A STUDY ON PREVALENCE OF HYPERTENSION IN PAKISTANI YOUTH

Muhammad Rehan Arshad[1], Asma Sadia[2], Ghulam Abbas[2]
[1]Rural Health Center Nia Lahore, District Toba Tek Singh
[2]Rural Health Center Rodu Sultan, District Jhang

Abstract:
Introduction: Hypertension has been recognized as a global health concern for developing countries and is scarcely described in many of these countries. In Pakistan, few population-based surveys evaluated the prevalence of hypertension and there is no current nationally representative study. *Objectives of the study:* The basic aim of the study is to find the prevalence of hypertension in Pakistani youth. *Methodology of the study:* This study was conducted at Rural Health Center Rodu Sultan, District Jhang during 2018 to May 2019. The sample size for the present study was calculated by taking most probable prevalence of hypertension as 50% and permissible error as 5% with 95% confidence interval. Fixing the permissible error as 50%, the minimum sample size was calculated as n = 100. *Results:* Regarding the self or family history of any chronic disease; 50 (10.3%), and 16 (3.3%) of the total study participants were known hypertensive, and diabetes mellitus (DM) patients respectively, while 82 (16.8%) and 64 (13.1%) have family history of hypertension and DM respectively. On the other hand, 182 (37.4%) and 131 (26.9%) of the total respondents were Chat chewer and smoker respectively. *Conclusion:* It is concluded that increasing age is proved to be an independent risk factor for hypertension.

Corresponding author:
Muhammad Rehan Arshad,
Rural Health Center Nia Lahore, District Toba Tek Singh

QR code

Please cite this article in press Muhammad Rehan Arshad et al., ***A Study On Prevalence Of Hypertension In Pakistani Youth.,*** *Indo Am. J. P. Sci, 2019; 06(12).*

INTRODUCTION:

Hypertension has been recognized as a global health concern for developing countries and is scarcely described in many of these countries. In Pakistan, few population-based surveys evaluated the prevalence of hypertension and there is no current nationally representative study. Elevated BP is positively correlated to the risk of stroke and coronary heart disease. Other than coronary heart disease and stroke, its complications include heart failure, peripheral vascular disease, renal impairment, retinal hemorrhage, and visual impairment[1].

Hypertension (or HTN) or high blood pressure is defined as abnormally high arterial blood pressure. According to the Joint National Committee 7 (JNC7), normal blood pressure is a systolic BP < 120 mmHg and diastolic BP < 80 mm Hg. Hypertension is defined as systolic BP level of ≥140 mmHg and/or diastolic BP level ≥ 90 mmHg. The grey area falling between 120–139 mmHg systolic BP and 80–89 mmHg diastolic BP is defined as "prehypertension". Although prehypertension is not a medical condition in itself, prehypertensive subjects are at more risk of developing HTN[2].

Hypertension is a state of elevated systemic blood pressure which is commonly asymptomatic. It is a major cardiovascular risk factor that is closely associated with lethal complications like coronary artery disease, cerebro-vascular accidents, heart and renal failure. Hypertension is an overwhelming global challenge, which ranks third as a means of reduction in disability-adjusted life-years. Besides, it is the leading cause of mortality[3]. Globally, nearly one billion people have hypertension; of these, two-thirds are in developing countries. The burden of chronic non-communicable diseases (NCDs) in developing countries has risen sharply in recent years[4]. The new epidemic of hypertension and cardio-vascular diseases is not only an important public health problem, but it will also have a big economic impact as a significant proportion of the productive population becomes chronically ill or die, leaving their families in poverty[5].

Normal blood pressure is maintained by a balance between cardiac output and arterial resistance. In hypertension, workload on the heart is increased in order to deliver blood to the tissues and this exerts strain on the heart and the arteries. Over time, constant strain on the heart leads to cardiovascular dysfunction which contributes to other diseases such as congestive heart failure, kidney failure and myocardial dysfunction. Certain mechanisms in the body are involved in regulating blood pressure. Kidneys play an important role in maintaining the systemic blood pressure by adjusting the sodium excretion rate[6].

