

**The analysis of myocardial deformation and function in patients with Kawasaki disease by speckle tracking and tissue Doppler methods**

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**Objectives:** It was aimed to investigate myocardial deformation and function at acute and convalescent phases of Kawasaki disease (KD) in children.

**Methods:** The speckle tracking echocardiography (STE) and tissue Doppler imaging (TDI) were performed in 9 children with KD (mean age 5.4 years) and 10 healthy children (mean age 5.9 years). In the patient group, data were obtained during acute and convalescent phases of Kawasaki disease. The analysis of myocardial deformation [strain (S) and strain rate (SR)] was performed globally in two planes [longitudinal (L) and mid-circumferential (C)] at both left ventricle (LVLGS, LVLGSR, LVCGS, LVCGSR) and right ventricle (RVLGS, RVLGSR). The tissue Doppler studies [Sm, Em, Am, isovolumic contraction time (ICT), isovolumic relaxation time (IRT) and ejection time (ET)] were performed at base of interventricular septum (IVS), LV and RV.

**Results:** Among tissue Doppler parameters, Em and ET at IVS, ET at RV obtained before treatment were significantly lower in patients compared to controls (11.3 cm/s, 210.8 ms and 193.8 ms vs. 13.1 cm/s, 214.3 ms and 242.1 ms, respectively). After therapy, it was seen that Em at IVS remained significantly lower in patients compared to controls (11,2 vs. 13.1 cm/s).

The LVLGS, LVLGSR and LVCGSR values obtained before therapy were significantly lower in patients compared to controls (-20%, 0.2 s<sup>-1</sup>, 0.43 s<sup>-1</sup> vs. -23.7%, 0.65 s<sup>-1</sup>, 0.91 s<sup>-1</sup>, respectively). At the end of the convalescent phase, longitudinal and circumferential global strain and strain rate values were found to be increased compared to acute phase. Besides, no significant difference was detected for LVLGS, LVLGSR, LVCGS and LVCGSR after therapy compared to controls (-24.3%, 0.45 s<sup>-1</sup>, -24.6%, 0.61 s<sup>-1</sup> vs. -23.7%, 0.65 s<sup>-1</sup>, -26.2%, 0.91 s<sup>-1</sup>, respectively). There were no significant differences in RVLGS and RVLGSR values between patients before therapy and controls (-27.2%, 0.51 s<sup>-1</sup> vs. -24%, 0.76 s<sup>-1</sup>, respectively).

**Conclusions:** STE and TDI that evaluates myocardial deformation and function can be used for the detection of myocardial dysfunction in patients with KD. This study showed spared myocardial functions at RV and gradual improvements in myocardial functions at LV during therapy in KD.