ABSTRACT

Background:

Obesity has assumed epidemic proportions around the world. The consequences are cardiovascular disease, type 2 diabetes mellitus, dyslipidemia and malignancies. Mortality and morbidity however varies with the distribution of body fat, the highest risk being linked to excess visceral fat (central obesity). Central obesity is associated with LVH, diastolic and occasionally systolic dysfunction, as well as dyslipidemias. LVH is an independent risk factor for myocardial infarction, stroke, arrhythmias, and sudden death. It is therefore necessary to know to what extent central obesity is responsible for LVH and which measures are implicated.

Aims and Objectives:

The aim of this study was to determine the relationship of measures of central obesity with left ventricular mass, and assess the coexistence or otherwise of diastolic and systolic dysfunction.

Methodology:

A total of one hundred and twenty persons (120) comprising sixty (60) subjects and (60) controls were recruited for the study. Anthropometric data including height, weight, BMI, WC, HC, W/H ratio, TBF, VF were taken from all participants. Subjects were recruited based on waist circumference. All participants had electrocardiographs and 2D echocardiography done. QTc was determined manually. LVH by voltage criteria was assessed using the Araoye and Sokolo-Lyon criteria. In the study population, 12 subjects and 12 controls (ratio 1:5) had fasting lipid profile, liver function tests, serum electrolytes, urea and creatinine. All data were entered into a standard questionnaire. LV mass was calculated using the Devereux modified ASE cube formula, and this was indexed to height$^{2.7}$. Diastolic and systolic function were assessed using 2D echocardiography.
LV geometry was identified using RWT and the presence or absence of LVH. Measures of central obesity (WC, VF, W/H ratio) were correlated with LVMI.

**Results:**

The mean age of the centrally obese was 42.6±8.1 years, for controls, 40.0±10.4 years, p= 0.127. The values of the echocardiographic parameters were significantly higher in the obese compared to controls. The controls had taller voltages depicting LVH by voltage criteria.

WC and VF were strongly correlated with LVMI $^{\text{height}2.7}$. Waist-hip ratio had a moderate correlation.

The predominant geometric pattern among the centrally obese was concentric LVH and remodeling (53.3%). Eccentric hypertrophy accounted for 5%.

Persons with central obesity had diastolic dysfunction, preserved systolic function and dyslipidemia.