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Subclinical Anthracycline Induced Cardiotoxicity in The Long-term Follow-up of Asymptomatic Childhood Cancer Survivors: a Speckle Tracking Echocardiographic Study

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Objectives: The aim of this study was to assess occult cardiotoxicity in childhood cancer survivors exposed to anthracycline therapy in the long-term follow-up.

Methods: We studied 45 survivors (26 male, 19 female) 5-20 years old, (median 11 years). and 38 (22 male, 16 female) healthy controls. Blood samples were taken from survivors to determine BNP levels. Left ventricular ejection fraction, fractional shortening, diastolic functions, tissue Doppler and myocardial performance index were measured. All subjects were assessed with tissue tracking 2D strain echocardiography. Regional and global strain parameters of survivors were compared with those in healthy controls and were related to conventional echocardiographic parameters, brain natriuretic peptide (BNP) levels and clinical parameters.

Results: There were not any significant differences in left ventricular ejection fraction, fractional shortening, and diastolic functions, tissue Doppler and myocardial performance index between two groups. Myocardial strain in asymptomatic survivors of childhood cancer was significantly lower compared with healthy controls. While 39% of survivors had at least one segment, which was impaired, there was not any healthy controls who have impaired segment. Radial strain did not differ significantly between the two groups.

Conclusion: Strain echocardiography seems more useful to detect anthracycline cardiotoxicity. Whether myocardial strain are superior to conventional echocardiography in the early detection of subclinical cardiac toxicity needs to be explored in further longitudinal prospective studies