THE EVALUATION OF CARDIAC FUNCTIONS BY TISSUE DOPPLER IMAGING IN CHILDHOOD LEUKEMIA SURVIVORS IN REMISSION

Cengiz Bayram (1), İlker Çetin (2), Betül Tavıl (1), Filiz Ekici (2), Neşe Yaralı (1), Bahattin Tunç (1)
Ankara Child Health, Hematology-Oncology, Education and Research Hospital, (1) Department of Pediatric Hematology-Oncology, (2) Department of Pediatric Cardiology; Ankara - Turkey

OBJECTIVES
- Improvement in long-term survival in patients with acute childhood leukemia has emerged the need to monitor chemotherapy related morbidity and mortality.

METHODS
- Sixty patients diagnosed with acute leukemia in remission for at least two years and 30 healthy children were evaluated by conventional echocardiography and tissue Doppler imaging (TDI).

RESULTS
- The median age of patients was 11.7 (10-14.9) and remission time was 4 (2.5-5) years.
- Patient characteristics are presented at Table 1.
- In patients, decreased myocardial velocities were determined at basal segments of the myocardium.
- TDI findings are presented at Table 2 for interventricular septum, at Table 3 for left ventricle, and at Table 4 for right ventricle.

CONCLUSIONS
- Anthracyclines are considered to be the main drugs responsible for late cardiac adverse effects in childhood acute leukemia survivors.
- The release of iron-mediated free radicals that damage the cardiac myocytes is considered as the major pathogenic mechanism for anthracycline-induced cardiotoxicity.
- Because of the gradual increase in the risk of cardiotoxicity after discontinuation of therapy, periodic cardiac evaluation of these patients is mandatory. However, the conventional echocardiographic evaluation is far from showing early cardiac changes.
- It is previously reported that myocardial dysfunction becomes significant at 5-10 years after therapy.
- Our results suggest that myocardial dysfunction - both systolic and diastolic - could be occurred earlier and simultaneously than previously thought.
- These results also point out the possibility of cardiac disease during or after anthracycline therapy at lower doses than previously highlighted.
- In spite of normal functions by conventional echocardiography, the authors reported diastolic and/or systolic dysfunction by TDI.
- Periodic echocardiographic evaluation of leukemia survivors by TDI might be useful in early identification of patients with myocardial dysfunction.

REFERENCES