ABSTRACT

Background: Hypertension remains one of the important risk factors for cardiovascular diseases and a major global public health problem. Left ventricular hypertrophy is a recognized complication of systemic hypertension and strongly predicts cardiovascular morbidity and mortality. In Nigeria, few studies, mostly from Western Nigeria evaluated the accuracy of ECG criteria in the diagnosis of left ventricular hypertrophy among hypertensives. This study sets out to determine the correlations between various ECG criteria of LVH and echocardiographic LVH among patients with hypertension.

Methods: One hundred and seventy eight hypertensives and eighty nine age and sex-matched controls were recruited consecutively into the study. They all had echocardiography. The hypertensives had both echocardiography and ECG. ECG LVH was determined using various ECG criteria.

Results: Echocardiographic determined prevalence of LVH was 32.4% while the prevalence of LVH by ECG were 17.9%, 28.5%, 45.3%, 46.4%, 46.4% and 50.3% using Goldberger, Romhilt, Cornell duration product, Cornell voltage, Massoleini and Sokolow-Lyon criteria, respectively. The various ECG criteria for diagnosis of LVH were lower in sensitivities (23.5-38.6%) compared to specificities (64.1%-72.9%). Sokolow-Lyon and Cornell voltage criteria had significant positive correlation with echocardiographic LVH (p=0.001 and 0.003, respectively). Although Goldberger and Massoleini criteria had positive correlation coefficients, these were not statistically significant.

Conclusion: The ECG and echocardiographic prevalence of LVH were 17.9-50.3% and 32.4%, respectively in the study population. There were significant correlations between echocardiographic LVH and ECG LVH determined by Cornell voltage and Sokolow-Lyon criteria. Cornell voltage, Sokolow-Lyon and Massoleini ECG criteria had the highest combination of sensitivities and specificities.