Original Article

Community Medicine

Frequency of Hypertension in Male and Female Medical students of Public Sector University of Jamshoro in Hilly Region

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ABSTRACT

Objective: To evaluate the Frequency of Hypertension in Male and Female Medical students of Public Sector University of Jamshoro in hilly region.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at Liaquat University of Medical and Health Sciences Jamshoro from October 2012 to November 2012.

Patients and Methods: A total of 94 Medical students studying in 4th year MBBS were randomly selected and were administered questionnaire comprising sections on personal information, Gender distribution, age distribution, current status of hypertension, hobbies, family history of hypertension, father's occupation, blood pressure readings by using a standardized calibrated mercury column type sphygmomanometer (Certeza CE model CR 2001) in Medical ward were recorded and careful clinical examination of CVS by Senior and trained Doctors.

Results: Among male students 26 of Normal (<130 / <85 mmHg), 05 of Prehypertension (130-139/85-89 mmHg), Among Females 53 of Normal, 08 of Prehypertension and 02 of Mild hypertension (140-159/90-99 mmHg) .Some subjects had reduced physical activity with preference of watching TV and reading books. Majority of the students were normotensives.

Conclusion: The study concludes that the hypertension is a problem of medical students, detection of common habits that might be correlated with hypertension which needs regular counseling and lifestyle changes, awareness and prevention about hypertension.

Key Words: Hypertension, Hilly Region, Medical Student

INTRODUCTION

In industrialized, as well as, in non-industrialized countries, chronic non-communicable diseases are considering greater importance among adult population. In most countries the prevalence of chronic diseases like hypertension, etc is presenting an upward trend. The accountable factors are behavior pattern of people, increased weight (obesity) and changing life styles, etc.[1]

Worldwide, Hypertension (high blood pressure) is a major contributor to cardiovascular morbidity and disability and it has been proved that the decline of highly or moderately elevated blood pressure rank (levels) outcomes in a decrease in myocardial infarction rates, stroke and kidney disease.[2-5]

Globally, about 1 billion people have hypertension (>140/90 mmHg) at present, and by 2025 this number is proposed to inflate to 1.56 billion. [6] Incidence rate 3% to 18% depending on the body size, gender, ethnicity and age of the population.[7] Almost 21 million population of Pakistan have hypertension.[8]

Persons with high-normal blood pressure may be at risen possibility of development of hypertension. Blood pressure is a significant risk for cardiovascular events that expects the cardiovascular risk in comparison with normotensives. Globally cardiovascular diseases are a superior element of death. [9-14] Two types of hypertension, primary (essential) hypertension results from environmental factors and a complex interaction of genes, is most common form accounting for 97-98% of all cases of hypertension. Secondary hypertension accounting 2-3% by underlying cause mostly endocrine system or kidney involvement.[15]

Worldwide prevalence of pre-hypertension was 31% (higher in men as compared to women) reported by National Health and Nutrition examination survey (NHANES) in 1999-2000. Pre-hypertension, not a disease type, persons at high chance of developing hypertension.[16] Pre-hypertension is directly related with cardiovascular risk factors like dislipedemia, increased body weight (obesity), diabetes mellitus, sodium intake and alcohol consumption.[17]

Each year due to complications of hypertension about 7.1 million people die. This elevated frequency of hypertension is becoming a major public health challenge for both industrialized and non industrialized countries.[18]

Keeping in view of these facts we planned this study to estimate the frequency of hypertension in male and

female medical students of public sector university and evaluate the association of hypertension with sex, age, current status of hypertension, hobbies and family history.

MATERIALS AND METHODS

According to a study protocol approval was taken from Faculty committee for community medicine and public health sciences, medical superintendent Liaquat university hospital Jamshoro and Director Academics Liaquat University of Medical & Health Sciences, Jamshoro. The purpose of study was explained to medical students. The verbal consent was obtained from every subject (participant). Subject who did not give their verbal consent were excluded from the study.

The present descriptive cross-sectional study was conducted on 94 medical students aged 20 years and above, of 4th year MBBS students of Liaquat University of Medical & Health Sciences, Jamshoro, a hilly region. The predominant language of the study population was Sindhi, Urdu, Punjabi and English. The study was conducted in Medical ward and Lecture hall of Liaquat University with three rounds by interviewing and examining all the eligible individuals, which were filled by 94 randomly selected male and females from 4th year MBBS Students of aged 20 and above, during the time period of October 2012 to November 2012 in lecture hall and Medical ward (affiliated with Liaquat University) with three rounds. Framed and Pretested detailed questionnaire which included information on demographic characteristics (e.g. age, sex, marital status, religion, caste, language, father's occupation, socio economic status), personal and family medical history, information on lifestyle habits such as physical activity.

