

A Prospective Study of Assessment of Hypertension Among Young Population: An Institutional based Study

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ABSTRACT

Background: This risk is evident even in childhood; with elevated blood pressure predicting hypertension in adulthood, and adverse effects of elevated blood pressure in childhood on vascular structure and function, specifically left ventricular hypertrophy, are already apparent in youth. Present study was conducted to assess hypertension among young population.

Materials and Methods: The study was conducted in the department of general medicine, Mahatma Gandhi Memorial (MGM) Medical College, Indore, Madhya Pradesh (India). For the study, 50 patients diagnosed with hypertension were selected. Young adults in the age group of 20–30 years were included. Pregnant women and those not consenting for voluntary participation were excluded from the study. A group of 50 normal healthy subjects were also selected as controls. An informed written consent was obtained from the patients. The questionnaire comprised of details on tobacco use, alcohol consumption, physical activity and stress levels.

Results: The number of male patients was 32. Mean age of the patients was 25.21 years. In the study group, 33 patients had BMI >25 kg/m², 41 patients were smokers, 39 patients were alcohol consumers, 28 patients had reduced physical activity, 35 patients had elevated serum cholesterol and 32 patients had moderate to high stress. In the control group, 20

patients had BMI >25 kg/m², 12 patients were smokers, 14 patients were alcohol consumers, 25 patients had reduced physical activity, 18 patients had elevated serum cholesterol and 21 patients had moderate to high stress.

Conclusion: Within the limitations of our study, we conclude that adult population should be educated on the risk factors of the hypertension as risk factors such as smoking status and alcohol consumption are more common in hypertensive subjects.

Keywords: Hypertension, Smoking, Young Population.

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INTRODUCTION

Hypertension is a major contributor to the global disease burden. It poses an important public health challenge to both economically developing and developed countries, including Asia. The prevalence and rate of diagnosis of hypertension in children and adolescents appears to be increasing. Hypertension confers the highest attributable risk to deaths from cardiovascular disease and epidemiological data provide convincing evidence that the risk of cardiovascular disease related to blood pressure is graded and continuous.^{1,2}

This risk is evident even in childhood; with elevated blood pressure predicting hypertension in adulthood, and adverse effects of elevated blood pressure in childhood on vascular structure and function, specifically left ventricular hypertrophy, are already apparent in youth. Reduction of blood pressure reduces this risk in people with and without hypertension and is a desired goal in children and adults.³

Given that high hypertension prevalence and low hypertension awareness among men and women often originate in early adulthood, determining gender patterns in hypertension and hypertension awareness and what factors contribute to these patterns in this life stage is critical for improving hypertension control and reducing cardiovascular disease risk.⁴

Even as most studies describe knowledge of hypertension and its risk factors in older adults and the elderly, there is a paucity of such data among teenagers and young adults, as they are considered to be at a lower risk of developing the disease. With a growing problem of hypertension worldwide, there is a concern that hypertension in young adults may also be on the rise and that cases are not detected because of inadequate screening in this age group.^{5,6}

Hence, the present study is planned to assess hypertension among young population.

MATERIALS AND METHODS

The study was conducted in the department of general medicine, Mahatma Gandhi Memorial (MGM) Medical College, Indore, Madhya Pradesh (India). The ethical clearance for the study was obtained from the ethical board of the institute prior to commencement of the study. For the study, 50 patients diagnosed with hypertension were selected. Young adults in the age group of 20–30 years were included. Pregnant women and those not consenting for voluntary participation were excluded from the study. A group of 50 normal healthy subjects were also selected as controls. An informed written consent was obtained from the patients. The study was conducted using a structured, self-administered questionnaire. The questionnaire comprised of details on tobacco use, alcohol consumption, physical activity and

stress levels. Anthropometric measurements and blood pressure were recorded. Total Serum Cholesterol was measured for a randomly selected sub sample of 30% population which included equal number of pre-hypertensives and normotensives. The subjects were categorized as less active if they did not practice any planned regular physical activity for at least 30 minutes / day for five days a week. Blood pressure was measured by the same team using a mercury sphygmomanometer, twice, with a gap of one minute, and interpreted as per the blood pressure guidelines. The statistical analysis of the data was done using SPSS version 20.0 for windows. The Student’s t-test and Chi-square test were used to check the significance of the data. The p-value less than 0.05 were predetermined as statistically significant.

