



Original Research Article

Prevalence and Risk Factors of Hypertension among Geriatric Population in Rural Area of Katihar, Bihar

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Abstract

Background: Ageing is a biological process and not a disease or curse, and during the biological process significant changes occur in human body. However ageing is inevitable, irreversible and progressive. Developing countries, like India, are likely to face an enormous burden of NCDs in future and the condition like hypertension is one of the most important treatable causes of mortality and morbidity amongst the elderly population.

Objectives: To assess the prevalence of Hypertension amongst the Geriatric Population in a rural area of Katihar and find out the risk factors of Hypertension amongst the geriatric population in that particular area.

Material & Methods: A Community based cross sectional study was conducted during January 2017 to December 2017 at Hajipur village under Hajipur RHTC (which is the rural field practice area under Department of Community Medicine, Katihar Medical College). The criteria of diagnosis of hypertension and method of blood pressure measurement for each participant were followed as per JNC - 7 recommendations.

Results: The prevalence of hypertension among the study subjects (262) was found 47.7% Prevalence of hypertension was high among age group ≥ 80 years and statistically significant association was observed between the gender & type of family and prevalence of hypertension. The prevalence of hypertension was higher among widow 64.8%, illiterate 53.3%, upper middle socioeconomic class (60%) and non-vegetarian (47.8%).

Conclusion: There is need of awareness through Behavior change communication or other strategies about hypertension, particularly focusing on prevention by recognition of important risk factors and lifestyle modification.

Keywords: Prevalence, Hypertension, Geriatric, Risk factors, Awareness, Lifestyle modification.

Introduction

Ageing is a biological process and not a disease or curse, and during the biological process significant changes occur in the human body. However ageing is inevitable, irreversible and progressive. Ageing in human refers to multidimensional process of physical, psychological and social changes in a person over time¹. Recent increase in the proportion and number of elderly in many developing countries have drawn attention to issues concerning the morbidity profile of this potentially vulnerable age group. In India, the elderly (aged 60 years and above) constitutes 7.7% of the total population of 1.20 billion². It is projected to be 113 million, i.e. 8.9% of total population by the year 2016³ and 10% by 2021⁴. It has also been projected that by the year 2050, the number of elderly people would further rise to about 324 million⁵. The elderly suffers from multiple illness and general disability and are more vulnerable to diseases because of decreased physiological reserve and compromised defense mechanism. Age is a powerful risk factor for hypertension and cardiovascular deaths⁶.

Aims & Objectives

1. To assess the prevalence of Hypertension amongst the Geriatric Population in a rural field practice area of Katihar Medical College, Katihar
2. Find out the risk factors of Hypertension amongst the geriatric population in that particular area.

Material & Methods

A Community based cross sectional study was conducted at Hajipur village under Hajipur RHTC (which is the rural field practice area under Department of Community Medicine, Katihar Medical College) from January 2017 to December 2017. The sample size (n) is calculated by using the formula $n = \frac{4pq}{L^2}$, considering the prevalence of hypertension amongst elderly population 40.5% (as per study conducted amongst the elderly of Puducherry)⁷, and the absolute error as 15%, the

sample size was calculated to be 262. Subjects included for the study were subjects aged 60 years & above and subjects staying at the study area minimum for last one year. Severely ill subjects or those needing hospitalization and also those persons who did not extend their co-operation for the study were excluded. House to house visits was carried out in the Hajipur village a rural area of Katihar district. Elderly persons aged 60 years and above were personally interviewed after obtaining their written and informed consent which was trilingual in English, Bengali and Hindi. . For each study subject a predesigned, pretested questionnaire was administered. The Blood Pressure examination and contributory factors in the relation to hypertension were recorded. The criteria of diagnosis of hypertension and method of blood pressure measurement for each participant were followed as per JNC 7⁸ recommendation. The collected data was entered in MS- Excel and was analyzed and statistically evaluated using SPSS-20 version.

Results and Observation

Prevalence of Hypertension among study population

Table: I Distribution of study subjects according to their blood pressure

Characteristics	Number (%)
Hypertensive	125 (47.7)
Non-hypertensive	137 (52.3)
Total	262 (100)

The prevalence of hypertension among the study subjects (262) was found 47.7% (125) and 52.3% (137) were non-hypertensive.