Objectives of the study
The basic aim of the study is to find the prevalence of hypertension in Pakistani youth.

METHODOLOGY OF THE STUDY:

This study was conducted at Rural Health Center Rodu Sultan, District Jhang during 2018 to May 2019. The sample size for the present study was calculated by taking most probable prevalence of hypertension as 50% and permissible error as 5% with 95% confidence interval. Fixing the permissible error as 50%, the minimum sample size was calculated as $n = 100$. Since sampling procedure was multistage, hence considering the design effect, the sample size was further increased by one and half times. Individuals aged 25–64 years in the selected study area who gave consent for participation were considered. Participants were interviewed by trained interviewers and structured questionnaire.

Statistical analysis
The data of respiratory function were compared between the smoker and non-smoker groups using the independent t-test for normally distributed data or the Mann-Whitney U test for other distributions. Differences were considered statistically significant at $p<0.05$.

RESULTS:

Regarding the self or family history of any chronic disease; 50 (10.3%), and 16 (3.3%) of the total study participants were known hypertensive, and diabetes mellitus (DM) patients respectively, while 82 (16.8%) and 64 (13.1%) have family history of hypertension and DM respectively. On the other hand, 182 (37.4%) and 131 (26.9%) of the total respondents were Chat chewer and smoker respectively. Table 01 shows the mean values of systolic and diastolic BP according to age and gender. The mean systolic and diastolic BP of all the study subjects were 124.2 ± 15.0 mmHg and 83.4 ± 9.5 mmHg, respectively. In men, the highest mean systolic BP and mean diastolic BP were among the eldest age group and preceding eldest age group.

Table 01: Mean systolic and diastolic blood pressure (mm hg) and prevalence (%) of isolated systolic hypertensive and isolated diastolic hypertensive by age and gender.

Age groups (years)	N	Systolic BP (mean ± SD)			Diastolic BP (mean ± SD)		
		Male	Female	Total	Male	Female	Total
25–34	204	122.17 ± 9.54	114.81 ± 9.99	117.84 ± 10.44	82.92 ± 9.0	78.97 ± 7.46	80.59 ± 8.34
35–44	179	124.10 ± 10.77	121.71 ± 15.13	122.90 ± 13.07	85.70 ± 7.66	81.71 ± 9.30	83.75 ± 8.68
45–54	133	132.36 ± 13.21	127.16 ± 18.04	129.66 ± 16.05	*89.23 ± 8.16*	*83.28 ± 10.22*	*86.14 ± 9.72*
55–64	124	*134.66 ± 19.53*	*127.27 ± 15.74*	*130.97 ± 18.05*	86.42 ± 12.15	83.24 ± 9.32	84.83 ± 10.90
Total	640	127.49 ± 14.19	121.39 ± 15.26	124.25 ± 15.05	85.82 ± 9.43	81.34 ± 9.05	83.45 ± 9.49
Test of significance		*F = 15.396*	*F = 15.611*	*F = 30.466*	*F = 5.801*	*F = 4.921*	*F = 11.174*
		df = 3	df = 3	df = 3	df = 3	df = 3	df = 3
		p = 0.001	*p = 0.001*	*p = 0.001*	*p = 0.001*	*p = 0.002*	*p = 0.001*

DISCUSSION:

Hypertension is an important public health problem in both the economically developed and developing world. In this comprehensive systemic review, we described estimates of the prevalence of hypertension in the adult Pakistani population. At present, there is lack of nationwide data regarding hypertension prevalence[7]. Domestic and international literature searches found only one recent review, which focused on hypertension in Asian countries. Therefore, the present meta-analysis is relevant to the current healthcare need and based on a large number of participants. This meta-analysis provided a reliable estimate of the prevalence of hypertension in the Pakistani population[8]. Our results present a detailed view of the overall prevalence and burden of hypertension by gender, geographical region and estimate of hypertension prevalence with time, comparison of the overall prevalence of hypertension published in local and international journals and by study size[9].

