

Prevalence and Correlates of Electrocardiographic Indication for Cardiac Catheterization among Heart Failure Patients with Reduced Ejection Fraction in Western Kenya

Gathigia CA¹, Ayuo OP¹, Barasa FA²

¹Department of Internal Medicine, Moi University, Eldoret, Kenya

²Department of Internal Medicine, Cardiology, Moi Teaching and Referral Hospital, Eldoret, Kenya

Address for Correspondence: Dr. Charity A Gathigia. Email: charitygathigia@gmail.com

Abstract

Background: Heart failure is a life-threatening syndrome that affects 26 million individuals with the phenotype Heart Failure with reduced Ejection Fraction (HFrEF) contributing to 60% of all cases. Despite the use of Guideline Directed Medical Therapy, a significant number of HFrEF patients remain symptomatic with the risk of death. Electrocardiographic abnormalities are more prevalent in HFrEF and associated with poorer outcomes. However, improved outcomes have been demonstrated in patients with pathological "Q" wave, clinically significant arrhythmias and prolonged QRS through cardiac catheterization procedures.

Objectives: To determine the prevalence and clinical correlates of pathological "Q" waves, prolonged QRS and clinically significant arrhythmias in patients with HFrEF at Moi Teaching and Referral Hospital (MTRH), Western Kenya.

Methods: This was a cross-sectional study with consecutive sampling technique. A current echocardiogram (≤ 6 months) was used to identify HFrEF (LVEF $\leq 40\%$) subjects at MTRH medical wards, cardiac care unit and cardiology clinic. Eligible subjects above 18 years were consented

and underwent a 12-lead electrocardiogram (ECG). Those with the prespecified ECG abnormalities were identified and correlates namely older age, obesity, documented hypertension, renal dysfunction and diabetes mellitus analyzed.

Results: Between July and November 2023, 243 participants were recruited. Females were the majority 137 (56.4%), and mean age was 60 years. One hundred and thirty two (54%) had abnormal ECG with prolonged QRS being the commonest 62 (25.5%). Clinically significant arrhythmias were 48 (19.8%) and pathological Q waves 33 (13.6%). Hypertension was the commonest comorbidity 132 (54.3%). On bivariate analysis, older age and being overweight were associated with abnormal ECGs.

Conclusion: Over half of our participants with HFrEF in Western Kenya had at least one ECG indication for cardiac catheterization procedures. Being elderly and overweight were significantly associated with the indications.

Key words: Electrocardiographic indication, Cardiac catheterization, Heart failure, Pathological "Q" waves, Prolonged QRS