

Original Research Article

Prevalence of hypertension in a rural community of North Kerala, India: a cross sectional study

Satheesh B. C.*, Mohammad Ilyas C.

Department of Community Medicine, Kannur Medical College, Kannur, Kerala, India

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*Correspondence:

Dr. Satheesh B. C.,

E-mail: docsatheesh19@rediffmail.com

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ABSTRACT

Background: Hypertension is major risk factor for CVDs and its complications account for 9.4 million deaths worldwide every year. Hypertension itself is responsible for about 45% and 51% deaths due to heart disease and stroke respectively. Hypertension is a major public health concern in India both in urban and rural areas and it is increasing at an alarming rate in rural population. Because of inadequate access to health care facilities at rural areas, the early screening and treatment of hypertension is not done regularly, so we conducted this study. Objectives: To determine the prevalence of hypertension in a rural community of North Kerala.

Methods: A community based cross sectional study was conducted at rural field practice area of Kannur Medical College, Kannur. Sample size was 151 and convenient sampling method used. Data was collected visiting homes and blood pressure measured with mercury sphygmomanometer by. Descriptive statistics were used to analyse the data.

Results: Among 152 participants, 52.3% and 47.7% were females and males respectively and mean age of the participants was 51.01 ± 15.25 years. The overall prevalence of hypertension among them was 18.5% and the proportion of hypertension was more among the age group of 60-69 years (39.3%).

Conclusions: Our study shows that hypertension is not only a concern of the urban population, but also important issue in rural areas. Newly diagnosed cases are more which indicates, people are not aware about importance of regular screening. Since screening helps in early detection, so strengthening of health facilities and creation of awareness at rural levels will reduce the morbidity and mortality due to hypertension and its complications.

Keywords: Hypertension, Kerala, Prevalence, Rural

INTRODUCTION

Cardiovascular disease (CVDs) accounts for approximately 17 million deaths a year globally which is accounts to one third of the total deaths. Hypertension (HTN) is one of the important risk factor for CVDs and its complications account for 9.4 million deaths worldwide every year. Hypertension itself is responsible for about 45% deaths due to heart disease and 51% of deaths due to stroke.¹

About one third of CVD deaths are occurring in low and middle income countries (LMIC) because of less access and unequitable distribution of primary health care facilities which are necessary for early diagnosis and treatment of the hypertension and its complications. As a result of this many in LMIC will be detected late in the course of disease and die in younger age from CVD.²

According to World Health Organisation(WHO) statistics 2015, the prevalence of hypertension among adults (≥ 18 years) in India is 25.35% (25.9% males and 24.8%

females).³ Hypertension is a major public health concern in India both in urban and rural areas. The systemic reviews of the pooled epidemiological studies of India shows HTN prevalence of 29.8%, whereas it was 33.8% in urban areas and 27.6% in rural areas of India.⁴ The prevalence of HTN among the rural population is increasing at an alarming rate due to change in lifestyle.

Due to inadequate access to health care facilities at rural areas, the early screening and treatment of HTN is not done regularly, so we conducted this study with an objective to determine the prevalence of hypertension in a rural community of North Kerala.

METHODS

Study design

It was a community based cross sectional study.

Study setting

Study was conducted in a rural field practice area of Department of Community Medicine, Kannur Medical College.

Study population

The people those who aged 25 years and above in the rural field practice area were included in the study.

Inclusion criteria

The people who were aged 25 years and above and those who were willing to participate were included in the study.

Exclusion criteria

The people with pregnancy and those who were not willing to participate were excluded.

Study duration

2 Months (November – December 2015).

Sample size

The prevalence of Hypertension in rural South Indian community according to systemic review by Anchala R et al was 21.1% and this was taken for calculating sample size with the absolute precision at 7%, alpha 5% with design effect of 1, the sample size derived was 131 which was calculated using the OpenEpi (Version 3.03). Considering the non-response rate of 15%, sample of 151 was collected.⁴

Sampling method

A convenient sampling method was used to collect data. The data was collected by house to house visit with the help of health workers.

Data collection

The study was conducted after taking ethical clearance from the Institutional Ethics Committee. Data was collected after explaining the purpose of the study and taking informed written consent from those who were willing to participate in the study. The data was collected by using a proforma which included basic socio-demographic details and measurement of blood pressure (BP). Blood pressure was measured twice with mercury sphygmomanometer by following all the standard protocol of Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VII) and used the cut of SBP \geq 140 mm Hg or DBP \geq 90 mm Hg as hypertensive as per JNC VII guidelines.⁵

Data analysis

Data was entered in Microsoft Excel, descriptive statistics were analysed and presented in the form of frequencies and proportions using EpiData Analysis V2.2.2.182.

RESULTS

Socio-demographic details

A total of 151 persons were participated in the study and mean age of the participants was 51.01 \pm 15.25 years. Among the study subjects, 52.3% (79) and 47.7% (72) were females and males respectively. Among the participants, most of them were Hindus (96.7%), 98.7% were married, 57.6% were illiterate, 31.8% and 47% were housewives and farmers respectively (Table 1).