The criteria of diagnosis and method of blood pressure measurement for each medical student (subject) were followed as per JNC VII recommendation. Auscultatory method with a standardized calibrated mercury column type sphygmomanometer (regularly inspected and validated) and stethoscope was used.

Blood pressure was measured at least twice, at least five minutes apart in a resting and sitting position obtained on the left arm using a cuff of an appropriate size and the average blood pressure reading was recorded by using a standardized calibrated mercury column type sphygmomanometer (Certeza CE model CR 2001). A third measurement was performed if the difference between the first two measurements was more than 10 mmHg.(Satisfied that the subjects had not consumed any alcohol, hot beverages such as coffee/tea or smoked/chewed tobacco or attempted potent physical activity within the 30 minutes preceding the interview and examination). Hypertension was defined as an average systolic blood pressure ≥ 140mmHg and/or average diastolic blood pressure ≥ 90mmHg by senior and trained doctors.

The reading at which the first of two or more Korotkoff sound is heard define as systolic blood pressure and the reading where disappearance of Korotkoff sound is used to define diastolic blood pressure. The average of the readings of systolic and diastolic blood pressure was taken as the blood pressure of the medical student (subject).

Statistical analysis was applied on the data (Data tabulated and analyzed) by using Statistical package for social sciences (SPSS) version 16. Findings were described in terms of numbers and percentage only to find out the frequency of hypertension among medical students.

RESULTS

A total of 120 participates were approached, out of that, 94 participants consented, and were found eligible.

Sex Distribution: Male were 31(25.83%) and female were 63(52.50%) Overall response rate was 78.33%; in both sexes.

Student age distribution, among male students 02(02.13%) students 21 years, 25(26.59%) of 22 years, 04(04.26%) of 23 years, while among females 15(15.96%) students of 21 years, 32(34.04%) of 22 years and 16(17.02%) of 23 years respectively.

Current status of hypertension: Among Male students 26 (27.66% of Normal (<130 / <85 mmHg), 05(05.32%) of Prehypertension (130-139/85-89 mmHg), Among Females 53(56.38%) of Normal, 08(08.51%) of Prehypertensive and 02(02.13%) of Mild Hypertension (140-159/90-99 mmHg). Majority of the students were normotensives.

Hobbies of students: Among male students 31(32.98%) were engaged with Playing and watching TV. Among female 63 (67.02%) were concerned with reading.

Family History of Hypertension: From male students only 09 (09.57%) students gave the family history while from female only 18 (19.15%) students gave the family history of hypertension.

Occupation of Father: 43 (45.74%) were Private employees 51(54.26%) were government employees.

Table No.1: Classification of BP levels (According to the British Hypertension Society)

Category	Systolic BP (mm Hg)	Diastolic BP (mm Hg)
Optimal Blood Pressure	<120	<80
Normal Blood Pressure	<130	<85
High Normal Blood Pressure (Prehypertension)	130-139	85-89
Stage 1 Hypertension (Mild)	140-159	90-99
Stage 2 Hypertension (Moderate)	160-179	100-109
Stage 3 Hypertension (Severe)	>180	>110

Table No.2: Categories for Blood Pressure

Levels in Adults (Ages 18 Years and Older)

Category	Blood Pressure Level (mmHg)		
	Systolic		Diastolic
Normal	<120	And	<80
Prehypertension	130-139	Or	80-89
High Blood Pressure			
Stage 1 Hypertension	140-159	Or	90-99
Stage 2 Hypertension	≥160	Or	≥100

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Table No.3: Sex Distribution.

Sex Distribution	Number	Percentage (%)
Male	31	32.98
Female	63	67.02
Total	**94**	**100**

Table No.4: Age Distribution of Students.

Students Age Distribution	21 Years	22 Years	23 Years
Male	02	25	04
Female	15	32	16
Total	**17**	**57**	**20**

Table No.5: Current status of Hypertension in students

Hypertension in the Students	Normal (<130/<80 mmHg)	Pre Hypertensive (130-139/85-89 mmHg)	Hypertensive (140-159/90-99 mmHg)
Male	26 (27.66%)	05 (05.32%)	00 (0%)
Female	53 (56.38%)	08 (08.51%)	02 (02.13%)
Total	79 (84.04%)	13(13.83%)	02 (2.13%)

Table No. 6: Hobbies of Students.

Hobbies of Students	Reading	Playing and Watching TV
Male	00	31
Female	63	00
Total	**63**	**31**

Table No.7: History of Hypertension in families.

Hypertension in families	Yes	No	Total
Male	09 (09.57%)	22 (23.40%)	31 (32.98%)
Female	18 (19.15%)	45 (47.87%)	63 (67.02%)
Total	**27 (28.72%)**	**67 (71.27%)**	**94 (100%)**

Table No.8: Father Occupation.

