about socio-demographic characteristics and contributory risk factors in relation to hypertension, by oral questionnaire method and supplemented by general physical examination.

Individuals aged 60 years and above in the selected area who have given written consent were included in this study and severely ill subjects or those needing hospitalization and who are unwilling to give written consent were excluded from the study.

Socioeconomic status was measured by according to modified B. G. Prasad classification.

All the anthropometric measurements were done by the following standardized technique. Weight was measured by adult weighing scale after standardization. Weight was recorded in kilogram to the nearest 100 gram. Height of the study participants was recorded by using stadiometer in centimeter according to WHO norms and measurements were noted to the closest 0.1 cm. Body Mass Index was calculated using the following formula: BMI = weight (kg)/height (mt)2. Based on BMI obtained, the subjects were classified into different categories according to the WHO global classification.[11]

Blood pressure was recorded after five minutes of complete physical rest in sitting position, with feet on floor and arm at the level of heart. Bilateral measurement were taken 1 minute apart and average of both reading was noted, but if both reading was found to differ by more than 5 mm of Hg, then a third was taken and average of all three taken to describe the blood pressure of the participant. Systolic and diastolic blood pressure readings were taken according to the guideline prescribed by WHO.[10]

The subjects were considered hypertensive as systolic BP level of ≥140 mmHg and/or diastolic BP level ≥ 90 mmHg. The systolic blood pressure falling between 120–139 mmHg and diastolic BP between 80–89 mmHg is defined as "prehypertension.[11,12]

Ethical approval was obtained from the Institute Ethical Committee of the Katihar Medical College, Katihar.

The data was collected and entered in MS- Excel. The data was presented in the form of tables, bar diagrams and pie diagrams wherever applicable. The quantitative data expressed by mean and standard deviation and qualitative data by percentages and difference between the proportions was observed and analysis was done using Chi square test. The difference was regarded as significant at a p value of < 0.05.

RESULTS

In the present study, the total sample size was 373 and out of these 185 (49.59%) were found hypertensive, the remaining being non-hypertensive. Prevalence of hypertension was highest among age group ≥ 80 years (54.17%), followed by age group 60 – 69 (50.71%) and age group 70 – 79 (43.47%). And the finding was statistically not significant (p>0.5). [Table 1]

Statistically significant association was observed between the gender of the subjects and prevalence of hypertension. [Table 2]

The prevalence of blood pressure among widows was higher 63.30% compared to widower 60.37% and those currently married 41.07%. A significant relation exists between the subjects marital status with hypertension. [Table 3]

Statistically significant association was observed between type of family and prevalence of hypertension. [Table 4]

Highest prevalence of hypertension was seen among illiterate 72 (58.26%) subjects followed by literate subjects 42 (47.19%), high school & above 15 (46.87%), middle school 23 (43.39%), primary 31 (43.05%). No statistically significant association was observed between educational status and prevalence of hypertension. [Table 5]

The prevalence of hypertension was high among non-vegetarians 170 (50.14%) compared to that of vegetarians 44.12%. No statistically significant association was observed between diet and prevalence of hypertension. [Table 6]

Majority of the study subjects 92.23% consumed ≥ 5 g salts per day. The prevalence of hypertension was higher among those who consumed ≥ 5 g salts per day. [Table 7]

In the present study the prevalence of hypertension was high (68.62%) among former tobacco users followed by 53.97% among current tobacco users and 37.67% among those who had never used tobacco. [Table 8]

Table 1: Prevalence of hypertension according to their age

Age (in years)	Hypertensive (No.) (%)	Non Hypertensive (No.) (%)	Total (No.) (%)	X^2, df, p value
60 – 69	142 (50.71)	138 (49.28)	280 (75.07)	X^2 value- 1.37, df-2
70 – 79	30 (43.47)	39 (56.52)	69 (18.49)	
≥ 80	13 (54.17)	11 (45.83)	24 (6.44)	p value > 0.05
Total	185 (49.59)	188 (50.41)	373 (100)	

Table 2: Prevalence of hypertension according to their gender

Sex	Hypertensive (No.) (%)	Non Hypertensive (No.) (%)	Total (No.) (%)	X^2, df, p value
Male	73 (42.69)	98 (57.30)	171 (45.85)	X^2 value-5.53, df-1
Female	112 (55.44)	90 (44.54)	202 (54.15)	p value <0.05
Total	185 (49.59)	188 (50.41)	373 (100)	

Table 3: Prevalence of hypertension according to their marital status

Marital Status	Hypertensive (No.) (%)	Non Hypertensive (No.) (%)	Total (No.) (%)	X^2, df, p value
Currently Married	99 (41.07)	142 (58.93)	241 (64.61)	
Widow	50 (63.30)	29 (36.70)	79 (21.17)	X^2 value-73.15, df-2
Widower	32 (60.37)	21 (30)	53 (14.22)	p value < 0.05
Total	185 (49.59)	188 (50.41)	373 (100)	

Table 4: Prevalence of hypertension according to their Family Type

Type of Family	Hypertensive (No.) (%)	Non Hypertensive (No.) (%)	Total (No.) (%)	X^2, df, p value
Joint	119 (45.07)	145 (54.93)	264 (70.78)	X^2 value- 6.78, df-1
Nuclear	66 (60.55)	43 (39.45)	109 (29.22)	p value < 0.05
Total	185 (49.59)	188 (50.41)	373 (100)	

