Prevalence of Prehypertension and Hypertension among Urban and Rural School Going Children

This school based cross sectional study was done to estimate the prevalence of prehypertension and hypertension among apparently healthy school children in urban and rural Mysore. Prevalence of prehypertension and hypertension was 2.9% and 2.8% in urban children and 2.8% and 2% in rural children with no statistically significant difference between them.

Key words: Children, Hypertension, Prehypertension

As India is undergoing a rapid epidemiological transition [1,2], the burden of chronic diseases is over taking the burden of infectious diseases [1-3]. The awareness that essential hypertension has its origin in childhood has resulted in increased emphasis on screening asymptomatic children. The present study was conducted to evaluate the prevalence of hypertension and prehypertension among apparently healthy school children in urban and rural Mysore. In this school based cross-sectional study, 1000 children from urban schools in Mysore city and 1000 children from rural school in Suttur (Mysore district), between the age group of 10-16 years were included (with upper and lower limit of 95% CI at ± 0.02). Anthropometric measurements were taken by two medical graduates under supervision of co-investigators. Agarwal charts of BMI for age and sex were used as reference standards. Children with BMI above 95th percentile were considered obese, those between 85th and 95th percentile were considered overweight [3]. Blood pressure measurements were taken using a mercury sphygmomanometer as per recommendations of American Heart Association [4]. The blood pressure was compared to age, sex and height percentile standards given by the report of Fourth task force on hypertension control in children [4]. Hypertension was diagnosed if blood pressure either systolic, diastolic or both was more than 95th percentile for age, sex and height percentile and between 90 and 95th percentile was taken as pre hypertension [4]. Ethical clearance was obtained from institutional ethical committee. A written informed consent was obtained from the head of the Institutions and parents. Statistical analysis was done using EPIINFO software.

Out of total 1000 urban children, 567 were males and out of 1000 rural children, 461 were males. The overall prevalence of prehypertension and hypertension was 2.8% and 2.4% respectively in concordance with other studies [5-8]. Prevalence of pre-hypertension and hypertension was 2.9% and 2.8% in urban children and 2.8% and 2% in rural children respectively. Although there is generally lower prevalence of hypertension in rural Indian population, there has been steady increase over time in rural population as well [9]. This is probably due to rapid urbanization of rural India which has altered the dietary habits, level of physical activity and social pressures in life [9]. In our study, there was no statistically significant difference in the prevalence of prehypertension and hypertension between rural and urban children. This is in contrast to other studies [6,8] where prevalence of hypertension was more among urban children compared to rural children.

These trends of increasing prevalence of hypertension, prehypertension in urban as well as rural population calls for a collective effort targeted at recognizing hypertension and prehypertension in asymptomatic children.

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Antenatal and Perinatal Care in an ICDS Area: Progress Made in 19 Years

ICDS program has made significant improvement in availability and utilization of antenatal and natal care including IFA supplementation, TT administration and delivery by trained personnel. However, postnatal care and promotion and initiation of breastfeeding within 2 hours of birth still remain deficit areas.

Key words: Integrated Child Development Services

The Integrated Child Development Services (ICDS) scheme was initiated in the year 1975 and later it became the largest Governmental programme for mother care and child development. The beneficiaries included children (0-6 yr), expectant & lactating mothers, and women aged 15-45 years. Facilities provided were supplementary nutrition, immunization, non-formal education of preschool children, functional literacy of the women, and essential health care and health surveillance [1]. We had studied the utilization and availability of antenatal and perinatal care in 1991 [2]. To evaluate the progress made in availability and change in utilization patterns of the services over a period of about 2 decades, we conducted this study during 2009-2010. We visited the same ICDS block (Chaksu, District Jaipur, Rajasthan) as in previous study and door to door survey of all lactating mothers was done using similar questionnaire [2]. Lactating woman was defined as one who had delivered a child (living or dead) within the last 12 months and was not pregnant again during the same period.

***Table* I** shows the comparative data in year 1991 and 2009-2010. Overall, significant improvement in delivery and coverage of services in ICDS scheme were observed in terms of coverage of antenatal care (72.8% *vs* 97.8%), Tetanus Toxoid (TT) administration (68.4% *vs* 97.8%) and Iron Folic acid (IFA) supplementation (50% *vs* 87%) during pregnancy, institutional deliveries (4.4% *vs* 57.7%) and breastfeeding practices (initiation of breastfeeding within 6 hours of child birth, 17.25 *vs* 81.9%). However,

TABLE COMPARISON OF THE DATA FROM 1991 AND 2009-10

	1991 N =136 (%)	*2009-10 N=182, (%)*
Age <18 yr	3 (2.2)	3 (1.7)
Age 18-35 yr	127 (93.4)	175 (96.2)
Age >35 yr	6 (4.4)	4 (2.2)
ANC received	99 (72.8)	178 (97.8)
First ANC		
First trimester	15 (11)	103 (56.6)
Second trimester	54 (39.7)	64 (35.2)
Third trimester	30 (22.1)	11 (6.0)
Number of ANCs		
1-3 times	84 (61.8)	124 (69.7)
4-5 times	02 (1.5)	42 (23.6)
≥6 times	13 (9.6)	12 (6.7)
Receipt of Tetanus Toxoid		
Two doses	90 (66.2)	178 (97.8)
One dose	3(2.2)	0
Not received	43 (31.6)	04 (2.2%)
Antenatal supplementation		
Regularly	46 (33.8)	140 (76.9)
Irregularly	22 (16.2)	19 (10.4)
Nil	136 (50)	23 (12.6)
Place of delivery		
Sub center	2 (1.5)	30 (16.5)
PHC	4 (2.9)	12 (6.6)
Private Hosp	16 (11.8)	26 (14.3)
Hosp	6 (4.4)	105 (57.7)
Other	1(0.7)	0
Home	107 (78.6)	09 (4.9)
*Postnatal care**		
Untrained dai	0	0
Trained dai	0	0
ANM	3 (2.2)	02 (1.1)
LHV	0	0
Medical officer	12 (8.8)	117 (64.3)
Other	1 (0.7)	0
Total received care	16 (11.7)	119 (65.4)
Initiation of breastfeeding		
Within 6 hours	23 (17.2)	149(81.9)
6-48 hours	74 (54.5)	21 (11.5)
>48 hours	39 (28.3)	05 (2.7)
Died		7 (3.8)

**0-10 days after birth*