

Prevalence of hypertension among the elderly people of Belagavi city, Karnataka: A community based cross sectional study

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Abstract: *Background:* The definition of hypertension does not change with age. In elder people Systolic Blood Pressure (SBP) of >140 mm Hg and a Diastolic Blood Pressure (DBP) of >90 mm is hypertension. As both SBP and DBP increase with age, SBP rises gradually until the age of 70 or 80, whereas DBP increases until the age of 50 or 60 and then both may decline or level up. *Objective:* To estimate the prevalence of hypertension among elderly population aged 60 years and above. *Methods:* A cross-sectional community-based study was conducted among elderly population aged 60 years and above. A pretested, semi-structured questionnaire was administered to collect data. Blood pressure, height and weight were measured and recorded. Average of the readings was noted. Ethical clearance was obtained and informed consent taken from study participants. Data was analyzed using SPSS 20. *Results:* The overall prevalence of hypertension among the study participants was 49.99%. Among the hypertensive subjects, prevalence of hypertension among male subjects was 12% (48) and in female subjects was 13% (52). About 37.8% (151) were already aware of their hypertension status. *Conclusion:* Prevalence of hypertension among elderly was high in urban areas of Belagavi city. The prevalence of hypertension was high among females than in males.

Keywords: Prevalence, Hypertension, Elderly, Urban.

Introduction

The definition of hypertension does not change with age. In elder people Systolic Blood Pressure (SBP) of >140 mm Hg and a Diastolic Blood Pressure (DBP) of >90 mm is hypertension [1-2]. Globally, the overall prevalence of raised blood pressure in adults aged 25 years and over was found to be 40% in 2008. The uncontrolled hypertension rose from 600 million in 1980 to nearly 1 billion in 2008 [3].

High blood pressure (BP) is a major public health problem in India and prevalence of it is rapidly increasing both in urban and rural populations. A survey done on 26,000 adults in South India showed a hypertension prevalence of 20% with 23% in men and 17% in female. Recent studies showed that the ratio of hypertensive person to undiagnosed hypertension or pre-hypertension was 1:2. [4-5]. This study was done with the objective to determine the prevalence among geriatric population aged 60 years and above living in urban city of Belagavi, Karnataka.

Material and Methods

A cross-sectional community-based study was conducted among elderly population aged 60 years and above residing in the urban community of Belagavi city. The sample size was estimated to be 400, by taking prevalence as 58% and an allowable error of 10%. Ethical approval was taken from Institutional Ethical Committee, JNMC, KAHER, Belagavi, Karnataka.

A total of 400 subjects aged 60 years and above were randomly included by convenient sampling technique. The study was conducted over a period of one year. The data was collected from March 2017 to January 2018. Elderly people aged 60 years and above of urban area of Belagavi were included in the study whereas elderly people who were physically disabled, chronic bed ridden and who didn't gave consent were excluded from the study. The pilot study was done on 10% of the sample size (i.e. 40 participants) which was not included in the study.

Hypertensive subjects were detected according to the definition of Joint National Committee 7(JNC VII) and those participants who were already diagnosed hypertensive and taking antihypertensive medication. The basic information and history regarding diagnosis on hypertension was collected on a structured questionnaire through personal interviews during house to house and old-age home visits. Blood pressure (BP) was measured by the first author twice using same mercury sphygmomanometer in the sitting position. Average of the readings was noted. Height and weight were also measured and BMI was calculated.

Following *Operational Definitions* were used in the present study: Obesity was defined as Body Mass Index ≥ 25 kg/m². [6] Diabetics were defined as those already diagnosed and were taking anti-diabetic medications. Current smokers were those who used cigarettes, beedis for smoking per day. Alcohol user was defined as those who consumed any amount of alcohol occasionally or on regular basis. The physical activity was classified as low, moderate and active.

Statistical Analysis: All the data was entered and analyzed using SPSS version 20.0 computer software. Data was analyzed using proportion and percentage for prevalence.

Results

Table.1 shows the socio-demographic profile of the study population.

Variable	Number of Participants	Percentage (%)
Age in years		
60-69	249	62.2
70-79	106	26.5
80-89	40	10.0
90-99	5	1.2
Gender		
Male	194	48.5
Female	206	51.5
Education		
Illiterate	115	28.8
Primary	61	15.3
Secondary	133	33.3
Higher Secondary	41	10.3
Others	50	12.5

Variable	Number of Participants	Percentage (%)
Marital Status		
Married	388	97.0
Unmarried	12	3.0
Religion		
Hindu	307	76.8
Muslim	90	22.5
Christian	3	0.8

Among study participants, prevalence of hypertension was detected to be 49.55%. Self-reported hypertensive were 151(37.8%) and were on regular medications. Among the 249(62.2%) non-hypertensive participants, 47(11.75%) participants were newly diagnosed as hypertensive, of which 8(2%) participants did not know about their hypertensive status (Table 2).

Previously diagnosed as Hypertensive	Total	
	Number	Percentage
Yes	151	37.8
No	241	60.2
Don't know	8	2
Total	400	100

Out of 151 self-reported hypertensive 74(18.5%) were pre- hypertensive, 53(13.2%) were hypertensive and 24(6%) were normal. Among 249 non-hypertensive participants who were not diagnosed as hypertensive previously, 113(28.2%) were diagnosed as pre-hypertensive, 47(11.75%) were hypertensive and 89(22.3%) were normal. Hence, out of the total 400 study participants, 198(49.55%) were found to be hypertensive (Table 3).