Occupation of Father	Private	Government	Others
Male	06	17	08
Female	12	34	17
Total	**18**	**51**	**25**

DISCUSSION

Worldwide hypertension is common. [20,21] Hypertension and cardiovascular disease (CVD) to be emerging as health problems in the developing countries reported by WHO and other studies.[22] Most common risk factor for Cardio vascular disease (CVD) is High Blood Pressure (BP) and decline of highly or moderately elevated BP rank (levels) outcomes in a falling in Myocardial infarction (MI) rates and stroke.[2-5]

Male gender, age, cigarette smoking, low HDL cholesterol, high LDL cholesterol, diabetes and elevated blood pressure are traditional cardiovascular risk factors in developing countries. Worldwide, 80% of total CVD deaths occur in non industrialized countries. [22] Gender distribution: Result from the present study highlight that the Hypertension in sex distribution is only 05(16.1%) male medical students were of Prehypertensive (130/90mmHg). While 08(12.69%) were prehypertensive (130-139/85-89mmHg) and 02 (3.17% were of Mild Hypertensive (140-159/90-99mmHg) in female students. Otherwise majority of students were normotensives.

Gender effect blood pressure adversely according to age. Women tend to have a lower systolic blood pressure than men up to age of 65. After age of 65, have an elevated systolic blood pressure, cause is unknown. In both sexes for any given age, Diastolic blood pressures are about the same. [23]

A study was conducted in Pakistan males were seen 1.7 times more with hypertension than females. Study from Southern Pakistan showed that the prevalence of hypertension was 15% in males, while 19% in females respectively. In our study 08.51% of Prehypertension and 2.13% of hypertension in females, the ratio is higher in females than male.

Student age distribution, among male students 02(02.13%) students 21 years, 25(26.59%) of 22 years, 04(04.26%) of 23 years, while among females 15(15.96%) students of 21 years, 32(34.04%) of 22 years and 16(17.02%) of 23 years respectively.

Similar study was conducted in Pakistan. Blood pressure (particularly systolic) increases with age, it was reported that 5.6 times more over the age of 35 years. Elevation in average systolic blood pressure (about 20 mm Hg) between ages 16-24 and 75 years and above. [24]

In developing countries various studies showed that the prevalence of hypertension rages form 9% to 30% among adults age of 40-55 years [25]. 20 to 20% affects above the age of 35 years in Eastern Mediterrancan Region. 4% in 18-29 and 65% in older than 65 years in US.[26] Another study of adult population of Punjab, prevalence of hypertension was 17.7%. [27]

Hypertension affects 18% of adults and 33% of adults over the age of 45 reported by National Health Survey of Pakistan. In another report, a third of Pakistanis over

the age of 40 becoming increasingly exposed to a wide reach of diseases. Only 50% hypertension people were diagnosed, only half of those diagnosed were ever treated only 12.5% were sufficiently controlled.[28]

Current status of Hypertension: Blood pressure of the students was also measured and recorded. Majority (84.04%) had blood pressure within the normal range (i.e. systolic BP <130 mmHg and diastolic BP <85 mmHg). Among them 13.85% had blood pressure in the pre-hypertensive range (taken as systolic BP between 130 and 139 mmHg or diastolic pressure between 85 and 89 mmHg) and 02.13% had blood pressure in the Mild hypertensive range (defined as systolic pressure > 140 mmHg or diastolic BP > 90 mmHg). Blood Pressure readings of students are given in Table-5.

Hobbies of students: Among male students 31(32.98%) were engaged with Playing and watching TV. Among female 63(67.02%) were concerned with reading. Sedentary subjects formed small proportion. They had higher prevalence hypertension as compared to other categories. [18]

Family History of Hypertension: From male students only 09(09.57%) students gave the family history while from female only 18(19.14%) students gave the family history of hypertension. Family history also play main role. Studies showed that up to 40% of changeability in blood pressure may be defined by genetic factors, in different ethnic groups and in developing countries; genetic tendency is nearly weak compared with the powerful impact of lifestyle and environmental exposure. [23]

Occupation of Father: 51(54.26%) were concerned with government employees, 43(45.74%) were Private employees.

Physical inactivity: Persons who do not attain abundant aerobic exercise (such as Running, cycling. Dancing, swimming, dancing and brisk walking) are more close to have or to establish hypertension. In our study, 63(67.02%) were concerned with reading only (No vigorous Physical Activity).In England Men (37%), Women (24%) appropriate the recommended level (30 minutes) a day. [23]

CONCLUSION

The study concludes that the hypertension is problem of medical student a hidden epidemic in medical students which needs regular counseling and lifestyle changes and awareness about hypertension. Efforts should be made to raise awareness in the students and communities about these diseases, their prevention and control.

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