Research Article

Awareness about hypertension and its modifiable risk factors among adult population in a rural area of Ranchi district of Jharkhand, India

Chandramani Kumar^{1*}, Vidya Sagar², Mithilesh Kumar², Kumari Asha Kiran²

¹Department and Community and Family Medicine, AIIMS, Patna, Bihar, India

²Department of PSM, RIMS Ranchi, Jharkhand, India

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*Correspondence:

Dr. Chandramani Kumar,

E-mail: drchandramani82@gmail.com

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ABSTRACT

Background: Hypertension often goes unnoticed until a complication occurs. Awareness about the disease is an important factor which determines health seeking behavior of the people. There is relative paucity of information on awareness level of people on hypertension. This study was done with the aim to determine awareness on hypertension among people from a rural area of Jharkhand, India.

Methods: A cross sectional study was done in the rural health training centre area of RIMS, Ranchi, Jharkhand, India. 500 study subjects aged 20 years and above were included in study after sample size determination by n-master 2.0 software. A pre-tested semi-structured questionnaire was used for data collection. Awareness level categorized into no awareness, low awareness, average awareness, good awareness on the basis of their response to question on awareness about hypertension and its modifiable risk factors.

Results: Out of 500 study subjects, 365 (73.0%) had heard of word 'hypertension'. Dizziness (66.1%), anger and anxiety (50.8%) were the most common symptoms known to subjects who had heard hypertension. Of all 500 subjects, 135 (27.0%) had no awareness, 249 (49.8%) had poor awareness, 99 (19.8%) had average awareness and only 17 (3.4%) had good awareness about hypertension. Age ($p\text{-value}\leq 0.001$), sex ($p\text{-value}\leq 0.001$), ethnicity ($p\text{-value}=0.002$) and educational status ($p\text{-value}\leq 0.001$) of the study subjects found to be significantly associated with awareness about hypertension.

Conclusions: More than three-fourth study subjects had heard about hypertension. Only less than one fourth of the study subjects had average to good awareness about hypertension. Age, sex, ethnicity and educational status were significantly associated with awareness on hypertension.

Keywords: Hypertension, Awareness, Risk factors, Rural area, Jharkhand

INTRODUCTION

Globally, hypertension is estimated to cause 7.5 million deaths, about 12.8% of the total of all deaths. This accounts for 57 million disability adjusted life years (DALYS) or 3.7% of total DALYS. Raised blood pressure is a major risk factor for coronary heart disease,

chronic kidney disease and ischemic as well as hemorrhagic stroke.¹ Hypertension (HTN) poses a considerable public health burden on cardiovascular health status and healthcare systems in India.^{2,3} HTN is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India.⁴ A recent meta-analysis has shown prevalence of

hypertension as 40.8% and 17.9% in urban and rural population of India respectively.⁵

Hypertension is a tip of iceberg disease and often diagnosed for seeking treatment for other health problems. Not infrequently it is diagnosed when it results in severe complications and admission to hospital of a patient. Lack of awareness regarding hypertension among public often leads to fatal consequences due to hypertension and related morbidities. Lack of awareness also results in poor health seeking behavior and reluctance in adoption of healthy life style. A meta-analysis reports that the awareness levels for HTN were consistently above 35% in almost all studies from urban areas of India.⁶ Potential modifiable and non-modifiable risk factors exist for hypertension. Common modifiable factors includes obesity, high salt consumption, excess dietary fat, lack of dietary fibers, alcohol intake, high body mass index, physical activity and stress.

There is paucity of information on awareness about hypertension and its risk factors from in India especially from rural areas of the country. Age, sex, educational status, occupation, socioeconomic status, access to mass media etc. are important factors which can determine awareness about a disease or health related event. Considering relatively lower level of literacy and poor socio-economic status, there is possibility of much lower level of awareness about hypertension and its risk factors among rural population. Awareness about diseases is one of the important factors which determine health seeking behavior and outcome of disease or health related events. Better awareness can help in changing unhealthy lifestyle to healthy one and improvement in early health seeking behavior of people.

If people are aware there will be higher possibility to practice primary level of prevention which may decrease burden on health system to seek secondary level of prevention for hypertension. We conducted this study to determine prevalence, awareness and risk factors for hypertension in a rural area of Jharkhand. Some part of this study has been published earlier.^{7,8}

METHODS

A cross sectional study was conducted in rural health training centre area of Rajendra Institute of Medical Sciences (RIMS), Ranchi, Jharkhand, India from January 2013 to September 2014. Sample size was calculated by n-Master software 2.0 developed at CMC, Vellore, India. Cluster design of sampling was adopted for study. Based on literature search; we assumed expected prevalence of hypertension as 20%, absolute precision of 5%, design effect 2 and 95% confidence interval, a sample size of 492 was calculated. Persons of age 20 years or more were considered as adult population. A method of subject selection and eligibility criteria has been discussed in detail in previous published articles.^{7,8}

A pre-tested, semi-structured questionnaire was used for data collection. A person was considered hypertensive if he/she has a systolic BP of ≥ 140 mm Hg and/or a diastolic BP of ≥ 90 mm Hg measured on two separate occasions with a minimum interval of at least 5 minutes between the two measurements OR a self-reported history of taking anti-hypertensive medications.⁹ Study was approved by Institutional ethical committee of RIMS, Ranchi, Jharkhand, India.