In this study 194(48.5%) were males. Among them, 16(8.2%) were underweight, 94(48.5%) were normal, 69(35.6%) were overweight, 14(7.2%) were obese class I and 1(0.5%) was obesity class III. Among total participants 206(51.5%) were females where, 38(18.6%) were underweight, 86(42.2%) were normal, 61(29.6%) were overweight, 19(9.3%) were in obese class I and 2(1%) were in obese class II (Table 4).

Table-3: Distribution of study participants according to their Overall Prevalence of Hypertension

	Hypertension Status						Total	
	Normotensive		Pre Hypertensive		Hypertensive			
	No.	%	No.	%	No.	%	No.	%
Diagnosed Hypertensive	24	6	74	18.5	53	13.2	151	37.8
Not diagnosed as Hypertensive	89	22.3	113	28.2	47	11.75	249	62.2
Total	113	28.2	187	46.8	100	25	400	100

Table-4: Distribution of study participants according to their gender and Body Mass Index (BMI)

BMI	Male		Female		Total	
	No.	%	No.	%	No.	%
Underweight	16	8.2	38	18.6	54	13.6
Normal Weight	94	48.5	86	42.2	180	45.2
Overweight	69	35.6	61	29.6	130	32.5
Obesity Class I	14	7.2	19	9.3	33	8.3
Obesity Class II	0	0.0	2	1	2	1
Obesity Class III	1	0.5	0	0.0	1	0.3
Total	194	100.0	206	100.0	400	100.0

Discussion

Socio-demographic characteristics: In the present study, it was observed that 194 (48.5%) were males while 206(51.5%) were females. Among them, 118(29.5%) were in the age group of 60-69 years, 53 (13.5%) were in the age group of 70-79 years, 21(5.2%) were in the age group of 80-89 years and 2(0.5%) were in the age group of 90-99 years. This agrees with the results of a community based cross-sectional study conducted among 402 geriatric population of West Bengal, India with an objective to find out the prevalence of hypertension among geriatric population. The study showed that more than half of the participants were female 226(56.2%) and majority 307(76.4%) of them were of the age group 60-69 years [7-8].

Majority of the participants 307(76.8%) in the present study belonged to Hindu religion with Islam being the second most practiced religion among participants constituting to 90(22.5%) of the total participants. Christianity, being the third religion with only (0.8%) of the participants practicing it. A study conducted in elderly population of Raipur city, Chhattisgarh revealed

similar findings as the present study where almost all of the respondents were Hindu (93.90%) followed by Muslim (5.15%) and only 0.93% was Christians [9-10].

The present study revealed that 115(28.8%) were illiterate, rest 285(71.2%) were literate. Among the literate, 61(15.3%) studied up to primary level, 133(33.3%) studied up to Secondary level, 41(10.3%) studied up to Higher Secondary level and 50(12.5%) studied up to Graduate level. A study conducted in elderly population of Raipur city, to evaluate the prevalence and factors influencing hypertension among elderly population revealed that majority of the subjects were literate (69.06%) and most of them were educated up to higher secondary (40.15%) level [9-11].

Prevalence of Hypertension: Out of 151 study participants, who were already diagnosed as hypertensive and were taking medicine, among them 74(18.5%) were pre-hypertensive, 53(13.2%) were hypertensive and 24(6%) were normal. During screening, among 249 participants who were not

diagnosed as hypertensive previously and were unaware about their hypertension status, 113(28.2%) were diagnosed as pre-hypertensive, 47(11.75%) were hypertensive and 89(22.3%) were normal. Hence, out of the total 400 study participants, 198(49.55%) were found to be hypertensive. A cross sectional study conducted in coastal Karnataka detected the prevalence of hypertension to be 58.5% where 146(44.2%) had self-reported hypertension and among them 134(91.7%) were taking medicines [12-14].

Gender and BMI: In this present study 194(48.5%) were males. Among them, 16(8.2%) were underweight, 94(48.5%) were normal, 69(35.6%) were overweight, 14(7.2%) were obese class I and 1(0.5%) was obesity class III. Among 206(51.5%) of females, 38(18.6%) were underweight, 86(42.2%) were normal, 61(29.6%) were overweight, 19(9.3%) were in obese class I and 2(1%) were in obese class II. Overall, 83.2% of the total adults were found to be either overweight or obese. Similar findings were observed in a study conducted to investigate

hypertension and associated factors in older adults in South Africa which revealed that a large group of older adults were overweight or obese i.e.72.4% [15-16].

Conclusion

Prevalence of hypertension among elderly was high in urban areas of Belagavi city. The prevalence of hypertension was high among females than in males.

Recommendations

Screening of the hypertension should be conducted at early age (above 30 years) to prevent the prevalence of hypertension in the elderly people. Geriatric population should undergo examination for NCDs which are prevalent in these elderly populations. Health education should be given to elderly people about the risk factors of the Hypertension or other NCDs and also about preventive measures from these chronic diseases.

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