

## Evaluation of Left Atrial Function Using Two-Dimensional Speckle Tracking Echocardiography in Children with Type 1 Diabetes Mellitus

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**Introduction:** Left atrial (LA) deformation analysis by two-dimensional speckle tracking echocardiography (2D-STE) has recently been proposed as an alternative approach conventional echocardiography. Aim of this study is the evaluation of left atrial function with Speckle-tracking echocardiography in pediatric patients with Type 1 Diabetes Mellitus who did not yet develop micro and macro vascular complications, at least 3 years at last 10 years followed up.

**Method:** A total of 63 patients without diabetic complications ( mean age: 13,81 years) and 36 healthy (mean age: 12,42 years) children were included in this study. Conventional transthoracic echocardiography and left atrial speckle tracking echocardiography were performed in all patients. Images of the LA were acquired from apical two- and four-chamber views. The LA strain (%) (LAS) parameters systolic [LAS-S], early diastolic [LAS-E], late diastolic [LAS-A] during atrial contraction were assessed. The LA volumes (LAV) were calculated using the biplane area-length method. The LA volume indices (LAVI) were calculated by dividing the LA volumes by the body surface area.

**Results:** Results of diabetic group and healthy children were compared. In diabetic group, LAS-S ( 39,91±9,08 / 45,88±8,85 p< 0,003) LAS-A ( 13,43±4,68 / 15,82±5,02) p<0,003) and LAS-E ( 26,86±7,54 / 29,77±7,65 ) p < 0,003) were found decreased and LAVI (ml/ m<sup>2</sup>) ( 26,10±2,81 / 23,53±2,04 p <0,003) was found increased. Additionally, Mitral valve A wave velocity (0,58±0,14 / 0,50±0,10 p<0,003) increased, E/A wave ratio ( 1,76± 0,37 / 2,11±0,34 p<0,003 ) decreased. There were no statistical significant difference in systolic function with conventional echocardiographic examinations.

**Conclusions:** We found deterioration in atrial functions with speckle tracking echocardiography methods in Type 1 DM patients without diabetic complications. Early detection of effects on target organs may prevent the irreversible damage and taking preventive measures are important in terms of improving the quality of life.