Factors associated with hypertension

Table: II Distribution of study subjects according to their age and blood pressure status

Age (in years)	Hypertensive (No) (%)	Non-hypertensive (No) (%)	Total (No) (%)	χ^2 value, d.f, p value
60-69	94 (48.2)	101 (51.8)	195 (74.4)	0.93, 2, 0.6281
70-79	24 (43.6)	31 (56.4)	55 (21)	
≥80	7 (58.3)	5 (41.7)	12 (4.6)	
Total	125 (47.7)	137 (52.3)	262 (100)	

p value < 0.05

Prevalence of hypertension was high among age group ≥80 years (58.3 %) followed by age group

60-69 years (48.2%) and age group 70-79 years (43.6%)

Table: III Distribution of study subjects according to their Gender and blood pressure status

Sex	Hypertensive (No) (%)	Non-hypertensive (No) (%)	Total (No) (%)	χ^2 value, d.f, p value
Male	45 (40.2)	67 (59.8)	112 (42.7)	3.94, 1, 0.0472
Female	80 (53.3)	70 (46.7)	150 (57.3)	
Total	125 (47.7)	137 (52.3)	262 (100)	

p value < 0.05

Out of 112 male subjects, 40.2% (45) were hypertensive and 59.8% (67) were non-hypertensive. Out of 150 female subjects, 53.3% (80) were hypertensive and 46.7% (70) were non

hypertensive. Statistically significant association was observed between the gender of the subjects and prevalence of hypertension

Table: IV Distribution of study subjects according to marital status and blood pressure status

Marital status	Hypertensive (No) (%)	Non-hypertensive (No) (%)	Total (No) (%)	χ^2 value, d.f, p value
Currently married	66 (39.3)	102 (60.7)	168 (64.1)	13.53, 2, 0.0012
Widow	35 (64.8)	19 (35.2)	54(20.6)	
Widower	24 (60)	16 (40)	40 (15.3)	
Total	125 (47.7)	137 (52.3)	262 (100)	

p value < 0.05

The prevalence of hypertension among widow was higher 64.8% compared to widower 60% and currently married 39.3%. Statistically significant

association was observed between the marital status of the subjects and prevalence of hypertension.

Table: V Distribution of study subjects according to type of family and blood pressure status

Type of family	Hypertensive (No) (%)	Non-hypertensive (No) (%)	Total (No) (%)	χ^2 value, d.f, p value
Joint	91 (44.2)	115 (55.8)	206 (78.6)	4.19, 1, 0.0407
Nuclear	34 (60.7)	22 (39.3)	56 (21.4)	
Total	125 (47.7)	137 (52.3)	262 (100)	

p value < 0.05

The prevalence of hypertension among nuclear families was found 60.7% and joint family was 44.2% respectively. Statistically significant

association was observed between type of family and prevalence of hypertension.

Table: VI Distribution of study subjects according to educational status and blood pressure status

Educational status	Hypertensive (No) (%)	Non-hypertensive (No) (%)	Total (No) (%)	χ^2 value, d.f, p value
Illiterate	81 (53.3)	71 (46.7)	152 (58)	4.75, 4, 0.3139
Literate but below primary	26 (41.9)	36 (58.1)	62 (23.6)	
Primary	12 (37.5)	20 (62.5)	32 (12.2)	
Middle school	4 (36.4)	7 (63.6)	11 (4.3)	
High school and above	2 (40)	3 (60)	5 (1.9)	
Total	125 (47.7)	137 (52.3)	262 (100)	

p value < 0.05

The prevalence of hypertension was high among subjects who were illiterate 53.3% followed by those who were literate but below primary 41.9%

and those who had studied up to high school above 40%, primary 37.5%, middle school 36.4% respectively.

Table: VII Distribution of study subjects according to Occupation and blood pressure status

Occupation	Hypertensive (No) (%)	Non-hypertensive (No) (%)	Total (No) (%)	χ^2 value, d.f, p value
Agriculture	31 (47.7)	34 (52.3)	65 (24.8)	11.43, 4, 0.0221
Daily wage earner	14 (28)	36 (72)	50 (19.1)	
Retired	5 (41.7)	7 (58.3)	12 (4.6)	
Own business	5 (50)	5 (50)	10 (3.8)	
Not gainfully employed	70 (56)	55 (44)	125 (47.7)	
Total	125 (47.7)	137 (52.3)	262 (100)	

p value < 0.05

The prevalence of hypertension was higher in not gainfully employed subjects (56%) followed by those who were engaged in own business (50%), agriculture (47.7%) and those who were retired were (41.7%).Hypertension was found lowest

amongst daily wage earner (28%). Statistically significant association was observed between occupation of the study subjects and prevalence of hypertension.

