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Research Article

Prevalence of hypertension among reproductive age group tribal women in Visakhapatnam district, Andhra Pradesh, India

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ABSTRACT

Background: Globalization brought the lifestyle & behavioural modifications and in turn increased the prevalence of life style disorders such as hypertension. According to ICMR report 2007-08, the prevalence of hypertension was varying from 17-21 % in all states with marginal rural-urban differences. At the same time, tribal communities were little affected with globalization & had low socio economic development when compared to other areas. Based on this back ground the present study was conducted with an aim to estimate the prevalence of hypertension in reproductive age group tribal women. The current study was conducted in ITDA Paderu division of Visakhapatnam district, India.
Methods: It was a cross sectional observational study conducted among 214 randomly selected consented tribal women. A structured questionnaire was applied and blood pressures were measured with standardized electronic blood pressure apparatus. Joint national committee-7 classification was used to estimate the prevalence of hypertension. Data was analyzed with SPSS-21 trial version and Chi-square & correlation tests were used to test significance of results.
Results: Among the study women, 40.6% belonged to prime tribe groups (PTG) & 36% of women had debts. Two fifths (40.7%) of tribal women were normotensive & another two fifths (42.1%) were in pre-hypertensive stage. Stage-1 hypertension was observed in 16.3% of study women. Non- PTGs & women with debts had significantly high prevalence of hypertension when compared to other groups.
Conclusions: Prevalence of HTN was more in tribal women when compared to national prevalence indicating the need of screening of blood pressures in tribal communities.

Keywords: Hypertension, JNC-7 classification, Life style disorders, Prime tribe groups, Tribal women

INTRODUCTION

India and many other developing countries were facing a problem of epidemiological transition from communicable diseases to non communicable diseases.[1] Successful implementation of various controlling; preventing and eradication programs gradually decreased the burden of communicable diseases. At the same time globalization brought the life style and behavioral modifications and in turn increased the prevalence of life style disorders such as Hypertension and diabetes mellitus etc. According to ICMR survey report 2007-08, the prevalence of hypertension was varying from 17-21 % in all the states with marginal rural-urban differences.[2] But according to rule of halves, Only one half of the patients with high blood pressure in a population have been diagnosed, only half of those detected have been treated, and only half of those treated have been adequately treated to a normal blood pressure.[3] It clearly represented the iceberg phenomena of disease.

Tribal people can be identified with some specific features like geographical isolation, distinctive culture, language, and religion and shyness of contact. They had low levels of education and they are living in inaccessible areas. All these factors made them to underutilize the

health services available to them. Thus the most of hypertensive subjects in tribal communities were unaware of their blood pressures and not yet diagnosed. At the same time, tribal communities were little affected with globalization changes and had low socio economic development when compared to rural and urban communities. Based on this back ground the current study was conducted in ITDA Paderu division of Visakhapatnam district to estimate the prevalence of hypertension in tribal women and to study socio-demographic profile of study participants.

METHODS

It was a cross sectional observational study conducted among tribal women in ITDA paderu division of Visakhapatnam District, Andhra Pradesh, India. Data collected during the period from April to June 2014. Sample size was calculated based on the prevalence of Hypertension among tribal women as reported in the study conducted by Radhakrishnan S and Ekambaram M in Tamilnadu. They reported a prevalence of 66.2% hypertension in tribal women.[4] Based on this prevalence; sample size was calculated as 214 using the formula $4pq/L^2$ at 95% confidence interval. All tribal women in reproductive age group (15-49 years of age) were included in the study. Pregnant women and women suffering with acute infectious diseases were excluded from study. A prior permission was taken from Additional DM&HO of ITDA Paderu division. Medical officers and field staff of local Primary health centers (PHC) help was taken to collect the data. Multistage random sampling technique was applied to select the study subjects. Three community health nutritional centers (CHNC) were selected among the all nine CHNCs present in ITDA paderu division. From each selected CHNC three PHCs were selected and one village was selected from each selected PHC. A total of nine villages were selected from nine selected PHCs. Two hundred fourteen tribal women were selected randomly from nine different villages to ensure the inclusion of both Prime tribe groups (PTG) and Non-Prime tribe groups. Information regarding socio-demographic profile was collected from the consented tribal women using a structured questionnaire. Blood pressures were measured with standardized electronic blood pressure apparatus in sitting position. Joint national committe-7 classification was used to estimate the prevalence of Hypertension. Data was analyzed with SPSS-21 trial version. Chi-square and correlation tests were used to test the significance of results.

