Assessment of arterial functions and cardiovascular risk in long-term follow-up of Kawasaki Disease

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Objective: Kawasaki Disease (KD) is a vasculitis involving coronary arteries. It is not clear if the patients with Kawasaki disease have an increased risk for atherosclerotic heart disease in adulthood. Carotid intima media thickness (CIMT), arterial distensibility an elasticity, flow mediated dilatation (FMD) of brachial artery and serum levels of high sensitivity C-reactive protein (hsCRP) are indicators of atherosclerotic heart disease. We searched for atherosclerosis risk in our patients with prior diagnosis of KD.

Material-Method: Study group consisted of 25 patients with prior KD, and control group consisted of 25 healthy children. Left ventricular systolic and diastolic functions; aortic anulus, sinus valsalva, sinotubular junction, asendan aorta, arcus aorta, isthmus and abdominal aorta diameters in systole and diastole were measured by M-mode and 2-D echocardiography. Aortic strain, distensibility and stiffness were calculated. CIMT and FMD of brachial artery were obtained using a linear transducer. Blood samples were taken for hsCRP levels.

Results: Study group included 4 girls, and 21 boys, control group included 4 girls and 21 boys. Age of the patients ranged between 4-19 years (Mean±SD=8.32±3.7 years) and control group between 4-16 years (Mean±SD=9.1±3.5 years). Follow-up period of study group was 3.48±2.47 years, 10 patients (%40) had cardiac involvement during acute phase. There was no nt difference in terms of left ventricular M-mode and two-dimentional measurements or systolic and diastolic functions between the groups. Aortic stiffness index was found to be higher (Mean±SD=0.346±0.20, Mean±SD=0.196±0.10; p=0.001) and FMD of brachial artery at 3rd minute was lower in patients with prior KD comparing the healthy children (Mean±SD=7.08±3.86, Mean±SD=10.40±4.00; p=0.006 respectively). HsCRP levels were higher, aortic strain and aortic distesibility were lower. CIMT were higher in the patients, however these differences were not statistically significant. (p=0.40, p=0.143, p=0.260, p=0.726 respectively.)

Conclusion: Higher aortic stiffness and lower flow mediated dilatation of brachial artery suggests impaired arterial functions and an increased risk for atherosclerotic coronary artery disease following KD. Further investigation about long term results, close monitorization during adult age and elimination of other preventable risk factors are needed in this patient group.