Table: VIII Distribution of study subjects according to Socioeconomic status and blood pressure status

Socioeconomic status	Hypertensive (No) (%)	Non-hypertensive (No) (%)	Total (No) (%)	χ^2 value, d.f, p value
Upper class (≥ 6254)	1 (50)	1 (50)	2 (0.9)	3.73, 4, 0.4438
Upper middle class (3127-6253)	6 (60)	4 (40)	10 (3.8)	
Middle class (1876-3126)	18 (45)	22 (55)	40(15.2)	
Lower middle class (938-1875)	39 (41.1)	56 (58.9)	95(36.6)	
Lower class (<938)	61 (53)	54 (47)	115(43.8)	
Total	125 (47.7)	137 (52.3)	262 (100)	

p value < 0.05

The prevalence of hypertension was higher among upper middle socioeconomic class (60%) followed by lower class (53%) , upper class (50%), middle

class (45%) and lower middle class (41.1%) respectively

Table: IX Distribution of study subjects according to Diet and blood pressure status

Diet	Hypertensive (No) (%)	Non-hypertensive (No) (%)	Total (No) (%)	χ^2 value, d.f, p value
Vegetarian	3 (42.9)	4 (57.1)	7 (2.7)	0.02, 1, 0.8875
Non-vegetarian	122 (47.8)	133 (52.2)	255 (97.3)	
Total	125 (47.7)	137 (52.3)	262 (100)	

p value < 0.05

Out of 262 study subjects, majority were non-vegetarian 255 (97.3%) followed by vegetarians 7 (2.7%).The prevalence of hypertension was high among non-vegetarian (47.8%) than vegetarian (42.9%).

Discussion

The prevalence of hypertension in the present study among 262 subjects was found 47.7% and 52.3% were non-hypertensive. The present study is somewhat similar to the studies conducted by Ankit M. Seth et al (2016)⁹, Naushad Alam et al (2015)¹⁰, Dutta PP et al (2012)¹¹ and KalavathyMc et al (2000).¹²

In the present study prevalence of hypertension was high among age group ≥ 80 years (58.3 %) followed by age group 60-69 years (48.2%) and age group 70-79 years (43.6%). However no statistically significant association was observed between the age of the subjects and prevalence of hypertension. The present study is somewhat similar to different population based studies conducted in India by KalavatyMc et al (2000)¹², Naushad Alam et al (2015)¹⁰ and Ankit M. Seth et al (2016)⁹ which showed a rise of blood pressure with increasing age.

Present study shows that prevalence was more among females (53.3%) than males (40.2%) and a statistically significant association was observed between the gender of the subjects and prevalence of hypertension. This study was similar to studies conducted by Ankit M. Seth et al(2016)⁹, Naushad Alam et al (2015)¹⁰ and Chinnakali P et a (2012)⁷ which showed a higher prevalence of hypertension in females compared to males.

In the present study it was observed that the prevalence of hypertension among widow was higher 64.8% compared to widower 60% and currently married 39.3% and statistically significant association was observed between the marital status of the subjects and prevalence of hypertension. The prevalence of hypertension among widow/widower was high in the present study which is similar to study conducted by Parikh S et al (2011).¹³

In the present study it was observed that prevalence of hypertension among nuclear families was found 60.7% and joint family was 44.2% respectively and statistically significant association was observed between type of family and prevalence of hypertension. Significant association between hypertension and type of family in this study is similar to the studies conducted by Mumin MH et al (2012).¹⁴

In the present study it was observed that prevalence of hypertension was high among subjects who were illiterate 53.3% followed by those who were literate but below primary 41.9% and those who had studied up to high school

above 40%, primary 37.5%, middle school 36.4% respectively.. The prevalence of hypertension among illiterate was high in the present study which is similar to studies conducted by Parikh S et al (2011)¹³ and Ankit M. Seth et al (2016).⁹

The present study showed that prevalence of hypertension was higher in not gainfully employed subjects (56%) followed by those who were engaged in own business (50%), agriculture (47.7%) and those who were retired were (41.7%).Hypertension was found to be lowest amongst daily wage earner (28%) Statistically significant association was observed between occupation of the study subjects and prevalence of hypertension. Significant association between hypertension and occupation in this study is similar to the studies conducted by Hazarika NC et al (2004)¹⁵ and Frag YMK et al (2014).¹⁶

In this study the prevalence of hypertension was higher among upper middle socioeconomic class (60%) followed by lower class (53%) , upper class (50%), middle class (45%) and lower middle class (41.1%) respectively.. The present study finding is somewhat similar to study conducted by Momin MH et al (2012)¹⁴, Singh R et al (2014)¹⁷ and Mahmood S E et al (2017).¹⁸

In the present study out of 262 study subjects, majority were non-vegetarian 255 (97.3%) followed by vegetarians 7 (2.7%).The prevalence of hypertension was high among non-vegetarian (47.8%) than vegetarian (42.9%).. Higher prevalence of hypertension among non-vegetarian in this study is similar to studies conducted by Agarwal R et al (2012)¹⁹ and Yokoyama Y et al (2014).²⁰

Conclusion

The overall prevalence of hypertension was 47.7% which was found almost half of the elderly population. There is need of awareness through Behavior change communication or other strategies about hypertension, particularly focusing on prevention by recognition of important risk factors and lifestyle modification. There should be a geriatric OPD at the rural health

center for screening elderly for hypertension and other non-communicable disease with treatment and counseling about lifestyle modification and risk reduction.

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