Limited Value of N-Terminus-Pro-B-Type Natriuretic Peptide Levels in Former Types of Fontan circulation

Deutsches Herzzentrum München, Germany

Objectives: N-Terminus pro-B-type natriuretic peptide (NT-proBNP) is an important biomarker in congestive heart failure. This has also been confirmed in congenital heart disease. However its clinical value in patients with different types of Fontan circulation remains questionable.

Methods and Results: We prospectively analyzed 124 patients with various types of Fontan surgery between October 2006 and February 2011. We included 49 patients with older Fontan modification (atriopulmonary - and atroventricular connection [APC/AVC]) and 75 patients with total cavopulmonary connection (TCPC). NT-proBNP levels of patients with APC/AVC were significantly higher than in patients with TCPC (p= <0.001). NT-proBNP levels positively correlated with atroventricular valve regurgitation and ventricular dysfunction only in patients with TCPC, but not in patients with APC or AVC.

Conclusion: NT-pro BNP levels are related to the type of Fontan circulation. The older types (APC/AVC) that involve more atrial tissue in the systemic venous pathway show higher NT-proBNP level. Therefore, NT-proBNP is only an important biomarker to evaluate patients after TCPC. Its clinical value is limited in patients with older Fontan modification.