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## **Research Article**

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# Study on prevalence and risk factors of hypertension in rural field practice areas of Kurnool medical college, Kurnool

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#### **ABSTRACT**

**Background:** Hypertension causes 1.86% mortality worldwide. Hypertension and its consequences is the 7th leading cause of death in India. In India the prevalence of hypertension is 30%. This study is an attempt to identify the persons suffering from hypertension and their risk factors. The objectives of the study was to identify high risk groups suffering hypertension, to study association of hypertension with socio-demographic factors and other variables and to educate/generate awareness among the people residing in study area.

**Methods:** This study is a community based cross sectional study in rural field practice areas of Kurnool Medical College, Kurnool from January-2015 to March-2015. The study population includes all the persons aged 35 and above. The sample size was 233. Two villages were selected from field practice area of Kurnool Medical College based on simple random sampling technique. Recording of blood pressure of aged 35 years and above was done by using sphygmomanometer. If the person had hypertension, clinical examination was done to identify any complications.

**Results:** 42.42% of study population has hypertension. Hypertension was significantly more common in the age group of 41-60 years and significantly more among males. Hypertension was more common in professional and semiprofessional occupation, significantly more among population having BMI more than 25 KG/M<sup>2</sup>. Hypertension was significantly more common in smokers and non-vegetarians.

**Conclusions:** As age progresses the prevalence of hypertension also increases. Hypertension was more common among male population. Hypertension was increased with BMI. Hypertension was more among persons with habits like smoking, alcoholism and non-vegetarians, persons using ghee. One fifth of the study population knew about symptoms and signs of hypertension. Half of the study population was known hypertensive and had regular health checkups and only one third had regular treatment. One tenth of study population knew about complications of untreated hypertension and no one was practicing stress relieving exercises.

Keywords: Hypertension, Risk factors, Rural area, Health education

## INTRODUCTION

Hypertension causes 1.86% mortality worldwide. Hypertension and its consequences is the 7<sup>th</sup> leading cause of death in India. In India the prevalence of

hypertension is 30%.<sup>1</sup> A recent report on the global burden of hypertension indicates that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025.<sup>2</sup>

Hypertension rarely causes symptoms in the early stages and many people go undiagnosed. Those who are diagnosed may not have access to treatment and may not be able to successfully control their illness over the long term

Earlier studies conducted in Kurnool Medical College in the year 2009 showed 41.63% prevalence in rural areas among geriatric people. However inspite of earlier studies people from the study area are presenting to the casualties with late complications of hypertension like stroke and CHD. This study is an attempt to identify the persons suffering from hypertension and refer them for treatment and to raise awareness among rural population on hypertension so that the morbidity & mortality associated with hypertension are reduced.

**Aim:** To bring awareness among rural population about hypertension and to prevent complications by early diagnosis and treatment.

### Objectives:

- 1. To identify high risk groups suffering hypertension.
- 2. To study association of hypertension with sociodemographic factors and other variables.
- 3. To educate/generate awareness among the people residing in study area.

## **METHODS**

This study is a community based cross sectional study in rural field practice areas of Kurnool Medical College, Kurnool from January-2015 to March-2015. The study population includes all the persons aged 35 and above. The sample size was 233 (prevalence 30%, allowable error 20% of prevalence). Two villages were selected from field practice area of Kurnool Medical College based on simple random sampling technique. Enlisting of study subjects were done by random sampling technique by using lok sabha electoral of 2012. Questionnaires were prepared from standard structured questionnaire tailored after pilot study to our study needs. Each individual after obtaining consent were taken into consideration for study. Recording of blood pressure of aged 35 years and above was done by using sphygmomanometer.

Each study subject was interviewed using pretested semi structured questionnaire after pilot study. Weight and height were measured. Blood pressure was measured 3 times with a gap of 1 minute and average was taken to classify the hypertension in sitting position. SBP  $\geq$ 140 mm of hg and/or DBP  $\geq$ 90 mm of hg was taken as cutoff. If the person had hypertension, clinical examination was done to identify any complications. Health education was given to study subjects to generate awareness about risk factors and complications of hypertension.

Statistical analysis was done using Microsoft excel and Epi info 7 statistical software. Descriptive statistics and chi square test was used to test statistical significance (p <0.05).

#### **RESULTS**

Table 1: Socio demographic factors.

Factors	Number	Percentage
Age (in Years)		
20-40	60	25.97
41-60	135	58.45
>60	36	15.58
Sex		
Male	95	41.12
Female	136	58.88
Occupation		
Unemployed	40	17.31
Agriculture worker	13	5.62
Coolie	108	46.76
Home maker	52	22.52
Others	18	7.79

Table 1 show among study population most of them were in the age group of 41-60 years, females were more than males and coolies were more common than other occupations.

Table 2: Distribution of study population according to risk factors of hypertension.

