

Prevalence of Hypertension Among Resident Doctors of Clinical Departments in a Tertiary Care Hospital in North-Eastern Region of India

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ABSTRACT

Introduction: Hypertension is a global pandemic and rising every year. Detection of hypertension among doctors is of utmost importance as hypertension is one of the major causes for diseases like chronic kidney disease, stroke, heart failure and there is paucity in the studies done on doctors for prevalence of hypertension in India. Objective: The study was undertaken to estimate the occurrence of hypertension in resident doctors of the clinical departments of a tertiary care hospital of northeastern India.

Material and methods: It is a hospital based cross-sectional study, conducted in the Department of General Medicine, Paediatrics and General surgery of tertiary care hospital of northeastern India including 100 doctors participants. Data like age, height, weight, family history, smoking history were taken. Blood pressure was measured on two occasions, one on an emergency day and another on a non-emergency day. Statistical analysis: Data entry was done and evaluated using Microsoft Excel 2010 and IBM SPSS statistics 20.

Results: The prevalence of hypertension and prehypertension among the doctors was found in 36% and 13% respectively, on an emergency day. This huge number of hypertension was reduced to 19% when BP was taken on a non-emergency day. There was also significant positive relation between smoking and mean systolic BP (p-value <0.05).

Conclusion: The prevalence of hypertension among doctors is no less than the general population. Stress like emergency duties may be an important factor of higher prevalence of hypertension in doctors. There is a need of changes in lifestyle for better future for doctors and hence for the population.

Keyword: Blood pressure, Prehypertension, Smoking, Prevalence

related co-morbidities.

Detection of hypertension among doctors is of utmost importance as hypertension is one of the major cause for diseases like chronic kidney disease, stroke, heart failure, which may hamper the already low patient: doctor ratio drastically. Moreover, doctors usually run through a hectic schedule in day to day practice and fail to take sufficient care of health of themselves, which is more common in doctors related with clinical departments than in comparison with other departments who usually does not need to attend emergency duties.

This study was undertaken to find out the prevalence of prehypertension, hypertension among resident physicians from clinical department of Silchar Medical College and Hospital, Assam, India.

MATERIAL AND METHODS

It was a hospital based cross-sectional study, conducted in the Department of General Medicine, Paediatrics and General surgery of a tertiary care hospital of northeastern India over a period of 3 months (1st January to 31st march 2020). There were total 100 doctors who participated in the study. They were provided with the protocol, and their consent for participation in the study was taken.

The following data were collected:

1. Height (in centimetres)
2. Body weight (in kilograms)
3. Risk factors such as smoking, family history, and diabetes mellitus
4. Drug history

BMI was calculated using the standard international formula-
BMI = weight (kg)/height (m)²

A mercury sphygmomanometer was used to measure the

INTRODUCTION

Hypertension is a global pandemic and is responsible for 24% of the coronary heart disease-related deaths and 57% of all the stroke related deaths in India.¹ According to a recent report it is indicated that nearly one billion adults had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025.¹

A survey done in south India which included 26,000 adults showed a hypertension prevalence of 20%, but 67% of the hypertensives were unaware of the blood pressure (BP).² This indicates the need for early detection and to take appropriate measures. It is seen that if adequate intervention against hypertension is taken in the early phase of the disease, there is drastic reduction in cardiovascular and other hypertension

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blood pressure (BP). The BP was measured on two separate days, one was taken on an emergency day and another on a non-emergency day. Before taking the reading it was ensured that there was no smoking or caffeine ingestion or exercise half-an-hour prior to the checking of their BP. A cuff bladder encircling at least 80% of the arm circumference was applied to the dominant arm. The appearance of phase I korotkoff was taken as systolic BP (SBP) and disappearance of phase V as the diastolic BP (DBP) reading. The mean of three readings recorded at least 2 minutes apart was taken. If there was disparity in the readings by more than 5 mmHg, a further set of three readings were recorded at 2 minute intervals, and the mean of all the six readings were taken.

The individuals were categorized as normotensives, prehypertensives, and hypertensives as per JNC 7 criteria³-

- Normotensive: SBP <120 mm Hg and DBP <80 mm Hg
- Prehypertension: SBP 120–139 mm Hg or DBP 80–89 mm Hg
- Hypertension : SBP >140 mm Hg or DBP >90 mm Hg

The mean BP : DBP + 1/3rd of pulse pressure.

In the Indian context, BMI from 18 to 22.49 is regarded as normal, between 22.5 and 24.99 overweight, and above 25 obese.

STATISTICAL ANALYSIS

Data entry was done and evaluated using Microsoft Excel 2010 and IBM SPSS statistics 20. The results for each parameter for discrete data are represented in numbers, percentages and average (mean, standard deviation) are represented for continuous data which are represented in tables and correlations were drawn between different parameters.