Table 1: Demographic variables of the study group

Characteristic variables	Mean values
No. of male patients	32
Mean age (years)	25.21
Marital status	
• Single	21
• Married	16
• In relationship	16
Residence at	
• Rural area	31
• Urban area	22

Table 2: Number of patients with possible risk factors of hypertension

Variables	No. of patients		p-value
	Study group	Control	
BMI >25 kg/m ²	33	20	0.22
Smoker	41	12	0.001*
Alcohol consumer	39	14	0.005*
Reduced physical activity	28	25	0.32
Elevated serum cholesterol	35	18	0.11
Moderate to high stress	32	21	0.02*

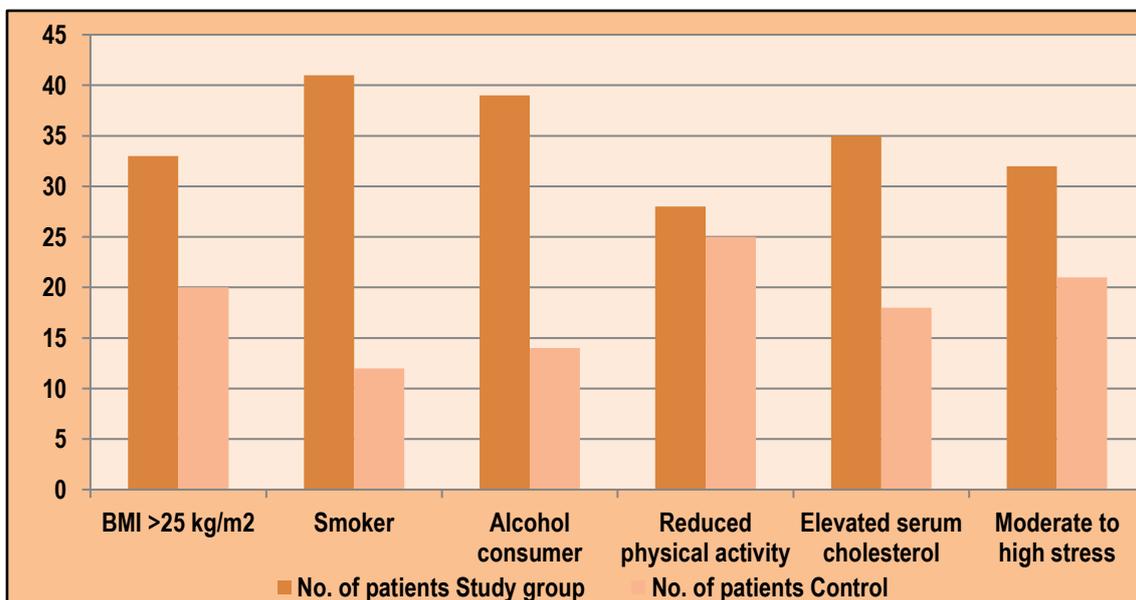


Fig 1: Number of patients with possible risk factors of hypertension

RESULTS

Table 1 shows the demographic variables of the study group. A total of 50 patients participated in the study. The number of male patients was 32. Mean age of the patients was 25.21 years. As per marital status, 21 patients were single, 16 patients were married and 16 patients were in a relationship. 31 patients were residing at rural area and 22 patients were residing at urban area. Table 2 shows the number of patients in study group and control group with possible risk factors of hypertension. In the study group, 33 patients had BMI >25 kg/m², 41 patients were smokers, 39 patients were alcohol consumers, 28 patients had reduced physical activity, 35 patients had elevated serum cholesterol and 32 patients had moderate to high stress. In the control group, 20 patients had BMI >25 kg/m², 12 patients were smokers, 14 patients were alcohol consumers, 25 patients had reduced physical activity, 18 patients had elevated serum cholesterol and 21 patients had moderate to high stress. On comparing the results, statistically significant results were observed for smoking status, alcohol consumption and moderate to high stress.