Hypertension is one of the leading causes of death around the world, killing 7.1 million people globally. Many studies have been performed on hypertension to know the prevalence and its associated risk factors. It is one of the most important health problems in developing countries. In the current survey; 219 participants aged 18 years or above, were interviewed and the results revealed that the prevalence of hypertension in our twin cities is 29.22%. Men exhibit higher prevalence of hypertension and prehypertension than their female counterparts and, respectively. Similarly, various studies came out with the higher percentage of hypertension in men than women[8]. One of the possible explanations for this gender disparity in hypertension prevalence could be partially due to biological sex difference and partially due to behavioral risk factors like smoking, alcohol consumption, or physical activity. We speculate that absentia from alcohol and smoking might be few of those protective factors against hypertension in women. Other than that, women are more interested in health care services utilization and also more frequently report their poor health and therefore they are more likely to have better health[9].

Age was found to be an important risk factor for hypertension. As the age was advancing so did the prevalence of hypertension among both the sexes. Similar findings were reported by few other studies also where advancing age was positively related to hypertension. With increasing age, the aorta and arteries walls will be stiffened and this contributes to the high prevalence of hypertension in older age groups[10].

CONCLUSION:

It is concluded that increasing age is proved to be an independent risk factor for hypertension. Moreover, a considerable increase was found in the prevalence of hypertension over time and further, we stress over the need for good quality studies focusing on hypertension and its treatment in Pakistanis for hypertension management.

REFERENCES:

1. Tabrizi J. S., Sadeghi-Bazargani H., Farahbakhsh M., Nikniaz L., Nikniaz Z. Prevalence and associated factors of prehypertension and hypertension in Iranian population: the lifestyle

promotion project (LPP) *PLoS ONE*. 2016;11(10)

2. Fisher N. D., Williams G. H. Hypertensive vascular disease. In: Kasper D. L., Braunwald E., Fauci A. S., et al., editors. *Harrison's Principles of Internal Medicine*. 16th. New York, NY, USA: McGraw-Hill; 2005. pp. 1463–1481.

3. Angkurawaranon C., Wattanatchariya N., Doyle P., Nitsch D. Urbanization and Non-communicable disease mortality in Thailand: an ecological correlation study. *Tropical Medicine & International Health*. 2013;18(2):130–140.

4. World Health Organization . Chronic diseases and health promotion. STEP wise approach to chronic disease risk factor surveillance (STEPS) Geneva: World Health Organization; 2010.

5. Njelekela MA, Mpembeni R, Muhihi A, et al. Gender-related differences in the prevalence of cardiovascular disease risk factors and their correlates in urban Tanzania. BMC Cardiovasc Disord. 2009;9:30.

6. Bayray A, Berhe H. Nutrition status and major risk factors of hypertension among adults in Tigray, North Ethiopia; a case control study. Int J Pharm Sci Res. 2012;3(11):4206–4212.

7. Hoang VM, Byass P, Dao LH, et al. Risk factors for chronic disease among rural Vietnamese adults and the association of these factors with socio-demographic variables: findings from the WHO STEPS survey in rural Vietnam, 2005. Prev Chronic Dis. 2007;4:A22.

8. Agyemang C. Rural and urban differences in blood pressure and hypertension in Ghana, West Africa. Public Health. 2006;120:525–533.

9. Angkurawaranon C., Wattanatchariya N., Doyle P., Nitsch D. Urbanization and Non-communicable disease mortality in Thailand: an ecological correlation study. *Tropical Medicine & International Health*. 2013;18(2):130–140.

10. Gao Y., Chen G., Tian H., et al. Prevalence of hypertension in China: a cross-sectional study. *PLoS ONE*. 2013;8(6).