Poster Session

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Usefulness of myocardial deformation imaging for assessment and long - term prognosis in young patients with Kawasaki disease

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Kawasaki disease is an autoimmune process, which characterizes with the engagement of arteries and especially - the coronary arteries of the heart.The aim of the study was to assess global and regional LV myocardial function and to predict the long-term prognosis of Kawasaki disease.Design and method: We analyzed 62 children (mean age 9,4 ±3,9 years), 28 of them with a residual coronary aneurism and 20 healthy children (mean age 9,6 ±4, 8). The myocardial deformation indexes of the LV – global and regional longitudinal, circumferential and radial stain were analyzed. The patients are divided into groups according to the type of treatment and the occurrence of complications - residual aneurysms. Apical, middle and basal short axis for 2D images were acquired (65 ± 7 frames/s) in addition to apical four, three and two-chamber views. Global and regional peak systolic strain - longitudinal, radial and circumferential of the LV was derived and the strain curves (eLL, eCC, eRR) were extracted using a commercial softwareResults: Global longitudinal strain measurements of the LV were non-significantly different between the Kawasaki group without an aneurysm and normals (GLS -19,81± 1,91% vs -19,69 ± 1,91%) In the group of Kawasaki with an aneurysm was found significantly reduced GLS compared to healthy patients (-17,25 ± 3.48% vs -19,69± 1,81%.). Concerning the regional analysis,in the group with aneurysms, the radial, circumferential and longitudinal strain were significantly reduced, especially on the basal and middle LV-segments.

Conclusion: Decreased myocardial strain values are signs of regional hypokinesia with a possible local segmental ischemia in the group with coronary aneurysms on coronary artery and are marker for developing severe LV dysfunction in the future. The contribution in this study was the introduction of a new non-invasive assessment of myocardial function after Kawasaki disease, despite the apparently "normal" global systolic heart function.

Global and regional myocardial strain

2D strain %	Healthy controls	Patients with Kawasaki disease and aneurysms	Patients with Kawasaki disease without aneurysms
2Ds_rr	51.06 ± 4.95	37.24 ± 7.53*	41.91 ± 4.87
2Ds_cc	-20.91 ± 0.76	-16.45 ± 3.01*	-18.91 ± 2.73
2Ds_ll	-19.69 ± 1.82	-17.25 ± 3.48*	-19.81 ± 1.91
Basal level 2Ds_rr 2Ds_cc 2Ds_ll	52.03 ± 9.09 -20.68 ± 1.56 -19.74 ± 1.94	36.40 ± 12.57* -15.32 ± 2.81* -15.32 ± 2.81*	46.10± 8.37 -18.32 ± 2.01 -19.32 ± 0.97
Middle 2Ds_rr 2Ds_cc 2Ds_ll	49.54 ± 6.41 -21.3 ± 2.27 -20.92 ± 3.37	35.77 ± 9.26* -15.44 ± 3.04* -15.01 ± 2.79*	44.01 ± 10.12 -17.92 ± 1.11 -19.02 ± 1.31
Apical 2Ds_rr 2Ds_cc 2Ds_ll	51.30 ± 2.27 -21.30 ± 2.27 -20.92 ± 3.37	39.52 ± 12.93* -17.73 ± 4.45* -16.78 ± 4.49*	46.66± 8.57 -19.22 ± 1.87 -19.32 ± 1.01

* p < 0.01