Chemotherapy Associated Cardiotoxicity in Adult Patients Initiating Chemotherapy at Moi Teaching and Referral Hospital

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Abstract

Background: Cardiotoxicity, manifesting as Left Ventricular Systolic Dysfunction (LVSD), is a recognized cancer chemotherapy adverse effect. It may manifest acutely or chronically, ranging from subclinical heart failure to cardiogenic shock and death. Timely identification, and initiation of guideline-directed medical therapy, can result in full recovery. The incidence and associated risk factors among patients initiating chemotherapy in Western Kenya are currently uncharacterized.

Objectives: To determine the incidence and predictors of left ventricular systolic dysfunction in cancer patients being initiated on chemotherapy at Moi Teaching and Referral Hospital (MTRH).

Methods: A prospective study, at MTRH oncology clinic from October 2021 to December 2022. Ninety nine consenting adults with confirmed cancer initiating chemotherapy were consecutively recruited. A questionnaire captured socio-demographic information, cancer type, and relevant Cardiovascular Risk Factors (CVRF). Blood samples were taken for lipid profile analysis. Electrocardiograms and echocardiograms were performed at recruitment and 5 months post-chemotherapy initiation.

Results: The mean age was 53.5 years. Fifty seven point seven percent were females. Most common malignancies were ENT, 16.5%, cervical, 16.5%, and breast, 13.4%. Majority (72.7%) had advanced disease (Stage 3,4). Three participants (3.0%) developed LVSD at follow-up; one was symptomatic, and two were asymptomatic. ECG abnormalities included left ventricular hypertrophy (12%), pathological Q waves (5%). Thirty-nine participants (39%) were lost to follow up. Baseline CVRF; hypertension (13.4%), obesity (13.4%), high LDL (50.5%), and diabetes mellitus (1%). Given the low LVSD incidence, no additional statistical analysis was performed to establish their associations.

Conclusion: The incidence of chemotherapy associated cardiotoxicity at 5 months among patients initiated on chemotherapy at MTRH was low at 3.0%. The contribution of the known cardiovascular risk factors to the observed incidence could not be established due to the low numbers.

Recommendations: We recommend future large longitudinal studies with more sensitive methods for the detection of LVSD to determine the exact incidence of the problem.

Key words: Chemotherapy, Cardiotoxicity, Left Ventricular Systolic Dysfunction (LVSD)