Table 5: Prevalence of hypertension according to their Educational status

Educational status	Hypertensive (No.) (%)	Non Hypertensive (No.) (%)	Total (No.) (%)	X^2, df, p value
Illiterate	72 (58.26)	53 (41.74)	127 (34.04)	
Literate	42 (47.19)	47 (52.81)	89 (23.86)	
Primary	31 (43.05)	41 (56.95)	79 (19.30)	X^2 value-5.54, df-4
Middle School	23 (43.39)	30 (56.61)	53 (14.20)	p value > 0.05
High School & above	15 (46.87)	17 (53.13)	32 (8.6)	
Total	185 (49.59)	188 (50.41)	373 (100)	

Table 6: Prevalence of hypertension according to their diet history

Diet	Hypertensive (No.) (%)	Non Hypertensive (No.) (%)	Total (No.) (%)	X^2, df, p value
Vegetarian	15 (44.12)	19 (55.88)	34 (9.11)	
Non Vegetarian	170 (50.14)	169 (49.86)	339 (90.89)	X^2 value -0.24, df-1 p value >0.05
Total	185 (49.59)	188 (50.41)	373 (100)	

Table 7: Distribution of study subjects according to per capita daily salt consumption and blood pressure status

Salt consumption	Hypertensive (No.) (%)	Non Hypertensive (No.) (%)	Total (No.) (%)	X^2, df, p value
< 5 g	7 (24.13)	22 (75.87)	29 (7.77)	
≥ 5 g	178 (51.74)	166 (48.26)	344 (92.23)	X^2 value – 7.09, df- 1 p value < 0.05
Total	185 (49.59)	188 (50.41)	373 (100)	

Table: 8: Distribution of study subjects according to pattern of tobacco use and blood pressure status

Tobacco use	Hypertensive (No.) (%)	Non Hypertensive (No.) (%)	Total (No.) (%)	X^2, df, p value
Current	95(53.97)	81 (46.02)	176 (47.18)	
Former	35 (68.62)	16 (31.38)	51 (13.67)	X^2 value- 17.05, df-2 p value < 0.05
Never	55 (37.67)	91 (62.33)	146 (39.15)	
Total	185 (49.59)	188 (50.41)	373 (100)	

DISCUSSION

In the present study out of the total 373 subjects were surveyed in which 163 (43.7%) were males and 210 (56.3%) were females. Most of the study subjects were between the age group 60 – 69 years followed by 70 – 79 years and 80 years. In the present study the prevalence of hypertension were found to be 49.59%. Naushad Alam et al (2015) also found almost the similar prevalence of hypertension 50% in his study.[13] In an another study conducted in Kerala, among elderly population also observed that the prevalence of hypertension was 51.8% which increased with age.14 Prevalence of hypertension was highest among age group ≥ 80 years (54.17%) followed by age group 60-69 years (50.71%) and age group 70-79 years (43.47%). However, no statistically significant association was observed between the age of the subjects and prevalence of hypertension. Many studies have also indicated that the highest HTN prevalence occurs among individuals aged 80 and older.[13,14]A statistically significant association was observed between the gender of the subjects and prevalence of hypertension. This study was similar to studies conducted by Sheth AM et al (2016), Naushad Alam et al (2015) and Chinnakali P et al (2012) which showed a higher prevalence of hypertension in females compared to males.[14,15,16]

The study found that widows had a higher prevalence of hypertension at 63.30%, compared to widowers at 60.37% and currently married individuals at 41.07%. This suggests a statistically significant link between marital status and hypertension prevalence. Similar finding was observed by different studies Sheth AM et al (2016),[15] Parikh S et al (2011).[17]

The study showed a higher hypertension prevalence in nuclear families (60.55%) compared to joint families (45.07%). The significant correlation between hypertension and family type observed in this study is consistent with the findings reported by Mumin MH et. al, in their research.[18]

The prevalence of hypertension among illiterate was high in the present study which is similar to studies conducted by Parikh S et al (2011),[19] and Sheth AM et al (2016).[15]

In the present study majority were non vegetarian (90.89%) followed by vegetarians 34 (9.11%). The prevalence of hypertension was high among non-vegetarians 170 (50.14%) compared to that of vegetarians 44.12%. Similarly, other studies observed and reported that non vegetarian is at more risk in the development of hypertension.[20,21]

Many studies have been conducted in India that has positive association of blood pressure with salt intake. Saxena P et al (2012) in their study on hypertension in rural population of TehriGarhwal reported a statistically significant association hypertension and salt intake.[22]

Present study showed prevalence of hypertension was high (68.62%) among former tobacco users followed by 53.97% among current tobacco users and 37.67% among those who had never used tobacco. Sheth AM et al (2016) in their study found that the prevalence of hypertension among those who smoke currently (59.4%) and those smoked in the past (44.05) was higher than those who never smoked (36.1%).[15]

CONCLUSION

Recommendation
A dedicated National Health Programme specifically for the prevention and control of hypertension is essential, rather than including it as part of other health initiatives

In a developing country like India, high-risk screening for hypertension is more cost-effective than mass screening due to financial limitations and low health sector funding.

Legislation should be passed by the government of India for banning tobacco products as these are highly prevalent risk factors of hypertension.

Establish dedicated geriatric OPDs at all urban health centers to screen the elderly for hypertension and other non-communicable diseases, providing treatment and counseling on lifestyle modifications and risk reduction.

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