



PRE HYPERTENSION AMONG FIRST YEAR MBBS STUDENTS

Community Medicine

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ABSTRACT

Pre-hypertension is not a disease category rather it is a designation chosen to identify individuals at high risk of developing hypertension, so that both patients and clinicians are alerted to this risk and encouraged to intervene and prevent the disease from developing. It is a major risk factor for stroke and coronary heart diseases which is a contributor to onset and progression of chronic heart failure and chronic kidney failure in coming times, associated with many adverse outcomes.

METHOD: The study type is cross sectional, conducted among 100 first year MBBS students. Blood pressure was measured in sitting posture using a standard sphygmomanometer by auscultatory method at interval of 5 minutes and mean of three readings were taken. Blood pressure was classified as per the Joint National Committee (*JNC-VIII*). Statistical analysis was done to find out the prevalence of pre-hypertension among first year MBBS students.

RESULTS: The overall prevalence of pre-hypertension came out to be 51%. Among gender the difference was significant with 63.15% (36) prevalence among males and 34.88% (15) prevalence among females.

KEYWORDS

Pre-hypertension, Cross Sectional, 1st Mbbs Students

INTRODUCTION:

High or raised blood pressure is known as a hypertension, a silent killer is a major public health issue due to its high prevalence all around the globe. It is also referred to as "Iceberg disease". It accounts for 57 million disability adjusted life years (DALY's) or 3.7% of total DALY's.¹

The pressure in the aorta and in the brachial and other large arteries in a young adult human rises to a peak value (systolic pressure) of about 120mmHg during each heart cycle and falls to a minimum value (diastolic pressure) of about 70mmhg.² Individual is classified as having hypertension if he/she has a systolic blood pressure level greater than or equal to 140 mmHg, or a diastolic blood pressure greater than or equal to 90 mmHg.³

Joint National Committee's (*JNC VII*) in 2003 introduced the new concept and has designated a new category, Pre-hypertension. Blood Pressure guidelines to pre-hypertension defines it as systolic blood pressure of 120-139 mmHg or diastolic blood pressure of 80-89 mmHg in adults 18 years and older.⁴ This new category is a continuum to hypertension.

The age related rise in SBP is primarily responsible for an increase in both incidence and prevalence of hypertension with increasing age. Joint National Committee (*JNC VII*) has introduced new guidelines for management of blood pressure in adults. Pre-hypertension is associated with increased cardiovascular risk and end organ damage compared with individuals who are normotensive.⁵

Pre-hypertension, even at low levels, is associated with a high risk of cardiovascular diseases (CVD).⁶ It seems indeed to be a precursor of hypertension, associated with many adverse outcomes. The progression of pre-hypertension to hypertension can be delayed or may be prevented by lifestyle changes.⁷

Pre-hypertension is a major health problem, especially because it has no symptoms. It is a major risk factor for stroke and coronary heart diseases and is a major contributor to the onset and progression of chronic heart failure and chronic kidney failure in coming times. As per ICMR, hypertension causes 29% of all stroke and 24% of Heart attacks. Around 2.6 lakh Indians die in India due to hypertension. This stresses the need for effective control and management to prevent future problems.

In India, hypertension is a leading non communicable disease and is estimated to be attributable for nearly 10.8 % of all deaths. Adult hypertension prevalence has risen dramatically over the past three

decades from 5 % to between 20-40 % in urban areas and 12-17 % in rural areas. The number of hypertensive individuals is anticipated to nearly double from 118 million in 2000 to 213 million by 2025.⁸

Professionals particularly doctors are more susceptible for developing hypertension and pre hypertension due to their level of stress and demanding work profiles. Medical students are the future doctors and there is a need to study the prevalence of pre-hypertension among this vulnerable group so that certain measurable steps would be taken to alter the disease progression. Early identification of pre hypertension in this group plays an important role.

AIM & OBJECTIVE:

- To find the prevalence of Pre-hypertension among first year MBBS students taking admission at Maharaja Agrasen Medical College, Agroha, Hisar.

METHOD:

This study was conducted among first year MBBS students taken admission at Maharaja Agrasen Medical College, Agroha in year 2018. As per records available from Medical Education Unit, a total of 100 students took admission in first year. Ethical approval was taken from Ethical committee of the college before conducting the study.

With each subject, prior informed and written consent was obtained. Blood pressure was measured in sitting posture after significant resting period using a standard sphygmomanometer by auscultatory method. A total of three readings were taken at interval of 5 minutes and the mean of three readings was taken.

Pre-hypertension i.e. 120-139/80-89 mmHg was classified as per the Joint National Committee –7.

Data was entered into MS-10 excel sheet and prevalence was calculated appropriately.

RESULTS

Figure 1: Distribution of Study Subjects by Gender and Prevalence of Prehypertension among first year MBBS students.

