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CARDIOVASCULAR RISK FACTORS AND OUTCOMES IN PATIENTS WITH TRUNCAL OBESITY

General Medicine

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ABSTRACT

Truncal obesity is a significant public health issue strongly linked to chronic conditions like metabolic syndrome and cardiovascular diseases (CVDs). This prospective observational study evaluated 50 adult patients at KIMS, Narketpally, to analyze cardiovascular risk factors and outcomes using Atherosclerotic Cardiovascular Disease (ASCVD) risk stratification. Results showed that 66% of the population fell into the low-risk category, 22% were intermediate risk, and 12% were high risk. High ASCVD scores were significantly associated with metabolic syndrome (p=0.001), proteinuria (p=0.0045), and increased carotid intima-media thickness (CIMT) (p=0.001). Clinical outcomes worsened as risk categories ascended, with the high-risk group showing a 66.6% mortality rate, highlighting the prognostic value of ASCVD stratification in obese patients.

KEYWORDS

Truncal Obesity, Atherosclerotic Cardiovascular Disease (ascvd), Metabolic Syndrome, Carotid Intima-media Thickness (cimt), Cardiovascular Outcomes, Risk Stratification.

INTRODUCTION

Truncal obesity, characterized by abdominal fat accumulation, is a major driver of atherogenic risk factors such as insulin resistance, hypertension, and chronic inflammation. It serves as a more reliable independent predictor of coronary heart disease and stroke than Body Mass Index (BMI) alone. Visceral adipose tissue releases pro-inflammatory cytokines and adipokines that promote endothelial dysfunction and accelerate the onset of diabetes and hypertension. Given the rising global prevalence of obesity, early identification through waist circumference and comprehensive risk assessment is vital for targeted intervention.

MATERIAL AND METHODS

This prospective observational study was conducted at Kamineni Institute of Medical Sciences (KIMS), Narketpally, Telangana, from January 2024 to December 2025. A total of 50 adult participants with truncal obesity were enrolled and followed for 12 months to assess clinical outcomes. Evaluation included anthropometric measurements (BMI, WC), biochemical profiles (Lipids, Serum Uric Acid, Albumin), and vascular assessments like CIMT. Cardiac structure was assessed using 2D echocardiography for left ventricular hypertrophy (LVH) and ejection fraction. Statistical analysis was performed using SPSS version 25, with significance set at $p<0.05$.

INCLUSION CRITERIA

The study included adult patients aged 18 years and older diagnosed with truncal obesity, defined by a waist circumference of ≥102 cm in men and ≥88 cm in women according to World Health Organization (WHO) guidelines. All participants provided informed written consent.

EXCLUSION CRITERIA

Excluded from the study were individuals with pre-existing congenital heart disease, valvular heart disease, or arrhythmias. Additionally, pregnant or lactating women and patients with confounding systemic conditions such as active malignancies, severe infections, or advanced liver/kidney disease were excluded to ensure data accuracy.

RESULTS

The study population was predominantly male (78%) and young, with 84% under 40 years of age. ASCVD risk distribution showed 66% at low risk, 22% at intermediate risk, and 12% at high risk. Metabolic syndrome was identified in 36% of participants and showed a strong correlation with higher ASCVD categories (p=0.001). Significant biochemical determinants of high risk included total cholesterol ≥200 mg/dl (p=0.004), proteinuria (p=0.0045), and anemia (p=0.019). Carotid Intima-Media Thickness (CIMT) was a robust marker, with increased thickness (≥1.1 mm) found exclusively in intermediate and high-risk groups (p=0.001).

Domain	Category / Marker	Distribution (n/%)	Correlation with ASCVD
Demographics	Age: <40 Years	42 (84%)	**0.03** (Significant)
	Age: ≥40 Years	8 (16%)	
	Gender: Male	39 (78%)	0.45 (Not Significant)
	Gender: Female	11 (22%)	
Traditional Risk Factors	Metabolic Syndrome	18 (36%)	**0.001** (Highly Significant)
	Hypertension (SHT)	38 (76%)	0.53 (Not Significant)
	High Total Cholesterol	11 (22%)	**0.004** (Significant)
Subclinical Markers	CIMT ≥1.1 mm	4 (8%)	**0.001** (Highly Significant)
	Proteinuria	15 (30%)	**0.0045** (Significant)
	Anemia	14 (28%)	**0.019** (Significant)
Risk Stratification	**ASCVD: Low Risk**	**33 (66%)**	**Reference Group**
	ASCVD: Intermediate Risk	11 (22%)	
	ASCVD: High Risk	6 (12%)	
Clinical Outcomes	Improved	34 (68%)	**0.0008** (Highly Significant)
	Morbid	9 (18%)	
	Death	7 (14%)	

DISCUSSION

The clustering of abdominal obesity with hypertension and dyslipidemia in this cohort reinforces the role of visceral adiposity in accelerating atherosclerosis. While BMI was associated with risk categories (p=0.02), markers of subclinical damage like CIMT and proteinuria provided more sensitive prognostic insights into cardiovascular vulnerability. The significant association of anemia with higher ASCVD risk (p=0.019) suggest that reduced oxygen-carrying capacity may exacerbate cardiac strain in obese individuals. These results align with literature suggesting that traditional risk calculators may underestimate risk in populations with high central adiposity and metabolic syndrome.

CO-MORBIDITY, MORTALITY, AND OUTCOME

Clinical outcome was significantly associated with the ASCVD risk category (p=0.0008). Patients in the low-risk group showed the highest improvement rate (81.8%), whereas morbidity and mortality increased progressively in the intermediate and high-risk groups. The high-risk group suffered the poorest outcomes, with a 66.6% death rate. These results confirm that the presence of multiple comorbidities and subclinical vascular changes in patients with truncal obesity directly translates to adverse short-term outcomes and increased mortality risk.

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