

Assessment of risk factors associated with hypertension among undergraduate medical students in a medical college in Odisha

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Abstract

Background: Hypertension is a non communicable disease of major public health problem resulting increased morbidity and mortality among population. Prehypertension in adolescents and young adults again an important risk factor for developing hypertension in future. So the present study was carried out among medical students with the objectives of (1) to find out the risk factors associated with prehypertension and hypertension, (2) to suggest measures to decrease risk factors.

Materials and Methods: It was a cross-sectional study and study duration was from september 2011 to November 2011. The sample size was 200 and the study subjects was selected by systematic random sampling method. A predesigned pretested schedule was used to collect data. Blood pressure (BP) was measured in sitting posture using a standard sphygmomanometer on two different settings and the average was taken for analysis.

Results: All the participants were between 18-21 years. Out of 200 study subjects, 112 were males and 88 were females. The prehypertension and hypertension percentage was 67% among study subjects. Statistical analysis done was percentage, Chi-square test.

Conclusion: Health-care providers should recognize the increased CVD risk of prehypertension and should seek to identify and treat the modifiable risk factors in these persons.

Key Words: Adolescents, hypertension, prehypertension

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INTRODUCTION

Hypertension is the commonest cardiovascular disorder, posing a major public health challenge to

population in socio-economic and epidemiological transition.^[1] Prehypertension in adolescents and young adults is a risk factor for developing hypertension in later years of life. So both patient and clinician are alerted to this risk and encouraged to intervene and prevent the disease from developing.^[2] The higher the BP, higher the risk of both stroke and coronary events.^[3] Besides there is a persistence of rank order of BP, which can be applied in identifying children and adolescents at risk of developing hypertension at a future date.^[4] By detecting prehypertension earlier some remedial measures must be adopted to prevent hypertension and its consequences as age advances.

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Therefore the present study was undertaken to find out the prevalence of prehypertension and hypertension among undergraduate medical students. An attempt was made to find out the significance of presence or absence of associated factors influencing hypertension.

MATERIALS AND METHODS

It was a cross sectional study and the study subjects were selected by systematic random sampling method. A total of 200 medical students (112 male and 88 female) studying in Hi-Tech Medical college and hospital, Bhubaneswar, Odisha admitted between year 2008 to 2011 were included in this study. All the students were hostel residents of medical college. Informed consent to participate in this study was taken from all of them and the study was approved by the ethical committee. The study period was from September 2011 to November 2011. Participants were given a predesigned and pretested proforma to collect the relevant data on risk factors of high BP like family history of hypertension, physical activity, any addiction (consumption of alcohol and cigarette smoking), dietary habits like salt intake and fruit intake.^[5] Body weight and height were measured using standard procedures.^[6] Body Mass Index (BMI) was calculated using the formula weight (kg)/height (m²). BP was measured in sitting posture using a standard sphygmomanometer on two different occasions, with at least 10 min gap and the average was noted. WHO criteria strictly followed.^[7] BP was classified as per the Joint National Committee on prevention, detection, evaluation and treatment of blood pressure^[8] (BP in prehypertension-120-139/80-89 mmHg, Hypertension Stage I-140-159/90-99 mmHg, Hypertension Stage II-160 or above/100 or above mmHg.). The data was analyzed by SPSS software. Significance of non-parametric factors influencing pre-hypertension and hypertension like duration of time spent on TV/computer, dietary habit, addiction etc., was done by Chi-square test.

RESULTS

Table 1 shows distribution of study population according to BP status and prevalence of prehypertension and hypertension among study population. Out of 200 students, 112 (56%) were male and 88 (44%) were female. Out of 112 male medicos, 80 were prehypertensive and 4 were hypertensive whereas out of 88 female medicos, 48 were prehypertensive and 2 were hypertensive. An overall prevalence of prehypertension and hypertension was calculated to be 67% which was much higher in this study compared to other studies. Table 2 shows distribution of subjects based on factors influencing prehypertension and hypertension. Among the risk factors family history of hypertension, sedentary life style like spending

Table 1: Distribution of study population according to BP status

BP status	No. of cases		Total
	Males	Females	
Normal	28	38	66
Prehypertension	80	48	128
Hypertension	4	2	6
Total	112	88	200

Table 2: Distribution of subjects based on factors influencing prehypertension and hypertension

Influencing factors	No. of cases		Significance (P value)
	Normotensive	Prehypertensive and hypertensive	
Family history of hypertension			
Present	12	52	$\chi^2=8.5$
Absent	54	82	df=1 P<0.01
Duration of time spent on TV/computer			
Occasional	22	20	$\chi^2=21.9$
Half to 1 h	04	42	df=3 P<0.01
1 to 2 h	18	22	
2 to 3 h	22	50	
BMI			
<25	55	39	$\chi^2=51.9$
≥25	11	95	df=1 P<0.001
Dietary habit			
Extra salt	22	80	$\chi^2=12.5$
Salty foods	38	48	df=2 P<0.01
No added salt	06	06	
Addiction			
Present	14	35	$\chi^2=0.47$
Absent	52	99	df=1 P>0.05

more time in TV/computer, BMI ≥ 25, extra salt intake had statistically significant association with prehypertension and hypertension in the present study (P < 0.01). Although addiction was present in most of the medicos with prehypertension and hypertension, but the difference was not statistically significant.

DISCUSSION

In a study conducted in Israel prevalence of prehypertension and hypertension was 30%^[9] in general population which was much less than our study. Similarly as per a study conducted in California the prevalence was 18%.^[9] A study in Jamaica among 15 to 74 years age group concluded that prehypertension occurs in 30% of Jamaicans^[10] and is associated with increased prevalence of other CVD risk factors and suggests health care providers to identify and treat modifiable risk factors in these persons. The prevalence was less in previous studies as these studies were done in general population, but it was high in the present

study (67%) as it was done only among medical students. It is also noted that the prevalence is high among males compared to females and the difference is statistically significant in this study. A higher prevalence of prehypertension and hypertension recorded in the present study could be due to the lifestyle and greater stress compared to the general population. The risk factors associated with prehypertension are similar to that seen in other studies^[9,10] which were done in general population. So health-care providers should recognize the increased CVD risk of prehypertension and should seek to identify and treat the modifiable risk factors in these persons.

Since the study subjects were only medical students and sample size is less, so it may not be compared to the general population which is the lacunae of our study.

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