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N-terminal pro-BNP Correlates with Myocardial Involvement in Patients with Acute Kawasaki Disease

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Introduction**:** N-terminal pro-BNP (NT-proBNP) has been recognized as a marker of Kawasaki disease (KD). This was based on the hypothesis that cardiac inflammation during acute KD causes myocardial wall stress. Coronary involvement is well established, myocardial injury however has not been well studied. The objective was to examine the correlation between serum values of NT-proBNP, systolic myocardial dysfunction, and electrocardiographic changes in KD patients upon onset of the disease.

Methods**:** Parameters of myocardial involvement determined by electrocardiogram (PR interval and QT dispersion) and by echocardiogram (shortening and ejection fractions, left ventricle mass) were correlated with serum level of NT-proBNP in the acute phase of Kawasaki disease. KD patients were further subdivided into 2 groups according to the levels of NT-proBNP, KD-1 with normal NT-proBNP (NT-proBNP Z-score < 2), KD-2 with elevated NT-proBNP (Z-score >2) and compared to a febrile control group.

Results**:** There were a total of 56 subjects, 14 controls, 19 KD-1 and 23 KD-2 patients. Age was similar between groups (Control vs KD, 3.77 ± 4.31 vs 3.32 ± 2.27 years-old, p=0.609). There was a significant difference for the NT-proBNP z-score between controls and KD patients (0.87 ± 1.41 vs 2.26 ± 1.24, p=0.024). There was a significantly reduced shortening fraction in KD patients, more intensely in KD-2 as witnessed by a diminished shortening fraction Z-score (-0.43±1.49 in KD-1 vs -1.66±1.46 in KD-2; p=0.012). There was also a lower ejection fraction in KD-2 compared to KD-1 (59.61±4.26% KD-1 vs 55.11±9.05% KD-2; p=0.047). In contrast, there were no significant differences for left ventricular (LV) mass (p=0.939), index LV mass (p=0.063) or LV diameter (p=0.805). Likewise, there were no significant differences for the PR interval (p=0.476) or QT dispersion (p=0.580).

Conclusions**:** In acute KD systolic dysfunction is present, especially in cases with elevated NT-proBNP. There does not seem to be any ECG changes between groups. KD patients with elevated zNT-proBNP may warrant specific myocardial follow-up and assessment even in the absence of CA involvement.