RESULTS

Among all the study women, 11.2% in 15 to 20 years age group, around 64 % were in the age group of 21-30 years and 19.6 % in 31-40 years age group. Most of the study women (59.3%) were illiterates. About one fourth (28%) of study women were unemployed/ remained at home and 72 % were working women. Women in the study belong to three Prime Tribe Group tribes (Khonds, Gadabas & Porijas) and six non- Prime Tribe Groups tribes. PTGs constituted about two fifth (40.6%) of study subjects and remaining were non-PTGs. Majority of the study women (78.5%) belonged to Hindu religion and reaming were Christians. Almost two thirds of study women (64.7%) belonged to nuclear families. All the women belonged to below poverty line families and had white ration card. Debts present in 36% of families. About 15% of study women stated that they had previous history of Hypertension (Table 1).

Table 1: Socio-demographic profile of study population.

Variable	Variable	Number n=214	Percentage
Age group	15-20 years	24	11.2
	21-30 years	137	64
	31-40 years	42	19.6
	41-49 years	11	5.2
	Total	214	100
Literacy	Illiterates	127	59.3
	Up to primary school	10	4.7
	Secondary school	36	16.8
	Intermediate and above	41	19.2
	Total	214	100
Occupation	Non- working	58	27.1
	Working	156	72.9
	Total	214	100
Caste	Prime tribe groups	87	40.6
	Non-prime tribe groups	127	59.4
	Total	214	100
Religion	Hindu	168	78.5
	Christian	46	21.5
	Total	214	100
Type of family	Nuclear family	138	64.5
	Joint family	76	35.5
	Total	214	100
Having white ration card	Yes	214	100
Debts	Present	77	36
	Absent	137	64
	Total	214	100

The means of systolic blood pressures and diastolic blood pressures in the study subjects were 122.43±14.463 mm of Hg and 78.70±10.67 mm of Hg. The distribution of systolic and diastolic blood pressures in study subjects were represented in Figure 1 & 2. The ranges of systolic and diastolic blood pressures were 90 to170 mm of Hg

and 58 to 108 mm of Hg respectively. Figure 3 represented the distribution of Hypertension in study women according to JNC-7 classification. About two fifths (40.7%) of study women blood pressures were in normal range and another two fifths of study women had (42.1%) blood pressures in pre-hypertensive range. Stage 1 hypertension was observed in 16.3% of study women. A very few (0.9%) women had stage 2 hyper tension.

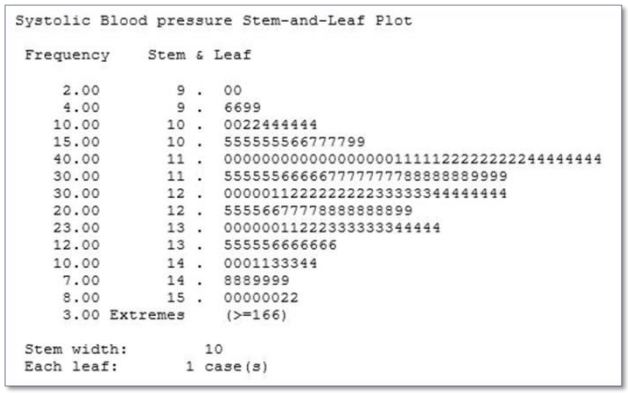

Figure 1: Distribution of systolic blood pressures among study population.

Figure 4 showed that, age had statistically significant positive correlation with both systolic (r=0.298) and diastolic blood pressures (r=0.318). Table 2 depicted that more number of hypertensive subjects were in elderly age groups. Non- PTG women had significantly high prevalence of Hypertension when compared to PTGs. Study women having debts also had significantly high prevalence of Hypertension when compared to women without debts. Hindus had high prevalence of Hypertension when compared to Christians. But it was not statistically proved. Both joint family members and nuclear family members had almost equal prevalence of hypertension (Table 2).

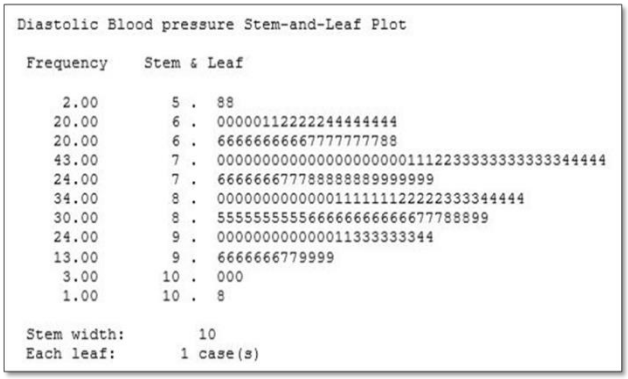

Figure 2: Distribution of diastolic blood pressures among study population.

