

Lemvatinib Induces and Exacerbates Heart Failure in Hypertensive Patients with HCC and Chronic Hepatitis B: A Case Report

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Abstract

Background: CHF is a condition in which the heart muscle cannot pump enough blood to meet the body's blood and oxygen needs, essentially making the heart unable to keep up with its workload. Heart failure can occur in cancer patients due to the patient's underlying cardiovascular background (risk factors and co-existing cardiovascular disease), and the interaction between anticancer therapy and the cancer itself.

A Case Report: Mrs. R, 67 years old came with complaints of shortness of breath since one hour of SMRS, the shortness of breath was felt to be getting worse. It did not decrease with rest. Sleeping had to be in a sitting position. Swollen legs. Physical examination showed blood pressure of 140/90 mmHg, pulse 120 x / minute regular. Neck: JVP (5 + 2) cmH₂O, auscultation: soft moist rhonchi (+). Heart: Auscultation: HR 28 times per minute, systolic murmur grade 3/6, Abdomen: liver palpable 2 fingers below the costal arch, blunt edge, palpable mass, diameter 12x11 cm cm in the hypogastric quadrant, clear boundaries, NT (+). Extremities: pretibial edema (+) in both legs. X-ray: Cardiomegaly, pulmonary edema. ECG: LVH. Echocardiography: Hypokinetic global wall motion, LV dilatation, grade I diastolic dysfunction, EF: 28.9% (Simpson's) (GLS: -6.4%). Impression: HHD reduced LVEF. Laboratory results show leukocytosis, increased SGOT, SGPT, Cr, and decreased albumin. The patient had suffered from hypertension for 25 years, regularly taking Amlodipine 10 mg once and Candesartan 16 mg once, Hepatitis B for 3 years, regularly taking Tenofovir 300 mg once, and HCC for 2.5 years, regularly taking Lemvatinib 8 mg once. There was no history of shortness of breath, and shortness of breath was only felt after taking Lemvatinib.

Discussion: The diagnosis of CHF is more likely to occur in patients with a history of MI, arterial hypertension, CAD, diabetes mellitus, alcohol abuse, chronic kidney disease, cardiotoxic chemotherapy, and in those with a family history of CMP or sudden death. Based on the Cardiac Review and Evaluation Committee (CREC), cardiotoxicity is defined as signs or symptoms of congestive heart failure (CHF) accompanied by a decrease in LVEF $\geq 5\%$ to below 55% or a decrease in LVEF $\geq 10\%$ to below 55% even without clinical signs or symptoms. HCC therapy such as the use of tyrosine kinase inhibitors, can have cardiotoxic side effects that exacerbate the risk of heart failure. In this patient, initially given Lemvatinib therapy 1x8 mg po. Based on anamnesis, follow-up, clinical and supporting examinations there was a decline in heart function so that until now the Lemvatinib dose was reduced to 1x4 mg and there was improvement.

Conclusion: Early detection and treatment of cancer therapy-related heart failure is crucial for patient outcomes, as it can prevent further decline in left ventricular function. Therefore, routine monitoring of heart function with echocardiography, electrocardiography, and cardiac biomarkers, during and after systemic anticancer treatment, should be implemented in patients at increased risk of cardiotoxicity. Global longitudinal strain can also detect cardiac dysfunction at an early stage. The weakness of this case is the absence of a previous echocardiographic baseline for comparison.

Keywords

CHF, Hepatitis B, HCC, Lemvatinib.