

Session A. Breast cancer

A42 Incremental value of 3D echocardiography and two-dimensional speckle tracking in the early detection of cardiotoxicity linked to chemotherapy and trastuzumab in patients with HER-2 positive breast cancer

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Background: Chemotherapy (CT) induced cardiotoxicity is a potentially lethal complication that frequently affects patients (pts) treated with anthracyclines and targeted agents such as trastuzumab (Tr).

Patients and methods: From November 2013 to April 2015 we enrolled 30 patients; median age 51 years (range 40–62) with HER2 positive breast cancer. All pts received

the same schedule of CT (17 in neoadjuvant and 13 in adjuvant setting): 4 cycles of EC (Epirubicin 90 mg/mq ev q21, Cyclophosphamide 600 mg/mq ev q21), followed by Paclitaxel 80 mg/mq ev q7 for 12 weeks and Tr 6 mg/Kg ev q21, (loading dose 8 mg/Kg) given concomitantly up to a year of treatment. Echo-cardiogram with two-dimensional and with three-dimensional approach were performed before starting CT, after anthracyclines and then every 3 months after the start of Tr, up to one year of completion. Several parameters of ventricular remodeling and function were evaluated: two-dimensional EF ejection fraction (EF) (EF 2D), three-dimensional EF (EF 3D), Global Longitudinal Strain (GLS), systolic s' wave at TDI of the annulus (s'TDI), Ventricular Elastance and Ventricular-Arterial Coupling.

Results: According to the latest data of the literature, 4 (13,3%) pts had a cardiac event linked to the toxicity by EC and Tr: 2 pts had an important reduction of LVEF under 50% and 2 pts had an event of ACS (Acute Coronary Syndrome) so discontinued treatment with tr; EF 3D and GLS were able to identify early on a significant reduction in left ventricular function, even after the first cycle of EC and before the start of Tr; while EF 2D decreased significantly only after the start of Tr. Neither the assessment of systolic tissue speed at the level of annulus nor the ratio E/e' (ratio between E wave of transmitral flow and wave e' of TDI) significantly change during treatment. From baseline whether Ventricular Elastance or Ventricular-Arterial Coupling worsened progressively during the treatment.

Conclusions: The evaluation of left ventricular function with new echocardiographic methods with three-dimensional approach allows early identification of cardiac-toxicity linked to CT and targeted agents, than the ventricular ejection fraction evaluated two-dimensionally and tissue indices derived from TDI. This could allow a prompt treatment of cardiac damage and the completion of antineoplastic therapy.