

Prevalence of prehypertension and hypertension among Jenukuruba tribal children in Mysore district

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Abstract

Introduction: Hypertension is a major public health problem found to have origin very early in life but remains asymptomatic warranting screening of all children. **Objective:** To study the prevalence of Pre hypertension and Hypertension among traditional Jenukuruba tribal children in Mysore district. **Methods:** Community based cross sectional study done over a period of 2 years from. About 3864 children between the age group of 2-15 years of Jenukuruba tribal community were enrolled in the study. Anthropometric measurements were recorded. Weight for age, Height for age and BMI were calculated. Blood pressure recording was done by research assistants and classified using American Heart Association fourth task force recommendations. **Results:** The point prevalence of systolic prehypertension and hypertension among tribal children between 2-15 years was 6.9% and 2.3% respectively and the point prevalence of diastolic prehypertension and hypertension was 9.6% and 4.1% respectively. **Conclusion:** The prevalence of pre hypertension and hypertension in tribal children is similar and comparable to urban population.

Keywords: Children, Jenukuruba, Hypertension, Mysore, Tribal

Introduction

As India is undergoing rapid epidemiological transition, the burden of chronic diseases is increasing [1,2,3,4]. The fact that essential hypertension has its origin in childhood has resulted in increased emphasis on screening asymptomatic children [5,6,7]. According to 2001 census tribal population in India is 74.6 million (8.2% of total population with 16 million tribal children (6-14years) among total 193 million children. Total population of tribal is 53 million in Karnataka which is 5.13% of Indian population. In Mysore district among 26, 41,027 tribal populations, Jenukuruba are the major tribal group [8].

However, few tribes and caste populations have been explored for such studies, in spite of India's diversity in terms of biological as well as sociocultural backgrounds [7]. Hence in our study we have made an attempt to study the prevalence of hypertension and prehypertension among Jenukuruba tribal children.

Methods

This study was a community based cross sectional study with study population of about 3864 children between 2-15 years belonging to Jenukuruba community in Mysore district. Children were selected by purposive sampling method and predesigned proforma for data collection was used.

Preliminary site visit and enquiry of local officials and schools was done and all the Jenukuruba households mainly in H.D. kote, Hunsur, Nanjangud, Periyapatna were listed. Explanation was done in simple understandable language and consent was taken by parents for enrolment in the study. Institutional ethical committee approval was obtained.

Information regarding sociodemographic factors was collected by interview method using proforma. Anthropometry [height, weight, chest circumference, head circumference] were recorded by two research assistants under supervision of co-investigators using

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standard techniques. Anthropometric indices like weight for age, height for age, weight for height, BMI were calculated. WHO growth charts were used. Calibration of weighing machines, stadiometers, and measuring tapes are done periodically. Detailed clinical examination was done. Blood pressure recording was done by research assistants and classified using American Heart Association fourth task force

recommendations [5, 6]. If blood pressure was higher than 95th percentile it was classified as hypertension (HTN). If blood pressure was between 90- 95th percentile than it was classified as pre hypertension (Pre HTN) and if the blood pressure value was less than 90th percentile then it was taken as normal (N). Appropriate statistical analysis was done.

Results

Among 3864 tribal children enrolled under project, 1960 were males and 1904 were females with almost equal sex distribution. 1175 (27.9%) of children were having BMI < 5th centile, 127 (3.3%) children were overweight with BMI between 85th and 95th centile and 9 (0.2%) children were obese with BMI >95th centile.

The point prevalence of systolic prehypertension and hypertension among tribal children between 2-15 years was 6.9% and 2.3% respectively and the point prevalence of diastolic prehypertension and hypertension was 9.6% and 4.1% respectively. There was no statistically significant difference between boys and girls and also no statistically significant association with overweight and obesity.

Table-I: Age and sex distribution of study population.

Age (in yrs)	Sex		Total
	Male	Female	
2 – 3	239	258	497
4 – 6	461	453	914
7 – 9	495	437	932
10- 12	425	429	854
13 – 15	340	327	667
Total	1960	1904	3864

Figures in parenthesis indicate percentages. Among 3864 tribal children enrolled under project, 1960 were males and 1904 were females with equal sex distribution.

Table-II: Percentile classification of blood pressure in different age groups.

Age (in years)	Systolic					Diastolic				
	N	PREHTN	HTN	NC	Total	N	PREHTN	HTN	NC	Total
2-3	457 (12.29)	17 (0.43)	04 (0.10)	1 (0.02)	497 (12.8)	300 (7.76)	128 (3.31)	68 (1.75)	1 (0.02)	497 (12.8)
4-6	859 (22.23)	39 (1.00)	15 (0.38)	1 (0.02)	914 (23.65)	816 (21.16)	79 (2.04)	18 (0.46)	1 (0.02)	914 (23.65)
7-9	830 (21.4)	84 (2.17)	18 (0.46)	-	932 (24.12)	857 (22.17)	60 (1.55)	15 (0.38)	-	932 (24.12)
10-12	759 (19.64)	62 (1.60)	33 (0.85)	-	854 (22.10)	781 (20.21)	39 (1.00)	34 (0.87)	-	854 (22.10)
13-15	582 (15.06)	65 (1.68)	20 (0.51)	-	667 (17.26)	576 (14.90)	67 (1.73)	24 (0.62)	-	667 (17.26)
Total	3505 (90.7)	267 (6.90)	90 (2.32)	2 (0.05)	3864 (100)	3330 (86.1)	373 (9.65)	159 (4.11)	2 (0.05)	3864 (100)

Figures in parenthesis indicate percentages

N: normal (<90th centile), PREHTN: prehypertension (90th-95th centile), HTN: hypertension (>95th centile), NC: not cooperative.