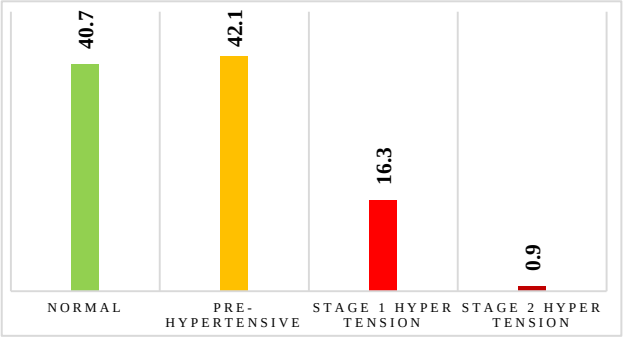

Figure 3: Distribution of hyper tension in study women.

Table 2: Distribution of hypertension Vs socio demographic profile of study women (n=214).

Variable	Variable	Normal	Pre hypertensive	Stage 1	Stage 2	Chi square/df/ P value
Age group	15-20	17	7	0	0	33.67/9/0.00
	21-30	60	53	23	1	
	31-40	6	27	9	0	
	41-49	4	3	3	1	
	Total	87	90	35	2	
Caste	PTG	42	44	1	0	26.71/3/0.00
	Non-PTG	45	46	34	2	
	Total	87	90	35	2	
Religion	Hindu	64	76	26	2	4.05/3/0.255
	Christian	23	14	9	0	
	Total	87	90	35	2	
Type of Family	Nuclear Family	56	56	24	2	1.55/3/0.669
	Joint Family	31	34	11	0	
	Total	87	90	35	2	
Debts	Present	46	66	24	1	8.56/3/0.036
	Absent	41	24	11	1	
	Total	87	90	35	2	

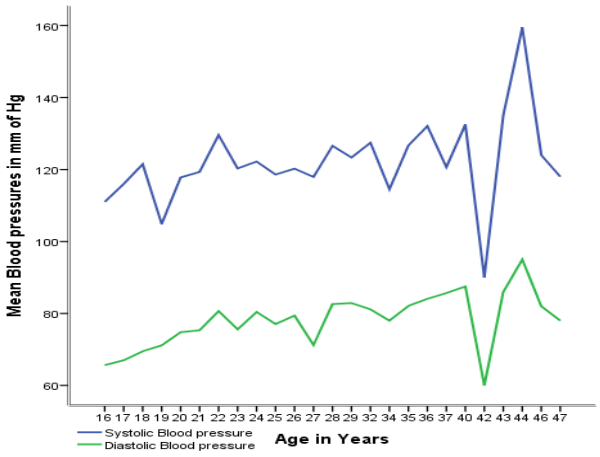

Figure 4: Age wise distribution of systolic and diastolic blood pressures.

DISCUSSION

In the current study it was observed that mean Systolic blood pressure and diastolic blood pressures in the study subjects were 122.43±14.463 mm of Hg and 78.70±10.67 mm of Hg. These values were nearer to the mean values of blood pressures reported by Hathur B, et al in their study among jenu kuruba tribes in Mysore district, Karnataka.[5]

In the current study it was observed that, 40.7% women were normotensive and 59.3% were hypertensive subjects. Among the hypertensive women most of the women (42.1%) were in pre hypertensive stage, 16.3% women were in stage-1 hypertension and very few women (0.9%) had stage-2 hypertension. But only 15% of women stated that they had history of hypertension. The remaining 44.3% hypertensive women were not yet diagnosed. It resembled the iceberg phenomenon of disease. A study conducted by Shankar Radhakrishnan among tribal population in Tamilnadu state also revealed that, 42.4% women were normotensive, 30.3% had prehypertension, 17.6% women had stage 1 hypertension and only 9.4% women had stage 2 hypertension.[4] Meshram, et al in their study among tribal population in Kerala reported that, prevalence of hypertension among tribal women was 35.8%.[6] Laxmaih A, et al in their multi centric study among tribal population reported that prevalence of hypertension among tribal women was 26.4%.[7] Whereas Rajnarayan R Tiwari in his study among tribal population in Gujarat reported low prevalence of hypertension as 17.5% among tribal women when compared to other studies.[8] Kshatriya GK and Acharya SK in their multi centric study among Indian tribes also reported a low prevalence of hypertension among tribal women i.e., 14%.[9] These differences may be due to the underlying hereditary factors and socio-economic conditions which differ from community to community.

