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Abstract Category: Clinical Science in Cardio-Oncology

Title: Impact of osimertinib on cardiac contractility in EGFR-mutated non-small cell lung cancer patients

ABSTRACT BODY

Background

Osimertinib, a third-generation epidermal growth factor receptor (EGFR)-tyrosine kinase inhibitor (TKI), inhibits both EGFR-TKI sensitizing mutations and resistant T790M mutations detected in non-small cell lung cancer (NSCLC) patients. Osimertinib becomes the standard treatment for advanced EGFR-mutated NSCLC. Important safety information from large clinical trials announced that cardiac adverse events (AEs) except for QT prolongation were less frequent and less severe than other AEs. However, we recently experienced severe cardiac dysfunction in 4 EGFR-mutated NSCLC patients during osimertinib administration.

Methods

To explore the impact of osimertinib on cardiac function, we investigated 38 NSCLC patients in whom cardiac parameters such as left ventricular ejection fraction (LVEF) were measured both before and after osimertinib administration.

Results

Median age of patients was 68 years old (range 63-74), 26.3% was men, and 63.2% of patients have cardiovascular risk factors. Comparison of LVEF revealed significant reduction of LVEF from 69.2% to 63.4%. In particular, 4 patients showed cancer therapeutics related cardiac dysfunction (CTRCD) with LVEF 40.3% after osimertinib. We further discussed the impact of osimertinib on cardiac contractility in EGFR-mutated NSCLC patients with pathologic analyses of two osimertinib-induced CTRCD patients.

Conclusion

Our study indicated the existence of osimertinib-associated cardiac dysfunction in NSCLC patients in the real-world setting. This study also brought forward cardiac adverse events induced by osimertinib and warned its detrimental effects on cardiac contractility. We should pay attention to not only QT prolongation but also cardiac dysfunction during osimertinib administration.

Clinical Implications

Among NSCLC patients receiving osimertinib, there is a considerable risk for cardiac AEs such as cardiac dysfunction. This study may bring forward osimertinib-associated cardiac dysfunction in addition to QT prolongation.