Turkish Archives of Pediatrics

ORIGINAL ARTICLE
DOI: 10.5152/TurkArchPediatr.2021.20233

Evaluation of Cardiotoxic Effects of Anthracyclines by Tissue Doppler Imaging in Survivors of Childhood Cancer

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What is already known on this topic?

- *Childhood cancer survivors (CCSs) are at risk for anthracycline induced cardiotoxicity which tends to be more prominent with long after completion of the chemotherapy.*
- *The early detection of asymptomatic but high-risk patients may reduce the progression of the cardiovascular disease with preventive strategies.*

What this study adds on this topic?

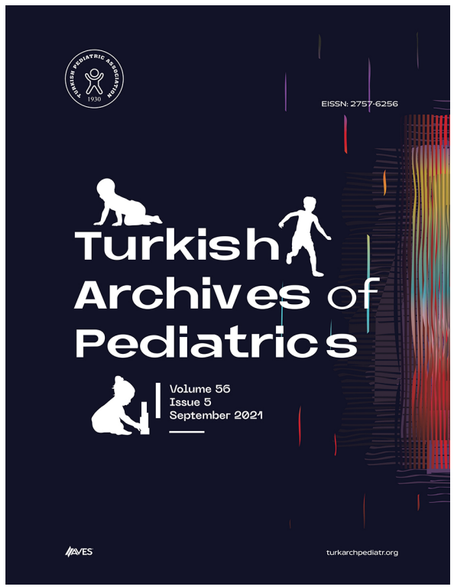
- *The present study, which biventricular myocardial functions were examined with tissue doppler echocardiography (TDI), revealed that the cumu-*

ABSTRACT

Background: Childhood cancer survivors (CCSs) are at risk for anthracycline-induced cardiotoxicity which tends to be more prominent long after completion of the chemotherapy. The aim of this study was to examine echocardiographic parameters of anthracycline-induced subclinical cardiotoxicity in children who had received chemotherapy.

Materials and Methods: A cross-sectional single-center study was conducted in a tertiary level university hospital in Eskisehir, Turkey. A total of 50 CCSs and 40 healthy peers were included. The CCSs were divided into 3 subgroups according to cumulative anthracycline dose (100-200 mg/m^2, 201-299 mg/m^2, and ≥ 300 mg/m^2). Biventricular cardiac examination was performed with conventional echocardiography and tissue Doppler echocardiography imaging (TDI).

Results: The mean duration from termination of chemotherapy to echocardiographic assessment was 3.9 ± 2.2 years. The mean age of the CCSs was 11.6 ± 3.9 years. TDI-derived mitral annular isovolumetric relaxation time (IVRT) and myocardial performance index (MPI) were higher in the high-dose group of CCSs than in controls (P = .006, P = .007, P < .001, P = .0014, respectively). IVRT was also higher in patients with ≥ 300 mg/m^2 cumulative dose than in those with < 200 mg/m^2 (P = .007). TDI-derived mitral annular MPI and IVRT were significantly associated with cumulative anthracycline dose (r = 0.288, P = .006, r = 0.340, P = .001).



Volume 56, Issue 5, September 2021

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