Incidence and prevalence of hypertension

Among 152 participants, 7.9% (12) people were known cases of hypertension before the study itself, 10.6% (16) were newly diagnosed with hypertension after screening and the overall prevalence of hypertension in the study population was 18.5% (26.4% and 11.4% males and females respectively). Among the hypertensives, the proportion of hypertension was more among the age group of 60-69 years (39.3%) and illiterates (50%) (Table 2).

The mean systolic BP and diastolic BP of the participants was 125.1 \pm 15.9 mm of Hg and 80.1 \pm 9.9 mm of Hg respectively.

Table 1: Socio-demographic profile of the participants based on the gender distribution.

Socio-demographic Profile	Gender		Total n
	Male n (%)	Female n (%)	
Age group			
• 25-29 years	1(50.0)	1(50.0)	2
• 30-39 years	18 (42.9)	24 (57.1)	42
• 40-49 years	16 (47.1)	18 (52.9)	34
• 50-59 years	11 (68.8)	5 (31.2)	16
• 60-69years	16 (47.1)	18 (52.9)	34
• 70 years and above	10 (43.5)	13	23
Religion			
• Hindus	71 (48.6)	75 (51.4)	146
• Others	1 (20)	4 (80)	5
Marital status			
• Married	71 (47.7)	78 (52.3)	149
• Not Married	1 (50.0)	1 (50.0)	2
Education status			
• Illiterate	39 (44.8)	48 (55.2)	87
• Primary School	13 (46.4)	15 (53.6)	28
• High School	9 (50.0)	9 (50.0)	18
• Graduation	10 (71.4)	4 (28.6)	14
• Post-Graduation	1(25.0)	3 (75.0)	4
Total	72	79	151

Table 2: Distribution of the participants based on the hypertension.

	Hypertension		Total n
	Yes n=28 n (%)	No n=123 n (%)	
Gender			
• Male	19 (67.9)	53 (43.1)	72
• Female	9 (32.1)	70 (56.9)	79
Age group			
• 25-29 years	0 (0)	2 (100.0)	2
• 30-39 years	8 (28.6)	34 (27.6)	42
• 40-49 years	3 (10.7)	31 (25.2)	34
• 50-59 years	3 (10.7)	13 (10.6)	16
• 60-69years	11 (39.3)	23 (18.7)	34
• 70 years and above	3 (10.7)	20 (16.3)	23
Education status			
• Illiterate	48 (55.2)	39 (44.8)	87
• Primary School	15 (53.6)	13 (46.4)	28
• High School	9 (50.0)	9 (50.0)	18
• Graduation	4 (28.6)	10 (71.4)	14
• Post-Graduation	3 (75.0)	1(25.0)	4

DISCUSSION

In our study, the overall prevalence of hypertension among the study population was 18.5% and newly diagnosed hypertension was 10.6%, this prevalence was

lesser than WHO statistics 2015 for India which was 25.35% and study done by Chow CK et al which showed prevalence of 30.7% for India (Rural-31.5%).^{3,6} The systemic reviews of pooled epidemiological studies of India done by Anchala R et al showed a prevalence

27.6% for rural areas of India and 21.1% for rural areas of South India which were more than our study.⁴

A study conducted by Galav A et al in rural areas of Rajasthan was found prevalence of hypertension as 18.7%, study done by Kokiwar PR et al in rural part of Central India showed a prevalence of 19.04% and a study done in rural areas of South India by Yuvraj BY et al found a prevalence of 18.3% which are all similar to the prevalence of hypertension found in our study.⁷⁻⁹ A few studies conducted in rural areas of Jaipur by Kumar K et al and in Maharashtra by Todkar SS et al found a prevalence of hypertension as 13.17% and 7.24% which were very much lower compared to our study.^{10,11}

The prevalence of hypertension among males and females was 26.4% and 11.4% respectively which was slightly higher for males in our study compared to other studies.⁷⁻⁹

The prevalence of hypertension was more among the illiterates which indirectly shows the lack of awareness of the people about screening.

The prevalence of hypertension was more among the 60-69 years age group which was slightly higher compared to studies done by Yuvraj BY et al and Kumar K et al.^{9,10} and was similar to other studies.^{7,8} But in our study, the prevalence of hypertension among 30-39 years age group which was higher compared to other studies and it is alarming since younger age group people are developing hypertension which is a matter of concern for public health.⁷⁻¹¹ The alarming rise of prevalence of hypertension among the younger adults is of great concern for public health.

Limitations of the study was using of convenient sampling method.

CONCLUSION

From this study, we can see that hypertension is not only a concern of the urban population, but also important issue in rural areas. Newly diagnosed cases are also more which indicates, most of the people are not aware of their blood pressure and importance of regular monitoring of blood pressure especially among younger adults. Since screening helps in early detection and treatment initiation which in turn decreases the morbidity and mortality associated with hypertension, so strengthening of basic health facilities along with creation of awareness among population at rural and tribal areas will immensely help in reducing the morbidity and mortality due to hypertension and its complications.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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