DISCUSSION

Hypertension has been identified as the leading risk factor for mortality worldwide. Once regarded a problem only in high-income countries, hypertension is currently a global problem increasing the risk for cardiovascular diseases (CVD) in both wealthy and poor nations. Over 80 % of the world's deaths from CVD occur in low and middle-income countries. In Indian adults the prevalence of hypertension has risen to rates similar to and sometimes exceeding that in many high income countries. The increasing prevalence of hypertension in low income countries represent a substantial public health problem with associated economic and social impacts.^{7,8}

The present study was conducted to study hypertension in young adults. A total of 100 patients, 50 in study group and 50 in control group were selected for the study. We observed that hypertensive patients were statistically significant for high risk factors such as positive smoking and alcohol consumption and high to moderate stress levels. Also, more patients were seen in hypertensive group for reduced physical activity and elevated serum cholesterol level but results were non-significant.

Kini S et al assess the magnitude and factors associated with pre-hypertension among young adults in coastal villages of Udipi Taluk, Udipi District, Karnataka state, India. 1,152 young adults (age group: 20–30 years) selected by stratified random sampling in 6 coastal villages of Udipi Taluk, Karnataka state, India. A semi structured pre-tested questionnaire was used to elicit the details on socio-demographic variables, dietary habits, tobacco use, alcohol consumption, physical activity, family history of hypertension and stress levels. Anthropometric measurements and blood pressure were recorded according to standard protocols. Serum cholesterol was measured in a sub sample of the study population. Multivariate logistic regression was applied to identify the independent correlates of pre-hypertension among young adults (20–30 years). The prevalence of pre-hypertension in the study population was 45.2%. Multivariate logistic regression analysis revealed that age group of 25–30 years, white collared and skilled occupation, students, using refined cooking oil, extra salt in meals, salty food items, pre-obese and obese were the significant correlates of pre-hypertension. They concluded that in

the study population, prevalence of pre-hypertension among young adults (20–30 years) was high (45.2%).⁹ Johnson HM et al compared the rates of a new hypertension diagnosis for different age groups and identify predictors of delays in the initial diagnosis among young adults who regularly use primary care. A 4-year retrospective analysis included 14 970 patients, at least 18 years old, who met clinical criteria for an initial hypertension diagnosis in a large, Midwestern, academic practice from 2008 to 2011. Patients with a previous hypertension diagnosis or prior antihypertensive medication prescription were excluded. The probability of diagnosis at specific time points was estimated by Kaplan–Meier analysis. Cox proportional hazard models were fit to identify predictors of delays to an initial diagnosis, with a subsequent subset analysis for young adults (18–39 years old). After 4 years, 56% of 18–24-year-olds received a diagnosis compared with 62% (25–31-year-olds), 68% (32–39-year-olds), and more than 70% (≥40-year-olds). After adjustment, 18–31-year-olds had a 33% slower rate of receiving a diagnosis compared with adults at least 60 years. Other predictors of a slower diagnosis rate among young adults were current tobacco use, white ethnicity, and non-English primary language. Young adults with diabetes, higher blood pressures, or a female provider had a faster diagnosis rate. They concluded that provider and patient factors are critical determinants of poor hypertension diagnosis rates among young adults with regular primary care use.^{10,11}

Liu X et al conducted a study in which demographics questionnaires, and fitness tests were utilized to identify the risk factors of hypertension among younger adults in the years 2005, 2010, and 2014 in China's southwest province of Hubei. The results demonstrated that the prevalence of hypertension was higher between 2011 and 2014 among the young people in this area. The main risk factors of developing hypertension were found to be sex (as man), individuals over 40 years old, blue collar employees who worked in rural areas, overweight/obesity, and those with the low CRF. Everett B examined gender differences in hypertension and hypertension awareness among U.S. young adults, with special focus on factors that may contribute to observed disparities (N = 14,497). Their results show that the gender disparities in hypertension status were already evident among men and women in their twenties: women were far less likely to be hypertensive compared to men (12% vs. 27%). The results also reveal very low levels of hypertension awareness among young women (32% of hypertensive women were aware of their status) and even lower levels among men (25%). Finally, this study identifies key factors that contribute to these observed gender disparities. In particular, health care use, while not related to the actual hypertension status, fully explains the gender differences in hypertension awareness. The findings thus suggest that regular medical visits are critical for improving hypertension awareness among young adults and reducing gender disparities in cardiovascular health.^{11,12}

CONCLUSION

Within the limitations of our study, we conclude that adult population should be educated on the risk factors of the hypertension as risk factors such as smoking status and alcohol consumption are more common in hypertensive subjects.

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