The current study revealed that about two fifth of women were in pre hypertensive stage. They were at risk of developing stage 1 and stage 2 hypertension if no precautionary measures were taken. It indicated the need of health education regarding hypertension to control further stages of hypertension.

Positive correlation of blood pressures with age indicated that elderly age is a risk factor for hypertension. This result was in consistent with the study conducted by Shankar Radhakrishnan, et al and Meshram, et al and Laxmaih A, et al.[4,6,7] All the studies agree with the fact that prevalence of hypertension increased with age.[10,11] which is in par with this study. Age probably represents an accumulation of environmental influences and the effect of genetically programmed senescence in body systems.[12] The sudden drop in both systolic and diastolic blood pressures at the age of 42 years was because of presence of only two study subjects in that age and both of them were reported as normotensive.

Non-PTG women had more prevalence of hypertension when compared to PTG women. It may be because of hereditary factors or more socio-economic development and life style modifications in Non-PTGs when compared to PTGs. A high prevalence of hypertension was observed among tribal women belonging to Hindu religion when compared to Christians. But it had no statistical significance.

The positive association between debts and high blood pressures were reported by several studies.[13,14] The same was observed in the current study. Prevalence of hypertension was more in women with debts when compared to women without debts. Tribal population were used to borrow money from private lenders instead of public sector banks. The stress for repayment of money to private lenders might be the cause hypertension among tribal women with debts. Thus implementation of social security schemes and establishment of micro finance institutes in tribal areas might provide economical support and reduce the financial burden and stress upon the tribal women which in turn reduce the prevalence of hypertension.

CONCLUSION

Prevalence of hypertension was observed more in the current study participants (59.3%) when compared to national prevalence (17-21%) and most of the hypertensive tribal women in the present study were not yet diagnosed.

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REFERENCES

1. Yadav S, Arokiasamy P. Understanding epidemiological transition in India. Global Health Action. [S.l.], v. 7, may. 2014. ISSN 1654-9880. Available at: <http://www.globalhealthaction.net/index.php/gha/article/view/23248>. Date accessed: 20 Jan. 2016. doi:http:// dx.doi.org/10.3402/gha.v7.23248.
2. Govt. of India, National Health report. 2011. Ministry of Health and Family welfare, New Delhi.
3. Strasser T. WHO chronicle. 1972;26:451.
4. Radhakrishnan S, Ekambaram M. Prevalence of diabetes and hypertension among a tribal population in Tamil Nadu. Arch Med Health Sci. 2015;3:66-71.
5. Hathur B, Basavegowda M, Ashok NC. Hypertension: An emerging threat among tribal population of Mysore; Jenu Kuruba tribe diabetes and hypertension study. Int J Health Allied Sci. 2013;2:270-4.
6. Meshram II, Arlappa N, Balkrishna N, Rao KM, Laxmaiah A, Brahmam G. Prevalence of hypertension, its correlates and awareness among adult tribal population of Kerala state, India. J Postgrad Med. 2012;58:255-61.
7. Laxmaiah A, Meshram II, Arlappa N. Socio-economic & demographic determinants of hypertension & knowledge, practices & risk behaviour of tribals in India. The Indian Journal of Medical Research. 2015;141(5):697-708.
8. Kshatriya GK, Acharya SK. Triple Burden of Obesity, Undernutrition, and Cardiovascular Disease Risk among Indian Tribes. PLoS ONE. 2016;11(1):e0147934.
9. Tiwari RR. Hypertension and Epidemiological Factors among tribal Labour Population in Gujarat, Indian Journal of Public Health. 2008;52,3.
10. Subburam R, Sankarapandian M, Gopinath DR, Selvarajan SK, Kabilan L. Prevalence of hypertension and correlates among adults of 45-60 years in a rural area of Tamil Nadu. Indian J Public Health. 2009;53:37-40.
11. Dong GH, Sun ZQ, Zhang XZ, Li JJ, Zheng LQ, Li J. Prevalence, awareness, treatment & control of hypertension in rural Liaoning province, China. Indian J Med Res. 2008;128:122-7.
12. Mohan V, Deepa M, Farooq S, Datta M, Deepa R. Prevalence, awareness and control of hypertension in Chennai-The Chennai Urban Rural Epidemiology Study (CURES-52). J Assoc Physicians India. 2007;55:326-32.
13. Matthew M. The Far-Reaching Health Effects Of Debt [INFOGRAPHIC]. Medical Daily. 2014.
14. Bushak L. Young People In Debt: Are They More Susceptible To High Blood Pressure. Medical Daily. 2013.

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