For assessment of awareness about hypertension, 10 questions were asked for 14 correct responses. Each correct response was given 1 mark. Based on marks obtained, awareness was categorized as follows;

- No awareness-0 correct response (0 marks)
- Poor awareness-1 to 4 correct responses (1-4 marks)
- Average awareness-5 to 9 correct responses (5-9 marks)
- Good awareness-10 to 14 correct responses (10-14 marks)

Questions were asked to respondents in relation to awareness about hypertension like whether they have heard of word 'hypertension', symptoms of hypertension, relation of hypertension with green leafy vegetables and fruits consumption, added salt intake, and physical activity.

Statistical analysis

Data entry was done in MS excel spreadsheet. Data analysis was done using SPSS software. Chi square test was applied to see the association between categorical variables.

RESULTS

Overall prevalence of hypertension in the study area was found to be 19.8% (99). Among 99 hypertensive subjects, only 23 (23.2%) subjects were aware about their hypertensive status. Of 500 study subjects, 365 (73.0%) had heard of word 'hypertension'. Out of 365, only 124 (36.7%) subjects were aware of one or more symptoms of hypertension. Dizziness (66.1%), headache (37.1%) and anger and anxiety (50.8%) were most common symptoms of hypertension quoted by those 124 study subjects (Table 1).

Of 365 study subjects who had heard about hypertension, only 107 (31.9%) were aware about relation of hypertension with salt intake. However, 103 (96.2%) were correctly knowing that salt consumption can increase blood pressure. Likewise, 139 (38.1%) subjects were aware that consumption of green leafy vegetables and fruits are good for hypertension.

Only 60 (16.1%) study subjects were aware about relation between hypertension and physical activity. All those 60 subjects said that physical activity is beneficial

for hypertension. Awareness about relation of hypertension with obesity was also low (86, 23.5%). Among these 86 subjects, 84 (97.6%) were correctly

aware that obesity increases risk of hypertension whereas two subjects said that obesity decreases risk of hypertension (Table 2).

Table 1: Awareness about hypertension among study subjects (n = 500).

Awareness about hypertension		Number	Percentage
Heard about hypertension (n = 500)	Yes	365	73.0
	No	135	27.0
Know about symptoms of hypertension (n=365)	Yes	124	36.7
	No	231	63.3
Symptoms (n=124) (multiple response)	Headache	46	37.1
	Dizziness	82	66.1
	Palpitation	7	5.6
	Anger and anxiety	63	50.8
	Nausea/ vomiting	1	0.8
	Others *	13	10.5

*Blurring of vision, Brain haemorrhage, Weakness, Chest pain, Breathing difficulty, Heart problem.

Table 2: Awareness about relation of hypertension with salt intake, fruit and green leafy vegetable, physical activity and obesity.

Variables		Number	Percentage
Aware about relation between salt intake and hypertension (n=365)	Yes	107	31.9
	No	258	68.1
How salt affect blood pressure (n=107)	Salt decreases BP	3	2.8
	Salt increases BP	103	96.2
	Can increase or decrease BP	1	0.9
Green leafy vegetable and fruits are good for hypertension (n = 365)	Yes	139	38.1
	No	226	61.9
Aware about relationship between physical activity and hypertension (n = 365)	Yes	60	16.4
	No	305	83.6
Aware about relationship between obesity and hypertension (n=365)	Yes	86	23.5
	No	209	76.5
How does obesity affect blood pressure (n=86)	Obesity increases risk of high BP	84	97.6
	Obesity decreases risk of high BP	02	2.4

Based on all questions and scoring, it was found that 135 subjects (27.0%) had no awareness, 249 (49.8%) had poor awareness, 99 (19.8%) had average awareness and only 17 subjects (3.4%) had good awareness (Table 3).

Finding of this study suggest that average to good awareness about hypertension was higher among study subjects of younger age group compared to older subjects. This difference in awareness about hypertension in different age group was statistically significant (p-value ≤ 0.001) (Table 4).

Table 3: Overall awareness about hypertension among subjects (n = 500).

Awareness	Number	Percentage
No awareness	135	27.0
Poor awareness	249	49.8
Average awareness	99	19.8
Good awareness	17	3.4
Total	500	100.0

Table 4: Awareness about hypertension among subjects from different age group (n = 500).

Age (in years)	No awareness	Poor awareness	Average awareness	Good awareness	Total
20-29	11 (12.2%)	49 (54.4%)	27 (30.0%)	3 (3.3%)	90 (100.0%)
30-39	16 (14.7%)	62 (56.9%)	26 (23.9%)	5 (4.6%)	109 (100.0%)
40-49	27 (21.6%)	65 (52.0%)	28 (22.4%)	5 (4.0%)	125 (100.0%)
50-59	38 (41.3%)	43 (46.7%)	10 (10.9%)	1 (1.1%)	92 (100.0%)
≥ 60	43 (51.2%)	30 (35.7%)	8 (9.5%)	3 (3.6%)	84 (100.0%)
Total	135 (27.0%)	249 (49.8%)	99 (19.8%)	17 (3.4%)	500 (100.0%)

$\chi^2 = 61.350$, $df = 12$, $p\text{-value} \leq 0.001$.