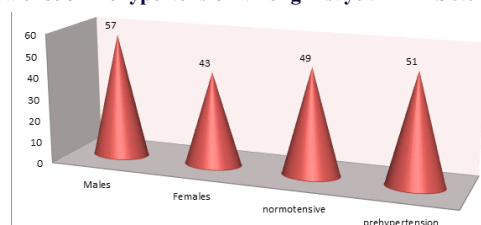


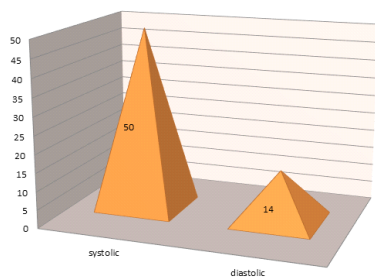
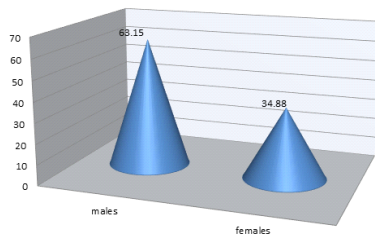
Figure 2: Prevalence of Systolic and Diastolic pre-hypertension.**Figure3: Distribution of the pre-hypertension across the gender.**

Figure1 shows the distribution of study subjects by gender. A total of 100 students took admission in first year MBBS comprising of 43 (43%) female students and 57 (57%) male students. The overall prevalence of pre-hypertension among the study subjects came out to be 51%, with none of the study subject found to be hypertensive.

Figure 2: The systolic and diastolic blood pressure individually showed that 50 (50%) of the students were having raised systolic blood pressure while 14 (14%) of the students had raised diastolic blood pressure along with systolic blood pressure.

Among systolic and diastolic readings, out of 14 subjects only 1 (1%) of the student showed raised diastolic blood pressure.

Figure 3 shows that there came out to be significant difference across the genders, out of 57 male students 36 (63.15%) showed raised blood pressure where as out of 43 females students 15 (34.88%) had blood pressure in the range of pre- hypertension.

DISCUSSION:

Prehypertension is a designation chosen to identify individuals at high risk of developing hypertension, so that both patients and clinicians are alerted to this risk and encouraged to intervene and prevent or delay the disease from developing.

In a study conducted by Shobha S Shetty et al⁹, concluded that out of 500 students 277 [55.4%] were prehypertensives out of which 145 [29%] students had a high SBP & 132 [26.4%] had high DBP which is approximately similar with this study showing that out of 100 students 51 are in the category of prehypertension with overall prevalence to be 51%. In this study, out of 51 students it is seen that 50% of study subjects have raised systolic blood pressure while 14% have raised diastolic blood pressure

In a study by Shobha S Shetty et al, among the 227 students, 64.1% were boys and 35.9% were girls, which is almost similar with this study showing 36 (63.15%) male students and 15 (34.88%) female students in the category of prehypertension.

This finding is also about to be similar with the study conducted by Kumar H, et al¹⁰ in their Cross sectional study done at Dehradun, Uttarakhand among students of tertiary care institute concluded in results that overall prevalence of prehypertension was 58.75% among 400 students enrolled in study.

Another cross sectional study conducted by Debbarma A et al¹¹ among medical students at Agartala Medical College, Tripura concluded in study that prevalence of pre hypertension, hypertension and optimum BP were found to be 45%, 4% and 51% respectively, which is found to be in contrast with this study showing 51% of prehypertensives and none of the subjects in the category of hypertension. This could be attributable due to variation in demographic profile and underlying chronic conditions.

CONCLUSION:

Persons at risk of pre-hypertension need proper evaluation and appropriate management to prevent serious, long term complications. It has been estimated that average life expectancy is reduced to five years because of hypertension. Hence, there is a need and scope to detect hypertension at early stage which can result in reduced burden of hypertension among future medical professionals.

LIMITATIONS:

- Only 100 students are taking admission in first year MBBS.

REFERENCES

1. WHO; Global health observatory data: Raised blood pressure-situation and trends. Who.int/gho/ncd/risk-factors (cited on 2nd july 2018)
2. William F. Ganong, review of medical physiology 20th edition : pg 565- dynamics of blood and lymph flow.
3. International Institute for Population Sciences. Ministry of Health and Family Welfare, Government of India. National family Health Survey (NFHS-4) 2015-16 Factsheet, India.
4. Mahmood SS, Levy D, Vasan RS, Wang TJ. The Framingham heart study and the epidemiology of cardiovascular disease: a historical perspective. *Lancet* (2014) 383:999–1008.
5. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012; 380:2224-2260.
6. Suri MF, et al. prehypertension as a risk factor for cardiovascular diseases. *J Cardiovasc Nurs.* 2006 Nov-Dec.
7. Saklayen M G, Mohammad G. Timeline of History of Hypertension Treatment 2016 February; Volume 3 (3).
8. The sixth report of Joint National Committee on prevention, detection, evaluation and treatment of high blood pressure. *Arch Intern Med* 1997; 157:2413-2446.
9. Shetty S.S , Nayak A. Prevalence of prehypertension among medical students in coastal Karnataka. *J of evolution of medical and dental sciences* Vol11: Issue6: Dec-2012.
10. Kumar H, Uniyal N, Bawa S, Kumar S. Prevalence of prehypertension in students of a tertiary care institute of North India. *Int J Med Sci Public Health* 2014;3:212-214.
11. Debbarma A, Bhattacharjya H, Mohanty A, Mog C. Prevalence of pre-hypertension and its relationship with body mass index among the medical students of Agartala government medical college. *Int J of research in medical sciences* Vol 3, No5(2015).