

ORIGINAL ARTICLE

Obesity: A Risk Factor of Hypertension in Adult Male PopulationASIA AZIZ¹, MISBAH UL QAMAR², NADIA TUFAIL³, HUDA ABBAS⁴, WAJAHAT HUSSAIN⁵, MARIA MUFTI⁶¹Associate Professor Community Medicine, Quaid e Azam Medical College, Bahawalpur²Assistant Professor, Akhtar Saeed Medical College, Lahore³Assistant Professor Community Medicine, Nishtar Medical University, Multan^{4,5}Assistant Professor Community Medicine, Quaid e Azam Medical College, Bahawalpur⁶Demonstrator Physiology, Akhtar Saeed Medical College, LahoreCorrespondence to Dr. Asia Aziz, Email: drasiaaziz1973@gmail.com**ABSTRACT****Aim:** To determine the association between obesity and hypertension among adult male population.**Study design:** Cross sectional analytical**Place and duration:** Conducted from June 2022 to December 2022 in Medical wards of BVH, Bahawalpur.**Methodology:** 1124 adult male between 20-40 years of age admitted in medical wards without any illness were included.**Results:** Mean age of the patient was 27.1±3.6 yrs. Mostly were between the ages of 26-30 yrs i.e. 51%. Number of patients with hypertension was 19.4% and in obese persons was higher as compared to non-obese group i.e. p<0.01.**Conclusion:** Hypertension is higher in obese persons when comparing with non-obese subjects.**Keywords:** Body mass index, Adults, Hypertension**INTRODUCTION**

Obesity is a key endemic of affluent societies and extends to low and middle socioeconomic class. Globally the burden of overweight and obesity has raised to almost double in last three decades and it is one of the major causes of cardiovascular diseases^{1,2}. Obesity is most common dietary problem and a most important community health hazard that is affecting 22% of adult inhabitants. Obese or overweight people are at greater risk of developing high blood pressure, dyslipidemia, type-II diabetes mellitus, cholelithiasis, osteoarthritis and sleep apnea which ultimately leads to poor quality of life among them^{3,4,5}.

Increases in the size and number of fat cells within the body are what are referred to as overweight and obesity. The main contributors to obesity are habits like eating habits, lack of sleep or exercise, some medications, and family history⁶. Obesity is a chronic disease that increases the risk of heart diseases, the number one killer and is connected to a number of other health issues, such as type 2 diabetes and cancer^{7,8}. Body Mass Index (BMI) is most commonly used indicator for screening overweight and obesity in adults. BMI is measured by dividing weight of an individual measured in kilograms with height of the person measured in meter square.

Developing nations like Pakistan are facing double challenge underweight and obese population. It was perceived that overweight and obesity is the problem of affluent societies but due to change in life styles, eating patterns, rapid urbanization the developing nations are now facing the problem as well. Following a heart-healthy diet lower in calories and dangerous saturated fats and boosting physical exercise are two lifestyle adjustments^{9,10,11}.

The major determinants of hypertension include behavioral and dietary factors including age, gender, salt intake, overweight, family history and many diseases including cardiovascular and renal problems. Hypertension is a highly prevalent disease in Pakistan and burden is also rising day by day. There is very little community based data on hypertension in Pakistan.

Therefore this study was planned to estimate the frequency of hypertension in adults between 20-40 years of age and association of hypertension with the obesity.

METHODS

It was a cross sectional analytical study conducted from June 2022 to December 2022 in the Department of Medicine, BVH Bahawalpur after approval from the Institutional Ethical Review Board. Sample size was 1124. Adult male between 20-40 years of

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age accompanying the patients admitted in medical wards without any medical disease were included. The persons with H/o hypertension, DM, drugs intake, smoking, alcoholism, liver, cardiac or renal diseases were excluded. After obtaining ethical approval from hospital ethical committee subjects were entered in a predefined data sheet.

RESULTS

Table 1: Distribution of ages

Age (yrs)	n=	%age
20-25	269	23.9
26-30	573	51.0
31-35	192	17.1
36-40	90	8.0
Total	1124	100

Table 2: Obesity

Obesity	n=	%age
Yes	169	15.1
No	955	84.9
Total	1124	100

Table 3: Hypertension

HTN	n=	%age
Yes	218	19.4
No	906	80.6
Total	1124	100

Table 4: Hypertension in obesity and non-obesity

Hypertension	Obese	Non-obese	Total
Present	93(55.1%)	125(13.1%)	218
Not present	76(44.9%)	830(86.9%)	906
Total	169(100%)	955(100%)	1124

Statistics= P <0.01 (significant)

DISCUSSION

In this study, ages were 27.1±3.6 yrs (Range is 26-30 yrs). This is in accordance with the results of Li W et al¹³ in which it was revealed that overweight in age was significantly associated with increased risk of hypertension. The risk was greatest at 18–39 years of age.

H/o obesity in male subjects was 15.4% and H/o hypertension was in 55.1% of the obese people as compared to 13.1% of non-obese subjects. The hypertension between obese and non-obese persons was found to be statistically significant (p<0.01). H/o hypertension was significantly higher in obese as compared to non-obese persons. These findings are in accordance

with the study of Linderman et al who also showed BMI associated with both systolic blood pressure (SBP) and diastolic blood pressure (DBP) and Weight loss significantly reduces blood pressure (BP)¹⁴.

Improved food choice (whole grains, fruits and vegetables, healthy fat and protein source)^{15,16}, restrictive harmful foods (refined grains and sweets, potatoes, red meat, processed meat) and drinks,^{17,18} increasing physical activity, restrictive television time, screen time, improving sleep and reducing stress can help to preserve normal body mass index in adult population^{19,20}.

CONCLUSION

Hypertension in obese subjects is higher when comparing with non-obese. So obesity is a risk factor for hypertension.

Conflict of interest: Nil

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