Imatinib Induced Cardiomyopathy in Veteran with Gastrointestinal Stromal Tumor: An Uncommon Culprit Amongst Tyrosine Kinase Inhibitors

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Tyrosine kinase inhibitors (TKIs), an effective class of therapy used in various malignancies, including the rare gastrointestinal stromal tumor (GIST), possess a wide cardiotoxic profile, with cardiomyopathy (CM) more commonly seen in newer generation TKIs like lapatinib and sunitinib.

Imatinib, the first TKI, is uncommonly associated with CM, and the presence of acute heart failure in patients with GIST treated with imatinib is rare.

A 67-year-old male veteran with a history of hypertension, hyperlipidemia, diabetes mellitus, chronic kidney disease, and GIST diagnosed 7 years prior presented with dyspnea, orthopnea, and leg swelling.

He underwent a left hemicolectomy, began imatinib, but was lost to follow up.

3 years later, GIST recurred, at which time imatinib was restarted and he underwent a transverse sigmoid colectomy, with indefinite continuation of imatinib.

Transthoracic echocardiogram (TTE) performed prior to imatinib reinitiation revealed preserved systolic function with left ventricular ejection fraction (LVEF) of 55-60% (graphic 1A).

On exam, he was hypertensive, with jugular venous distention, rales, and edema. B-type natriuretic peptide was elevated, and TTE revealed new systolic dysfunction with global hypokinesis and LVEF of 25% (graphic 1B). Given the new CM, he underwent myocardial perfusion single-photon emission computerized tomography (graphic 2), which was negative for ischemia.

After diuresis and identification of nonischemic CM, multi-disciplinary discussion between cardiology and oncology was initiated given the concern for imatinib induced CM. Imatinib was discontinued, and he was discharged on guideline directed medical therapy.

Follow up TTE 4 months later revealed improving but still reduced LVEF of 40%, with interval computed tomography of the abdomen and pelvis showing recurrent disease adjacent to sigmoid colon.

Secondary oncology opinion was obtained from local advanced cancer center, with recommendation to further cardiac optimization and consideration of future imatinib rechallenge, or local pelvic cryotherapy if symptomatic.

While the TKIs are associated with cardiotoxicity manifesting as CM, imatinib rarely causes overt heart failure, particularly when utilized for GIST, but should be promptly held or discontinued if CM develops with parallel multidisciplinary evaluation for reinstatement of imatinib or other TKI.

Disclosure:

• Presenting author and lead investigator: Pradeep Joseph
• No relevant financial relationship to disclose