Table 5: Awareness about hypertension among subjects from different ethnic group (n = 500).

Ethnicity	No awareness	Poor awareness	Average awareness	Good awareness	Total
Tribal	55 (37.2%)	67 (45.3%)	19 (12.8%)	7 (4.7%)	148 (100.0%)
Non-tribal	80 (22.7%)	182 (51.7%)	80 (22.7%)	10 (2.8%)	352 (100.0%)
Total	135 (27.0%)	249 (49.8%)	99 (19.8%)	17 (3.4%)	500 (100.0%)

$\chi^2 = 15.147$, $df = 3$, $p\text{-value} = 0.002$.

Table 6: Awareness about hypertension among subjects of different educational status (n = 500).

Educational status	No awareness	Poor awareness	Average awareness	Good awareness	Total
Illiterate	107 (48.4%)	92 (41.6%)	19 (8.6%)	3 (1.4%)	221 (100.0%)
<10 th standard	19 (11.2%)	109 (64.1%)	36 (21.2%)	6 (3.5%)	170 (100.0%)
≥10 th standard	9 (8.3%)	48 (44.0%)	44 (40.4%)	8 (7.3%)	109 (100.0%)
Total	135 (27.0%)	249 (49.8%)	99 (19.8%)	17 (3.4%)	500 (100.0%)

$\chi^2 = 123.315$, $df = 6$, $p\text{-value} \leq 0.001$

Table 7: Awareness about hypertension in both sexes (n = 500).

Sex	No awareness	Poor awareness	Average awareness	Good awareness	Total
Male	47 (17.9%)	146 (55.5%)	61 (23.2%)	9 (3.4%)	263 (100.0%)
Female	88 (37.1%)	103 (43.5%)	38 (16.0%)	8 (3.4%)	237 (100.0%)
Total	135 (27.0%)	249 (49.8%)	99 (19.8%)	17 (3.4%)	500 (100.0%)

$\chi^2 = 23.993$, $df = 3$, $p\text{-value} \leq 0.001$

Similarly, average to good awareness was higher among non-tribal study subjects and those who were educated 10th standard or above. These differences in awareness based on ethnicity ($p\text{-value} = 0.002$) and literacy status ($p\text{-value} \leq 0.001$) of study were statistically significant (Table 5 and 6). Awareness level also differed in both sexes as male subjects had better average to good awareness level than female study subjects. The difference in awareness level about hypertension on the basis of sex was also found to be statistically significant ($p\text{-value} \leq 0.001$) (Table 7).

DISCUSSION

Awareness regarding different aspects of any illness is vital in prevention and control of that illness. Many health programs have endorsed this for prevention and control of diseases in community. In present study, it was found that for only less than one fourth of the subjects, awareness regarding hypertension was average to good. Only around one third of the aware subjects knew one or

more symptoms of hypertension. Association of salt, green leafy vegetable and fruit intake with hypertension was correctly known to around one third of aware subjects. Awareness regarding association between physical activity and obesity with hypertension was also less among study subjects. Awareness level regarding hypertension in community was significantly associated with sex, age, ethnicity and educational status. Though there was difference in awareness level based on religion and occupation of subjects, it was not found statistically significant. Low level of awareness regarding hypertension was also found in a study conducted by Kusuma YS in New Delhi, India.¹⁰

Present study also revealed that only nearly one fourth of hypertensive people were aware of their hypertensive state. This finding supports the iceberg phenomena of disease for hypertension. Finding of the present study is similar to the findings of a recent meta-analysis which has also estimated the awareness level of around 25% in adults in rural area of India.⁶ Another study done by

Reddy SS and Prabhu GR reported 83.7% awareness regarding their hypertensive state.¹¹ However, Reddy SS and Prabhu GR had conducted their study in urban area which may be reason behind higher awareness level. Study conducted by Meshram et al on tribal population of Kerala found that only 10% hypertensive subjects were aware about their hypertension.¹² Other studies have reported varying proportions of awareness among subjects.^{13,14,15} We did not included questions related to other risk factors for hypertension which is an important limitation of our study. In this study, awareness on all modifiable risk factors could not be assessed and selected common modifiable risk factors were included. This makes another important limitation of the present study.

CONCLUSION

Present study found that less than one fourth of the study subjects were having average to good awareness level about hypertension and its risk factors. Awareness level about hypertension was significantly related to age, sex, ethnicity and educational status of study subjects. Less than one fourth of the hypertensive subjects were aware about their hypertensive state. This study clearly shows the tip of iceberg phenomenon for hypertension. Further study at a broad level may be undertaken to identify actual situation in Jharkhand state which will be helpful in policy making to increase awareness about hypertension and other NCDs.

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