Myocardial scintigraphy, echocardiography and proBNP for early detection of myocardial cardiotoxicity in breast cancer patients after chemo-radiotherapy

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Abstract

The most severe side effect in breast cancer patients, treated with chemotherapy and/or radiotherapy is cardiotoxicity, leading to chronic heart failure and worsening the quality of life. The aim of our study was to detect early in these patients signs of cardiotoxicity. Twenty four breast cancer patients were included in our study after combined treatment (chemo and radiotherapy). We studied myocardial function by gated single photon emission tomography (GSPET-MS), echocardiography (EC) and 32 amino acid polypeptide B-type natriuretic peptide (ProBNP) measurements. We found early signs of cardiotoxicity in 10/24 investigated patients. All patients had no clinical symptoms, and normal electrocardiogram and left ventricular injection fraction (LVEF). According to results from the performed tests, patients were divided in 4 groups: a) Normal systolic and diastolic LV function, normal ProBNP value, normal myocardial scintigraphy in 14/24 patients. b) Diastolic dysfunction, increased ProBNP value, hypoperfused defects in myocardial scintigraphy in 5/24 patients. c) Diastolic dysfunction, normal ProBNP value, hypoperfused defects in myocardial scintigraphy in 3/24 patients. d) Normal systolic and diastolic LV function, normal ProBNP value, hypoperfused defects in myocardial scintigraphy in 2/24 patients. In conclusion, in patients with breast cancer and asymptomatic cardiotoxicity by applying GSPET-MS, ProBNP measurements and EC diastolic function tests, we detected early signs of myocardial damage in 10/24 patients 6-12 months after chemotherapy and radiotherapy.

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