Factors	Number	Percentage
BMI		
<18.5	13	5.63
18.5- 22.9	85	36.80
23-24.9	42	18.18
25-30	75	32.46
>30	16	6.93
Waist		
circumference		
Males	86	90.52
<102	9	9.48
≥102	<i>,</i>	7. <del>4</del> 0
Females		
<88	101	74.26
≥88	35	25.74
Waist Hip ratio		
Males		
<1	70	73.68
≥1	25	26.32
Females		
< 0.85	83	61.02
≥0.85	53	38.98

Table 2 shows most of the study population have BMI more than 25 KG/M<sup>2</sup>, among males 90.52% have waist circumference <102 CM and 9.48% have  $\geq$ 102 CM and in females 74.26% have <88 CM, 25.74% have  $\geq$ 88

CM. Among males 73.68% have WHR <1, 26.32 have  $\ge 1$  and in females 61.02% have <0.85, 38.98% have  $\ge 0.85$ . Among hypertensives 14.28% have family history.

Table 3: Distribution of study population according to blood pressure (JNC 7).

Blood pressure	Number	Percentage
Normal	82	35.49
Pre hypertension	51	22.08
Stage 1	69	29.88
Stage 2	29	12.55

Table 3 shows 42.42% (98/231) of study population have hypertension according to JNC 7 classification. 22.08% have prehypertension, 29.88% have stage 1 and 12.55% have stage 2 hypertension.

Table 4 shows hypertension was significantly more common in the age group of 41-60 years and significantly more among males. Hypertension was more common in professional and semi-professional occupation, significantly more among population having BMI more than 25 KG/  $\rm M^2$ . Among males hypertension was more among persons with waist circumference more than 102 CM, WHR of <1 and in females more common in more than 88 CM, WHR of  $\geq 0.85$ .

Table 4: Association of risk factors with hypertension.

Risk factors	Hypertension	Normal BP	P value
Age (Years)			
20-40	19 (31.67)	41 (68.33)	
41-60	54 (40)	81 (60)	0.0008
>60	25 (69.44)	11 (30.56)	
Sex			
Male	49 (51.58)	46 (48.42)	0.0186
Female	49 (36.03)	87 (63.97)	
Occupation			
Unemployed	17 (42.5)	23 (57.5)	0.1657
Agriculture worker	5 (38.46)	8(61.54)	
Coolie	47(43.52)	61 (56.48)	
Home maker	17(40.47)	35(59.53)	
Professional and semi professional	12(66.66)	6(33.34)	
BMI			
≤18.5-22.9	34 (34.69)	64 (65.31)	0.041
23 -≥30	64 (48.12)	69 (51.88)	
Waist circumference			
Males			0.0982
<102	42 (48.84)	44 (51.16)	
≥102	7 (77.78)	2 (22.22)	
Females			0.8735
<88	36 (35.64)	65 (64.36)	
≥88	13 (37.14)	22 (62.86)	
Waist Hip ratio			
Males			
<1	37 (52.86)	33 (47.14)	0.6765
≥1	12 (48)	13 (52)	
Females			
<0.85	29 (31.18)	64 (68.82)	0.42
≥0.85	20 (37.74)	33 (62.44)	
Family history			
Yes	18 (66.67)	9 (33.33)	0.0066
No	70 (39.22)	124 (60.78)	

Table 5 shows hypertension was significantly more common in smokers and non-vegetarians. Hypertension

was more common in alcoholics, tobacco chewers and persons using ghee.

Table 6 shows 20.4% study population have knowledge regarding signs and symptoms of hypertensions, 41.43% have regular health check-ups, 47.95% are known hypertensives, 32.65% have regular treatment, 10.2%

have knowledge regarding complications of hypertension and no one are practicing stress relieving exercises. Awareness regarding above all features was increased significantly.

Table 5: Association of habits with hypertension.

Habits	Hypertension	Normal BP	P value
Smoking			
Yes	15 (68.18)	7 (31.82)	0.01
No	83 (39.71)	126 (60.29)	
Alcohol			
Yes	8 (57.14)	6 (42.86)	0.25
No	90 (41.47)	127 (58.53)	
Tobacco chewing			
Yes	3 (37.5)	5 (62.5)	0.93
No	95 (42.6)	128 (57.4)	
Physical exercise			
Yes	56 (45.16)	68 (54.84)	0.364
No	42 (39.25)	65 (60.75)	
Mental stress			
Yes	6 (37.5)	10(62.5)	0.679
No	92 (42.79)	123 (57.21)	
Type of oil			
Palm oil	72 (41.38)	102 (58.62)	0.574
Others	26 (45.61)	31 (54.39)	
Non vegetarian			
Yes	89 (40.83)	129 (59.17)	0.044
No	9 (69.23)	4 (30.77)	
Extra salt			
Yes	28 (39.44)	43 (60.56)	0.508
No	71 (44.10)	90 (55.90)	
Ghee			
Yes	5 (50)	5 (50)	0.866
No	93 (42.42)	128 (57.58)	

## DISCUSSION

The prevalence of hypertension was 42.42%. This result was higher than studies done by V. Mohan et al reported overall prevalence of hypertension in the study population was 20% (469/2350) in Chennai city. The prevalence of self-reported hypertension was 6.6% (154/2350).

