ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2018; 4(7): 147-149
www.allresearchjournal.com
Received: 04-01-2018
Accepted: 06-02-2018

Dr. Chandrakanta Mishra
Associate Professor in Cardiology, SCB Medical College, Cuttack, Odisha, India

Dr. Archana Mishra
Associate Professor in Physiology, SCB Medical College, Cuttack, Odisha, India

Eshaan Mishra
MBBS student, SCB Medical College, Cuttack, Odisha, India

Dr. Manoj kumar Dash
Assistant Professor in Community Medicine, PRM Medical College, Baripada, Odisha, India

Corresponding Author
Dr. Archana Mishra
Associate Professor in Physiology, SCB Medical College, Cuttack, Odisha, India

Original Research Article

Prevalence of prehypertension and hypertension in MBBS students

Dr. Chandrakanta Mishra, Dr. Archana Mishra, Eshaan Mishra and Dr. Manoj kumar Dash

Abstract
Hypertension is a major modifiable risk factor associated with cardiovascular morbidity and mortality. Prehypertension is considered to be the starting point for cardiovascular diseases and also because it is estimated to decrease life expectancy by as much as 5 years. The auscultatory method with a trained observer and mercury sphygmomanometer is regarded as 'gold standard' for office blood pressure measurement, using stethoscope and looking for Korotkoff sounds. The objective of the present study is to find out the prevalence of prehypertension and hypertension in a sample student population in a medical college The resting blood pressure of 250 MBBS students (both boys and girls, aged 18-23years) of a semester, was recorded by manual sphygmomanometer in left arm sitting posture with arm placed at the level of right atrium in accordance with WHO guidelines. Apart from this data like age, sex, height, weight, BMI, whether urban/rural native, history of smoking/alcohol, family history of diabetes, hypertension, t categorical data were measured in counts and the quantitative data were analyzed using mean and Standard deviation (SD) as summary measure. "t" test was used as test of significance. Among those of urban origin 114 were normotensive, 17 had prehypertension and 2 had hypertension (stage I). Among those of rural (and semi urban) origin, 103 were normotensive, 13 had prehypertension and 1 had stage I hypertension. The prevalence of prehypertension and hypertension lower among students of rural origin, however this observation is not statistically significant.

Keywords: Parental attitude, participation, sports, girls

Introduction
Classically hypertension is defined as elevated blood pressure (BP), with systolic blood pressure (SBP)≥140mmHg and diastolic Blood pressure (DBP) ≥90 mmHg. JNC 7 in 2004 defined prehypertension as SBP of 120-139 mmHg and DBP of 80-89 mmHg invites additional effort on part of researchers to study this group separately both because it is considered to be the starting point for cardiovascular diseases and also because it is estimated to decrease life expectancy by as much as 5 years [1]. Hypertension is a major modifiable risk factor associated with cardiovascular morbidity and mortality. Prehypertension and hypertension, as BP levels, are independent predictors of decreased GFR in general population, effect being more pronounced in the elderly [2]. About 33% urban and 25% rural Indians are hypertensive. Of these, 25% rural and 42% urban Indians are aware of their hypertensive status. Only 25% rural and 38% urban Indians are being treated for hypertension. One tenth of rural and one fifth of urban Indian hypertensive population have their BP under control [3].

The JNC 8 hypertension guidelines have modified the blood pressure goals across the spectrum of disease processes and patient characteristics. The current recommendation for blood pressure goals in the low and high risk population is 150/90mmHg and 140/90 mmHg respectively [4].

Taking blood pressure with the patient seated on the edge of an exam table led to misclassification of prehypertension or hypertension in 13.2% of patients [5]. The auscultatory method with a trained observer and mercury sphygmomanometer is regarded as 'gold standard' for office blood pressure measurement, using stethoscope and looking for Korotkoff sounds [6]. The objective of the present study is to find out the prevalence of prehypertension and hypertension in a sample student population in a medical college.

Finding out the exact burden of this silent asymptomatic killer would steer the next stage for innovative approach to control the problem for detection and management of hypertension. Prehypertension may be a useful target for innovative intervention like sudarshan Kriya Yoga [7].

Materials and Methods

The study was conducted during November and December 2017. In this cross sectional study the subjects were 250 MBBS students (both boys and girls, aged 18-23years), of a semester which had no examination due for about two months and were already adjusted to the new environment of this professional course. The resting blood pressure was recorded by manual sphygmomanometer in left arm sitting posture with arm placed at the level of right atrium in accordance with WHO guidelines [8]. Due attention was paid to the cuff size, subject's position at recording and to avoid the auscultatory gap. The average of 3 recordings per setting on 3 consecutive days was taken. Apart from this data like age, sex, height, weight, BMI, whether urban/rural native, history of smoking/alcohol, family history of diabetes, hypertension, whether they had got their BP checked in past 6 months, were recorded.

The data were entered on SPSS version (21.0) and analyzed. The categorical data were measured in counts and the quantitative data were analyzed using mean and Standard deviation (SD) as summary measure. "t" test was used as test of significance. A P value less than 0.05 was considered statistically significant.

