

Control Number: 44

Abstract Category: Clinical Case Challenge in Cardio-Oncology

Title: A Case Report on the Use of Cardiac Troponins in Suspected Trastuzumab-Induced Cardiomyopathy During the Treatment of Metastatic Breast Cancer

ABSTRACT BODY

Background and Purpose

Trastuzumab-induced cardiomyopathy (TIC) occurs in up to 10% of patients and, although reversible, justifies discontinuation. This decision is made more challenging in patients with underlying heart disease. We present such a patient with suspected TIC, in whom the use of serial cardiac troponins provided evidence against trastuzumab discontinuation.

Case Description and Outcomes

A 42-year-old female with a past medical history of breast cancer and atrial flutter status post multiple ablations presented to our hospital with chief complaints of syncope and palpitations. Nine months ago, the patient underwent partial mastectomy for metastatic adenocarcinoma of the breast, positive for human epidermal growth factor 2 (HER2). Baseline echocardiogram showed normal ventricular function with left ventricular ejection fraction (LVEF) of 55-60%. The patient then began chemotherapy and had been receiving trastuzumab for six months. A 42-year-old female with a past medical history of breast cancer and atrial flutter status post multiple ablations presented to our hospital with chief complaints of syncope and palpitations. Nine months ago, the patient underwent partial mastectomy for metastatic adenocarcinoma of the breast, positive for human epidermal growth factor 2 (HER2). Baseline echocardiogram showed normal ventricular function with left ventricular ejection fraction (LVEF) of 55-60%. The patient then began chemotherapy and had been receiving trastuzumab for six months. Upon admission, vital signs included temperature of 98.1 F, heart rate 117, blood pressure 148/91, respiratory rate 12, and BMI 32. Auscultation demonstrated regular rate and rhythm with normal S1, physiologically split S2, and absence of murmurs or elevated jugular venous pressure; lungs were clear to auscultation bilaterally. Serial cardiac troponins were within normal limits. Chest X-ray and electrocardiogram were unremarkable. An echocardiogram indicated left ventricular diastolic dysfunction with LVEF of 35-40%. Cardiology and oncology allowed the patient to continue her immunotherapeutic regimen with diligent monitoring by both services until completion six months later. A final echocardiogram showed normal left ventricular function with improved LVEF of 40-45%; subsequent imaging indicated near complete remission of metastatic malignancy.

Discussion

Trastuzumab-induced cardiomyopathy (TIC) causes a precipitous decline in LVEF, often with significantly elevated cardiac troponins, which are sensitive biomarkers of cardiac injury. Although the patient's echocardiogram findings were concerning for TIC, the lack of elevated cardiac troponins cautioned against drug-induced cardiac injury. Indeed, the patient continued trastuzumab therapy for six more months without incident. This demonstrates how the use of cardiac troponins as surrogate biomarkers and a strong oncology-cardiology alliance can prevent withdrawal of a lifesaving intervention, one which allowed our patient to achieve near remission free of permanent cardiac consequence.

References

Sengupta PP, et al. Trastuzumab-Induced Cardiotoxicity. Mayo Clinic Proceedings. 2008;83:197-203