Prabakaran J et al conducted a study in Nellore. They reported that the prevalence of hypertension was 29.3% with 95% CI: 26.4%-32.3%. The prevalence of prehypertension was 22.3% (95% CI: 19.8%-25%).<sup>3</sup>

This study revealed that hypertension was more common in >40 years. Similar results were observed by S. Yadav, R. Boddula et al in their study among urban residents (Lucknow), using JNC 7 criteria, mean systolic and diastolic BP rose significantly with increasing age.

Hypertension was more common in professional and semi-professional workers. The study results of S .S. Reddy et al revealed higher prevalence of hypertension among people belongs to business occupation (15.2%) followed by skilled and semi-skilled (12.5%) and in professionals (11.1%) compared to other occupational groups and the difference was statistically significant.<sup>4</sup>

Among hypertensives family history positive in 66.67%. Yadav et al also observed that higher prevalence of hypertension but not pre hypertension among the persons who had the family H/o hypertension.<sup>5</sup>

Hypertension was more common in smokers and non-vegetarians. Prabakaran J et al, in their study among urban population of Nellore, reported that smoking was a significant risk factor for both systolic (F=0.13) and diastolic blood pressure (F=0.16).

Table 6: Awareness of symptoms and signs of hypertension.

Symptoms	Pre	Post	P value
and signs	intervention	intervention	
Yes	20 (23.53)	65 (76.47)	0.0000
No	78 (70.27)	33 (29.73)	
Regular hea	lth check-ups		
Yes	41 (34.45)	78(65.55)	0.0000
No	57 (74.03)	20(25.97)	
Known hype	ertensive		
Yes	47 (32.41)	98 (67.59)	0.0000
No	51 (100)	0 (0)	
Treatment r	egularity		
Yes	32 (25.81)	92 (74.19)	0.0000
No	66 (91.67)	6 (8.33)	
Knowledge of Complications			
Yes	10 (16.39)	51 (83.61)	0.0000
No	88 (65.19)	47 (34.81)	
Practicing stress relieving exercises			
Yes	0 (0)	15 (15)	0.0000
No	98(54.14)	83(45.86)	

Hypertension was more common in obese individuals. Gupta R, from Jaipur, through three epidemiological studies carried out during 1994, 2001 and 2003 demonstrated rising trend rates of 20%, 36%, and 62% respectively. This prevalence is similar to the findings of the present study. <sup>6,7</sup>

S.S. Reddy et al in their study found that, among study subjects who were taking non-vegetarian diet, 8.8% were hypertensives and the association was not statistically significant.<sup>4</sup>

#### **CONCLUSION**

This study shows prevalence of hypertension among study population was 42.42%. As age progresses the prevalence of hypertension also increases. Hypertension was more common among male population. Hypertension was increased with BMI. Chance of getting hypertension was increased with high waist circumference and waist hip ratio among both male and females. Hypertension was more among persons with habits like smoking, alcoholism and non-vegetarians, persons using ghee. One fifth of the study population knew about symptoms and signs of hypertension. Half of the study population was known hypertensive and had regular health check-ups and only one third had regular treatment. One tenth of study population knew about complications of untreated hypertension and no one was practicing stress relieving exercises.

#### Recommendations

 The prevalence of hypertension was high among tobacco and alcoholic abusers which are not only risk factors for hypertension but also for other NCDs and

- social and economic problems among the population leading to high morbidity and mortality. Hence it is necessary to implement the prohibition of tobacco and alcohol use or to ban these harmful products by the government.
- The prevalence of hypertension was increasing as the degree of obesity is increasing. Various strategies like low fat diet, increased daily physical activity etc are needed to tackle the problem of obesity.
- The prevalence of hypertension was found to be high among graduate, postgraduates and also in upper socio-economic population. It may be due to sedentary lifestyle, indiscriminate eating of junk food, feeling of insecurity, anxiety regarding settlement etc. and this can be tackled by encouraging them to do regular physical activity for at least 30-60min/hour.
- Prevalence of hypertension was high among the persons who had family H/O hypertension and diabetes. For unmodifiable risk factors like these, health education should be given from the school level and for promoting voluntary participation in screening programmes.
- Prevalence of hypertension was found to be high among those who have a habit of adding extra salt to food. This habit can be given up by the population when proper counselling and health education is given to them.

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