



BLOOD PRESSURE PROFILE AND PREVALENCE OF HYPERTENSION AMONG MEDICAL STUDENTS

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ABSTRACT

INTRODUCTION: Across the world the prevalence of hypertension is increasing at an alarming rate. Hypertension also affect the younger generation and medical students are no exception. In this study, blood pressure of the medical students were recorded and the prevalence of hypertension among medical students was studied.

MATERIALS AND METHODS: The study was done in Dept. of Physiology, Jorhat Medical College. Sample size was calculated as 160 using EpiTools Software. Recording of Blood pressure of 160 students were done and saved for further analysis. P value <0.05 was considered as significant.

RESULTS: Mean SBP and DBP of 160 participants were 112.82 ± 11.57 mm of Hg and 76.65 ± 9.49 mm of Hg respectively. Distribution of Blood Pressure profile among 160 participants showed that, 119 students (74.38%) were Normotensive, 33 students (20.62%) were Hypertensive & 8 students (5%) were Hypotensive. We found increased prevalence of Hypertension (31.8%) in Obese and Overweights as compared to Normal Weight participants (21.5%).

CONCLUSION: Changing of life style that includes reduced consumption of fat rich diets, fast foods, red meat and salt, performing regular physical exercises, and regular health check up in the form of Blood pressure could be beneficial for the students to identify and take preventive measures against any cardiovascular ailments.

KEYWORDS : Medical students, Systolic Blood Pressure(SBP), Diastolic Blood Pressure(DBP)

INTRODUCTION

Globally cardiovascular diseases cause approximately 17 million deaths per year.¹ Of these, every year, complications of hypertension (HTN) account for 9.4 million deaths worldwide.² It is believed that hypertension is responsible for at least 45% and 51% of deaths due to heart disease and stroke, respectively.¹

Medical students of today are the physicians of tomorrow and a good physician must be physically fit and mentally alert.³ They form the backbone of nation. So, the medical students must be physically fit and mentally alert before they extend their hands for the society. Hypertension is an independent predictor of cardiovascular disease. It affects nearly a quarter of the adult population worldwide.⁴

India has an increasing trend of hypertension especially among the urban population due to economic development and modernization with changing lifestyle factors.⁵ Such studies were done among young students in other parts of the world.⁶

MATERIALS AND METHODS

The present study was done in Dept. of Physiology, Jorhat Medical College. It was a institution based cross-sectional observational study. Study population included undergraduate medical students of Jorhat Medical College. Sampling technique was simple random sampling. Sample size was calculated and rounded up to 160 using EpiTools Software. The study included students volunteers of age 17-25 years who were non-smokers and gave consent for the study. Ethical Clearance was obtained from Institutional Ethical Committee (H), Jorhat Medical College, Jorhat.

Measurement Of Blood Pressure (bp):-

Littman 3M Classic stethoscope was used. Diamond BPMR 120 Conventional Mercurial Type BP Machine was used. BP was recorded in a quiet, warm setting. The subject was asked to sit quietly with the back supported for five minutes and the arm supported at the level of heart. The subject was advised not to take any caffeine or exogenous adrenergic stimulants during the hour preceding the recording.

Before recording the blood pressure, it was ensured that the upper meniscus of the mercury coincided with the 'zero' of the mercury manometer. The BP was taken with subject's out-stretched right upper limb over the brachial artery, applying a cuff just above cubital fossa, using a mercury sphygmomanometer kept at level of subjects' heart in sitting position. Systolic blood pressure was first recorded by palpatory method and then systolic and diastolic blood pressure were recorded by auscultatory method. Categories of BP Used were as per American Heart Association 2017 Hypertension Guidelines.⁷

Statistical Analysis

The response frequencies and descriptive statistics like mean and standard deviation were calculated and analyzed by using MS Excel.

"P value <0.05 was considered as significant."