Result

There were 250 students in the batch in the age group of 18-25 years, boys (n=142) aged 18-25 years and girls (n=108) aged 18- 23 years. The mean height and weight for boys was 162.26± 3.6 cm and 64.23±7.3 kg respectively. Among girls the mean height and weight were 152.20±6.9cm and 52.68± 8.4 kg respectively. The BMI for boys and girls was 24.47±1.63 & 22.8±1.44 respectively. 133 students were of urban and 117 of rural origin. Among those of urban origin 114 were normotensive, 17 had prehypertension and 2 had hypertension (stage I). Among those of rural (and semi urban) origin, 103 were normotensive, 13 had prehypertension and 1 had stage I hypertension. The prevalence of prehypertension and hypertension lower among students of rural origin, however this observation is not statistically significant. Out of 250 students only 2 had their BP recorded in past 6 months. All those recorded as prehypertensive and hypertensive were unaware of their condition. As a natural sequel none was under treatment.

Table 1: Demographic profile of the study population

	Number(n=)	Height(in cm)	Weight(kg)	BMI	Rural	urban
BOYS	142 (56.8%)	162.26±3.6	64.23±7.3	24.47±1.63	65	77
GIRLS	108 (43.2%)	152.20±6.9	52.68±8.4	22.8±1.44	52	56

Table 2: Prevalence of Prehypertension and Hypertension in the Study Population

	Number(n=)	Prehypertension	Hypertension
Urban	133(53.2%)	17(12.78%)	2(1.5%)
Rural	117(46.8%)	13(11.11%)	1(0.85%)
P Value		0.07	0.08

However out of total 250 students, 30 (12%) had prehypertension (P<0.05) and 3(1.2%) (P>0.05) had hypertension. Overall 33 (13.2%) were not normotensive (P<0.05).

Discussion

Search on the internet failed to reveal similar study on prevalence of prehypertension and hypertension in medical students. So, this may be considered the first reported study on this topic. The prevalence of prehypertension in the study population is 12% and hypertension 1.2%. 86.8% were normotensive. This is much less compared to the overall prevalence of hypertension in the adult Indian population [3]. This can be explained by the fact that the age group of the study population is 18-23 years compared to much higher age group taken into consideration in other studies. Previous studies show 33% of urban and 25% rural are hypertensive [3]. In our study though prevalence of prehypertension and hypertension was higher in urban population, the difference was not statistically significant. Since none of them was aware of their condition, hence none under under treatment, this precludes further analysis. However, being students in a medical college, with access to blood pressure instrument and physicians, being capable of recording BP themselves, only 2 out of 250 reported to have had their BP recorded in last 6 months. This shows lack of awareness.

Conclusion

The prevalence of prehypertension and hypertension in the study population is 12% and 1.2% respectively which is much less than that reported for the adult Indian population. The higher prevalence in urban population is not statistically significant in our study. There needs to be more awareness of both, prehypertension as starting point and hypertension as a major modifiable risk factor, for cardiovascular diseases.

Future Study

To evaluate effect of lifestyle intervention methods like yoga and pranayama, leisure time physical activities and / or Sudarshan Kriya Yoga on these subjects.

References

1. Ramaswamy Premkumar, John Pothen, Jeeva Rima, and Shobha Arole. Prevalence of hypertension and prehypertension in a community-based primary health care program villages at central India. Indian Heart J. 2016; 68(3):270-277.
2. Garofalo C, Borrelli S, Pacilio M, Minutolo R, Chiodini P, De Nicola L, Conte G. Hypertension and Prehypertension and Prediction of Development of Decreased Estimated GFR in the General Population: A Meta-analysis of Cohort Studies. Am J Kidney Dis. 2016; 67(1):89-97.
3. Anchala R, Kannuri NK, Pant H, Khan H, Franco OH, Di Angelantonio E, Prabhakaran. D. Hypertension in India: a systematic review and meta-analysis of prevalence, awareness, and control of hypertension.

4. Li S, Kelly SC, Petrasko M**.** Implementing effective hypertensive management--review of the 2014 high blood pressure management guidelines. D Med, 2015, 33-5.
5. Morcos RN, Carter KJ, Castro F, Yu N, Jordan C, Macabobby TD, Rodriguez A. Getting the hypertension Dx right: Patient positioning matters. J Fam Pract. 2018; 67(4):199;201;206;207.
6. Pickering TG, Hall JE, Appel LJ, *et al*. Recommendations for blood pressure measurement in humans and experimental animals: Part 1: blood pressure measurement in humans: a statement for professionals from the Subcommittee of Professional and Public Education of the American Heart Association Council on High Blood Pressure Research. Hypertension. 2005; 45:142.
7. Chandrakanta Mishra, Archana Mishra, Eshaan Mishra and Manoj Kumar Dash, Effect of Sudarshan Kriya yoga on prehypertension and stage 1 hypertension. International Journal of Applied Research. 2018; 4(6):239-241.
8. Netea RT, Elving LD, Lutterman JA, Thien T. Body position and blood pressure measurement in patients with diabetes mellitus. J Intern Med. 2002; 251(5):393-9.