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Assessment of Central Obesity Using Waist Circumference Among Patients Attending a Cardiac Hospital in Central Nepal

Shankar Laudari[1], Laxmi KC[2], Anjali Thapa[2] Hari Prasad Upadhyay[3]

[1]Department of Cardiology, [2]Department of Nursing, Chitwan Mutu Aspatal, Bharatpur, Chitwan, Nepal, [3]Department of Statistics, Birendra Multiple Campus, Bharatpur, Chitwan, Nepal.

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ABSTRACT

Background: Central obesity is an important cardiovascular risk factor associated with hypertension, diabetes mellitus, coronary artery disease, and metabolic syndrome. Waist circumference is a simple and reliable measure of abdominal adiposity and is widely used to assess obesity-related health risks. This study aimed to determine the prevalence of central obesity among patients attending a cardiac hospital in Central Nepal

Methods: A hospital-based cross-sectional observational study was conducted among 100 patients attending a cardiac hospital in Central Nepal. Sociodemographic and clinical information were collected using a structured data collection form. Waist circumference was measured using a standardized procedure with participants in a standing position. Central obesity was defined according to the Asian-specific cutoff values of waist circumference (≥90 cm for males and ≥80 cm for females). Data were entered, cleaned, and analyzed using statistical software. Descriptive statistics, including mean, standard deviation, frequency, and percentage, were used to summarize participant characteristics and estimate the prevalence of central obesity

Results: The mean age of the participants was 51.59 ± 13.61 years. Among the study population, 45% were males and 55% were females. The mean waist circumference was 92.2 ± 12.15 cm. Overall, 79 (79.0%) participants had central obesity based on the Asian cutoff criteria.

Conclusion: Central obesity was highly prevalent among patients attending the cardiac hospital. Routine measurement of waist circumference may facilitate early identification of high-risk individuals and support timely preventive and therapeutic interventions to reduce cardiovascular risk.

Keywords: Central obesity; waist circumference; cardiovascular risk factor; cardiac hospital; Nepal

Correspondence: Dr. Shankar Laudari, Department of Cardiology, Chitwan Mutu Aspatal, Bharatpur, Chitwan, Nepal. Email: lshankar2@gmail.com, Phone: +977-9845112909

INTRODUCTION

Obesity is a growing public health challenge worldwide and is strongly associated with several non-communicable diseases, including cardiovascular diseases, diabetes mellitus, hypertension, dyslipidemia, and metabolic syndrome.[1,2] The increasing prevalence of obesity has become a major concern because it contributes substantially to morbidity, mortality, reduced quality of life, and escalating healthcare costs.[1] Among the different forms of obesity, central obesity has gained particular attention due to its strong association with adverse cardiometabolic outcomes.[2] Central obesity, commonly assessed using waist circumference, reflects the accumulation of visceral adipose tissue and is considered a more reliable predictor of cardiovascular and metabolic risk than body mass index (BMI) alone.[3] Excess visceral fat is associated with insulin resistance, chronic inflammation, endothelial dysfunction, and an increased risk of coronary artery disease and stroke.[3] South Asian populations are especially susceptible to central obesity and its related health complications despite having relatively lower BMI levels compared to Western populations.[4-6] Genetic predisposition, sedentary lifestyles, unhealthy dietary habits, and rapid urbanization have been identified as important contributing factors.[4,5] Consequently, South Asians tend to develop cardiovascular diseases and type 2 diabetes at younger ages and lower levels of adiposity.[6] Nepal, like many low- and middle-income countries, is undergoing a rapid epidemiological and nutritional transition characterized by changing lifestyles, increasing urbanization, and a growing burden of obesity and cardiovascular diseases.[7] The prevalence of overweight and obesity has increased considerably in recent years, posing significant challenges to the healthcare system.[7] Therefore, assessing central obesity among individuals at risk of cardiovascular disease is essential for early identification and prevention. This study was conducted to evaluate obesity using waist circumference among patients attending a cardiac hospital in Central Nepal.