RESULT

In the study there were total 100 doctors from 3 different department i.e surgery, medicine, and paediatrics. There

were 56 male and 44 females in the study. All the doctors were within the age group of 25 to 40 years range (Mean age : 27.4 years).

In the present study 36 (or 36%) doctors were diagnosed to be hypertensive (27 male and 9 female), 13 doctors were in prehypertension stage and 51 were normotensive according to the JNC 7 criteria on an emergency day (Table 3). Among the hypertensive doctors 26 were in stage 1 hypertension (72.2%) and another 10 were in stage 2 (27.7%). The mean of the BP are mentioned in table 1.

On evaluation, risk factors like smoking was seen in 20 doctors (33.3%), history of hypertension in the family in 16 doctors (44.4%) and BMI >25 in 8 doctors (22.2%) in the hypertensive group (Table 2).

To assess whether smoking increases the risk of raised BP or not, independent sample t-test was done between the smokers and non-smokers and it showed with degree of freedom (df) = 68.07 for SBP and 86.01 for DBP, p = 0.004 (2-tailed) for SBP and 0.061 for DBP, and t = -2.94 for SBP and - 1.90 for DBP. This indicates that smoking is strongly related with systolic BP (Table 3).

On a non-emergency day, the study showed a total of 19 (or 19%) doctors with hypertension (male-15 and female 4) and 19 were in pre-hypertension stage (Table 3). Among these, 15 were in stage 1 hypertension (79%) and rest 4 doctors were in stage 2 hypertension (21%) (Table 4).

To assess whether smoking increases the risk of raised BP or not, independent sample t-test was done between the smokers and non-smokers and it showed with degree of freedom (df) = 68.92 for SBP and 71.87 for DBP, p = 0.001 (2-tailed) for SBP and 0.095 for DBP, and t = -3.58 for SBP and - 1.693 for DBP. Here also strong correlation between SBP and smoking is seen.

DISCUSSION

The prevalence of hypertension among the doctors was

Parameters (mmHg)	Mean ± SD	Minimum	Maximum
Systolic BP (SBP)	122.54±15.94	88	176
Diastolic BP (DBP)	81.94±11.37	60	110
Non-emergency SBP	119.34±13.63	88	160
Non-emergency DBP	78.68±9.16	60	100

Table-1: Mean blood pressure

Parameters	Hypertensive	Non- hypertensive	Total
Family history of hypertension	16	12	28
Smoker	20 (42.5%)	27 (57.4%)	47
BMI (>25)	8	2	10

Table-2: Risk factors

Diagnosis	Male	Female	Smoker
Hypertension	27	9	20
Pre-hypertension	10	3	6
Normotensive	19	32	13

Table-3: Blood pressure during emergency day

Diagnosis	Male	Female	Smoker
Hypertension	15	4	9
Normotensive	41	40	30

Table-4: Blood pressure during non- emergency day

found to be 36% and 13% were in prehypertension stage on an emergency day. This huge number were reduced to 19% when BP was taken on a non-emergency day and 3 doctors BP was actually higher on non-emergency day as compared to emergency day. This finding was comparable to the prevalence of hypertension in the general population which was 29.8% (from databases taken from 1950 to April 2013).⁴ Similar findings were seen in Nigudgi SR et al.⁵ and Ghosh A et al.⁶ studies, where the prevalence of hypertension among doctors was found out to be 32.07% and 24.69% respectively. But no record were given regarding whether the BP was measured during emergency or non-emergency days in the above two studies and also the age group in our study included younger age group (25 years to 40 years) whereas the other two studies included age group of upto 60 years. High work stress has been shown to be associated with increased risk of hypertension and cardiovascular disease. These detrimental effects can be due to recurrent autonomic reactivity to work related stress. Increased evidence shows that changes in vagal tone maybe related to stress induced high blood pressure.⁷

There was also significant positive relation between smoking and mean systolic BP (p-value <0.05), comparable to other studies which also showed a positive relation (Ghosh A et al.).⁶ Hence cessation of smoking is important for the prevention of pre-hypertension and hypertension.

The number of positive family history among hypertensives were also high (44.4% of hypertensives) and so was the number of doctors with BMI >25 (22.2% vs 4% in normotensives). This study shows that even though the awareness among the doctors about the hypertension and associated risk factors is much higher than the general population, the modifiable risk factors like smoking and high BMI were quite high with an eventual increase in the prevalence of hypertension. It has been seen that doctors do not take good care of their health and because of the work schedule and availability, not able to take healthy food. Regular workout should be done by the student doctors too or these may be included in the curriculum so that they will become bound for the physical exercise regularly to reduce the prevalence of hypertension amongst them.

CONCLUSION

The prevalence of hypertension among doctors is no less than the general population. Stress like emergency duties may be an important factor of higher prevalence of hypertension in doctors. There is a need of changes in lifestyle for better future for doctors and hence for the population.

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