The point prevalence of systolic and diastolic prehypertension and hypertension among tribal children between 2-15 years was 6.9%, 2.3% and 9.6%, 4.1% respectively.

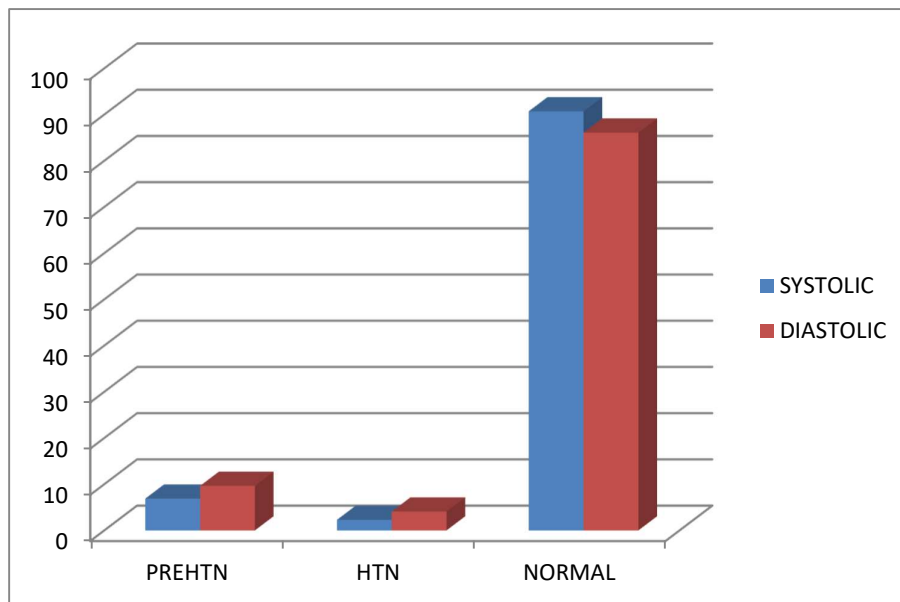


Fig-1: The point prevalence of prehypertension and hypertension in tribal children in percentage

Discussion

Hypertension is one of the major risk factors for cardiovascular and cerebrovascular diseases [9,10]. Increasing evidence indicates that essential hypertension begins to develop during the first two decades of life [5,7].

It is important to determine the prevalence of prehypertension and hypertension in children to identify the population at risk as early identification leads to early interventions thereby preventing later morbidity and mortality.

There are very few data on prevalence of hypertension, prehypertension among tribal children in India. Throughout the world, low blood pressure (<120/80 mm Hg) has been documented in adult tribal populations [11]. Similarly, in India, the traditional tribes and caste groups, which constitute a substantial percent of the country's population, are found to have lower BP than other ethnic groups [12]. Gradually, with changing social environment and lifestyle similar to other rural and urban population, marked increase in blood pressure has been noted [13].

However, few tribes and caste populations have been explored for such studies, in spite of India's diversity in terms of biological as well as sociocultural backgrounds. In our study we made an attempt to study the prevalence

of hypertension, prehypertension in Jenukuruba tribal children in Mysore district.

The overall point prevalence of systolic prehypertension and hypertension among tribal children between 2-15 years was 6.9% and 2.3% respectively and the point prevalence of diastolic prehypertension and hypertension was 9.6% and 4.1% respectively which was comparable to the prevalence of prehypertension (9.39%) and prevalence of hypertension (2.62%) among rural Tripuri boys [7].

The prevalence of hypertension have been reported to have a wide range (1%- 16.2%) among various studies [4, 10, 14, 15, 16]. The prevalence in tribal population believed to be less was on par with the prevalence of Hypertension and Pre hypertension among urban school children aged 5-15 years in Mysore district, which were 4.8% and 11% respectively [4].

The prevalence of Hypertension in children was between 5-10 years was 4.1% and Pre hypertension was 4.8%. In 11-15 years age group it was 5.7% and 20.2% respectively. In another study done in Mysore district, Prevalence of pre-hypertension and hypertension was 2.9% and 2.8% in urban children and 2.8% and 2% in rural children respectively which was less compared to this study [16].

The prevalence of overweight and obesity in our study was 3.3% and 0.2%, respectively which was little less compared to other school based data in India, which demonstrated prevalence of overweight and obesity in the range of 5.6% to 2.4% among children and adolescents [1, 7, 17]. The prevalence of overweight and obesity in a study done in urban school children of Mysore district was 11% and 4.4%, respectively which was higher compared to the present study [4].

Various other studies have reported statistically significant association between hypertension and obesity [1, 7, 17].

In our study, there was no statistically significant association between overweight, obesity and hypertension. There was no statistically significant difference in prevalence of hypertension and prehypertension between boys and girls. Further studies with larger samples are needed to confirm the epidemiological consistency of the observations made in this study.

Although lower prevalence of hypertension in tribal and rural population is expected, there has been steady increase over time in rural and tribal population as well which may be probably due to rapid urbanization of rural India which has altered the dietary habits, level of physical activity and social pressures in life.

These trends of increasing prevalence of hypertension, prehypertension among traditional tribal population warrants a collective targeted effort in recognizing hypertension and prehypertension in asymptomatic children of all sociocultural backgrounds.

Early identification of at risk children and appropriate lifestyle modification would help in preventing hypertension and its related cardiovascular and cerebrovascular complications.

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