

NT-proBNP in Acute Kawasaki Disease is Predictive of Coronary Artery Involvement

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Background: Natriuretic peptides are natural endogenous diuretics released by the myocardium in normal state, and to a high extent with increased myocardial distension and inflammation. We have lately documented the importance of N-terminal B-type natriuretic peptide (NT-ProBNP) aiding the diagnosis of Kawasaki disease (KD). Objectives: We sought to investigate the potential value of NT-proBNP pertaining to the prediction of coronary artery (CA) involvement and of resistance to IVIG therapy. We hypothesized that increased serum NT-proBNP correlates with increased resistance to IVIG and CA dilatation. Methods: Prospective study involving newly diagnosed KD patients treated with 2g/Kg IVIG within 5-10 days of onset of fever. All subjects had echocardiography at onset, then weekly for 3 weeks, then at month 2 and month 3. CA were measured at each visit and CA Z-score was calculated (Dallaire & Dahdah JASE 2010). All subjects had NT-proBNP serum level measured at onset Electrochemiluminescence IA (Roche-Dx), and Z-core calculated (McNeal-Davidson et al, Pediatrics International 2012). The aim was to determine if elevated NT-proBNP (Z-score > 2.0) was predictive of CA dilatation (Z-score > 2.5) and/or resistance to IVIG (fever 36H after IVIG). Results: There were 109 patients enrolled, at 6.58 ± 2.82 days of fever, age 3.79 ± 2.92 years. High NT-proBNP was predictive of CA dilatation at onset in 22.2% vs 2.6% for normal NT-proBNP (OR 4.8 [95%IC 1.05-22.4]; $p=0.031$). This was also predictive of cumulative CA dilatation for the first month ($p=0.04-0.025$), but not during convalescence at 2-3 months (OR=1.28 [95%IC 0.23-7.3]; $p=NS$). This observation reflects therapeutic response to IVIG. In fact, elevated NT-proBNP did not predict IVIG resistance, 15.3% vs 13.5% ($p=1$). Conclusion: Elevated NT-proBNP predicts acute CA dilatation in treated KD, but not IVIG resistance. Normal NT-proBNP is associated with a diminished risk of persistent CA dilatation in IVIG responsive patients.