METHODS

This hospital-based cross-sectional observational study was conducted among 100 patients attending a cardiac hospital in Central Nepal. The study aimed to assess the prevalence of central obesity using waist circumference measurements. Demographic and clinical information, including age, sex, and diagnosis, were collected using a structured data collection form through patient interviews and review of hospital records. Waist circumference was measured in centimeters using a standard non-stretchable measuring tape with participants in a standing position. The measurement was taken at the midpoint between the lower margin of the last palpable rib and the iliac crest, following standard anthropometric procedures, and recorded to the nearest 0.1 cm. Central obesity was defined according to the Asian-specific waist circumference cutoffs recommended for South Asian populations, with waist circumference ≥90 cm in males and ≥80 cm in females.[8] Data were entered, cleaned, and analyzed using statistical software. Descriptive statistical methods were employed to summarize the study variables. Continuous variables such as age and waist circumference were expressed as mean ± standard deviation (SD), while categorical variables such as sex, diagnosis, and obesity status were presented as frequencies and percentages. The prevalence of central obesity was calculated and reported among the study participants. This study provides an overview of the burden of central obesity among patients attending a specialized cardiac care facility in Central Nepal.

RESULTS

A total of 100 participants were included in the study. The study population comprised 45 (45.0%) males and 55 (55.0%) females, indicating a slightly higher proportion of female participants. The mean age of the participants was 51.59 ± 13.61 years, suggesting that the majority were middle-aged and older adults. The average waist circumference was 92.2 ± 12.15 cm, which exceeded the recommended Asian-specific cutoff values for central obesity. Based on these criteria, central obesity was identified