RESULTS

Mean SBP and DBP of 160 participants were 112.82 ± 11.57 mm of Hg and 76.65 ± 9.49 mm of Hg respectively. (Table 1)

Table 5.9 : Mean blood pressure of the study participants (n=160):

Parameters	Mean \pm SD	P value
SBP (mm of Hg)	112.82\pm11.57	<0.05
DBP (mm of Hg)	76.65\pm9.49	

Distribution of Blood Pressure profile among 160 participants showed that, 119 students (74.38%) were Normotensive, 33 students (20.62%) were Hypertensive & 8 students (5%) were Hypotensive. (Figure 1)

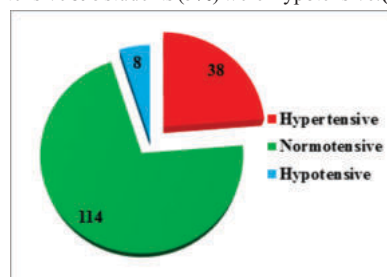


Figure 1: Distribution of Normotensives, Hypertensives and Hypotensives among the participants.

In our study, the prevalence of hypertension among male participants (24.46%) was slightly higher than in the females (22.72%). (Table 2)

Table 2: Prevalence of Hypertension among male (n=94) and female (n=66) participants:

Participant's Gender	Number of Hypertensives	Prevalence of Hypertension
Male	23	24.46%
Female	15	22.72%

DISCUSSION

In the present study, mean SBP and DBP of 160 participants were 112.82 ± 11.57 mm of Hg and 76.65 ± 9.49 mm of Hg respectively. One similar study on medical students found mean SBP and DBP of total students as 118 mm Hg and 78 mm Hg respectively.⁸ In another study,

the mean SBP and mean DBP of the total study population was 125.9 mm of Hg and 81.5 mm of Hg respectively.⁹

Distribution of blood pressure profile among 160 participants showed that, 119 students (74.38%) were normotensive, 33 students (20.62%) were hypertensive and 8 students (5%) were hypotensive. More than half of the students had BP in the normal range. This was similar to a study done by Chenji et al.⁸

The overall prevalence of hypertension in our study was 20.63%. While in West Bengal in India, the reported prevalence of hypertension was 13.0%.^{10,11} A study on 1022 urban Asian Indian adolescents identified a 6.4% prevalence of hypertension.¹² A study from Ethiopia observed a hypertension prevalence of 7.7% among university students.¹³ All these studies indicated a shift in the prevalence of hypertension towards younger age groups.

The higher prevalence of hypertension among the undergraduate medical students in our study could be due to several factors, such as food habits, lifestyle changes, academic stress, cultural differences, moving away from home, and residing in hostels etc.

In our study, the prevalence of hypertension among male participants (24.46%) was higher than in the females (22.72%). Similar trend was obtained in the study done by Chenji et al.⁸ Another study findings from Mangalore, a neighboring district in the Indian state of Karnataka also found higher prevalence of hypertension among male as compared to female participants.¹⁴

The higher prevalence of hypertension among the male participants could be due to several factors, such as unhealthy food habits, sleeping patterns, lifestyle changes, unhealthy hostel life, not coping up properly with the academic stress, etc.

Sedentary life style, intake of calorie rich junk foods and automated working profile has made the environment conducive for high prevalence of non communicable diseases (NCDs). The rate of progression of hypertension is influenced by cardiovascular risk factors like unhealthy diet, tobacco use, physical inactivity (which together result in obesity) and elevated blood pressure, (hypertension). Continuing exposure to these risk factors leads to further progression of the diseases, resulting gradually in atherosclerosis, narrowing of blood vessels and obstruction of blood flow to vital organs, such as the heart and the brain leading to mortality.¹⁵ The socioeconomic development has changed the dietary intake, food consumption patterns, and physical activity levels over the years contributing to the problem of increasing cardiovascular diseases like hypertension among the population.¹⁶

Study Limitations:

This study was a Cross sectional study; as such the casual relationship of the risk factors could not be established. The data collection was limited to students from a single medical school, so generalizability was a matter of concern. A single BP recording was taken because of time constraints as students had to go for their classes and clinical postings.

CONCLUSION

Our study showed higher prevalence of hypertension among the undergraduate medical students. We recommended for changing life style that includes reduced consumption of fat rich diets, fast foods, salt restriction, performing regular physical exercises, yoga, meditation, sticking to a routine time table for sports, study and sleeping hours.

Regular health check up in the form of blood pressure measurement, recording of Electrocardiogram could be beneficial for the students to prevent hypertension, cardiovascular diseases and the risk factors associated with it.

It is highly desirable for such studies to be initiated so as to tackle the burden of noncommunicable diseases among the new-generation physicians.

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