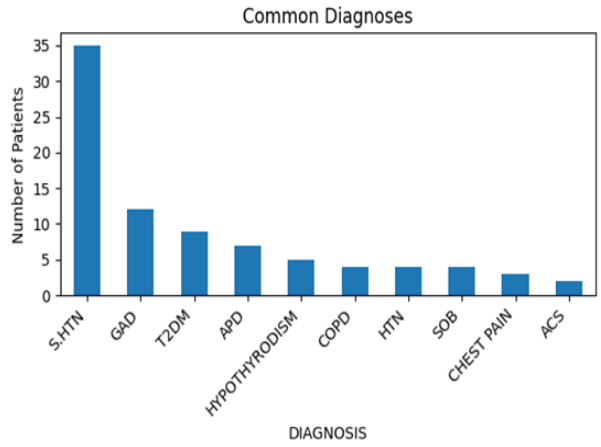

Figure 1. Distribution of Common Diagnoses

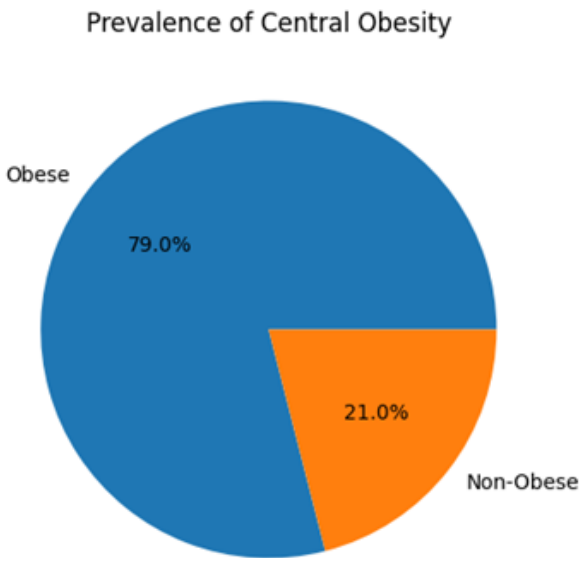

Figure 2. Prevalence of Central Obesity

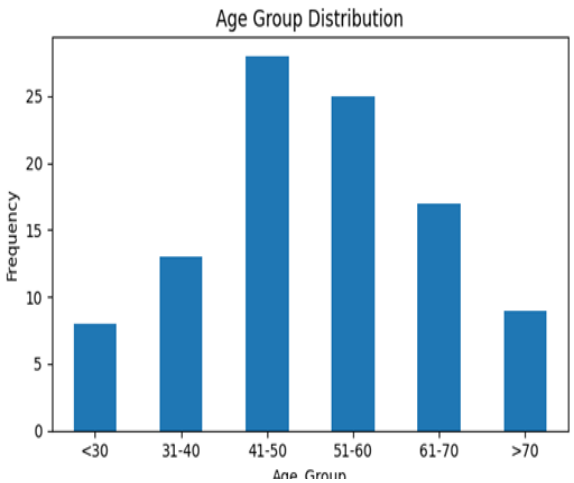

Figure 3. Age Group Distribution

in 79 (79.0%) participants, while only 21 (21.0%) participants had waist circumference measurements within the normal range. These findings indicate a substantial burden of abdominal obesity among patients attending the cardiac hospital and highlight the potential contribution of central obesity to cardiovascular risk in this population. The high prevalence of central obesity observed in the study underscores the importance of routine anthropometric assessment as part of cardiovascular risk evaluation and management.

DISCUSSION

The present study revealed a high prevalence of central obesity among patients attending a cardiac hospital in Central Nepal, with 79.0% of participants meeting the Asian-specific criteria for central obesity. The mean waist circumference of the study population was 92.2 ± 12.15 cm, which exceeds the recommended cutoff values for both males and females, indicating a substantial burden of abdominal adiposity among cardiac patients. These findings suggest that central obesity is highly prevalent in individuals seeking cardiovascular care and may represent an important modifiable risk factor in this population. Waist circumference is a simple, inexpensive, non-invasive, and reliable anthropometric measure for assessing abdominal fat accumulation and identifying individuals at increased risk of cardiometabolic diseases. Compared with body mass index, waist circumference better reflects visceral fat deposition, which is strongly associated with insulin resistance, dyslipidemia, hypertension, type 2 diabetes mellitus, and cardiovascular diseases. Consequently, routine measurement of waist circumference in clinical settings may facilitate early detection of high-risk individuals and guide preventive interventions. The findings of this study are consistent with previous studies conducted in South Asian populations, where central obesity has emerged as a major public health concern due to rapid urbanization, reduced physical activity, unhealthy dietary habits, and lifestyle transitions.[9–14] South Asians are known to develop central obesity and related metabolic complications at

lower levels of overall adiposity compared with many other populations, making waist circumference an especially important screening tool in this region.[9,10,11,14] The high prevalence of central obesity observed in this study may contribute substantially to the burden of hypertension, ischemic heart disease, diabetes mellitus, and metabolic syndrome, as reported in previous studies conducted in Nepal and other South Asian countries.[15,16] Excess abdominal fat promotes chronic inflammation, endothelial dysfunction, insulin resistance, and adverse metabolic changes, all of which increase cardiovascular risk. Given the growing burden of non-communicable diseases in Nepal, strategies aimed at preventing and controlling obesity should be prioritized. Early identification of central obesity through routine waist circumference screening, coupled with lifestyle modifications such as regular physical activity, healthy dietary practices, weight management, and health education, may help reduce cardiovascular morbidity and mortality. Integrating obesity assessment into routine cardiac care could therefore play an important role in improving long-term cardiovascular health outcomes among Nepalese patients.

CONCLUSIONS

Central obesity was highly prevalent among patients attending a cardiac hospital in Central Nepal, highlighting the significant burden of abdominal obesity in this high-risk population. Routine measurement of waist circumference should be incorporated into cardiovascular risk assessment to facilitate the early identification of at-risk individuals and guide appropriate preventive and therapeutic interventions. Promoting healthy lifestyle behaviors and obesity prevention strategies may contribute to reducing the burden of cardiovascular disease and improving overall health outcomes.

Limitations

This study was conducted in a single cardiac hospital with a relatively small sample size, which may limit the generalizability of the findings. The cross-sectional design precludes causal inference, and obesity was assessed only using waist circumference without considering other anthropometric measures. Despite these limitations, the study provides useful insights into the burden of central obesity among cardiac patients in Central Nepal.

Conflict of interest: None

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