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## **Measurements in pediatric patients with cardiomyopathies: Comparison of cardiac magnetic resonance imaging and echocardiography**

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**Aims:** Cardiomyopathies are common cardiovascular diseases in children. Cardiac magnetic resonance imaging (cMRI) and echocardiography (Echo) are routinely used in the detection and diagnosis of pediatric cardiomyopathies. In this study, we compared and explored the correlation between these two measurements in pediatric patients with various cardiomyopathies.

**Methods & Results:** A total of 53 pediatric patients with cardiomyopathy hospitalized in recent three years in our hospital were gathered and analyzed. All of them and 22 normal controls were measured with both cMRI and echo. The cardiac functional score of the patients was graded according to the criteria set by New York Heart Association. The cardiac function indexes measured with both cMRI and echo included left ventricular end diastolic volume (EDV), end systolic volume (ESV), ejection fraction (EF) and fractional shortening (FS). These parameters were somehow lower in cMRI measurements compared to that in echo measurements. Index of the diastolic function such as peak filling rate (PFR) measured with cMRI had a good correlation with clinical cardiac functional score, while the index of the diastolic function (E/A IVRT) measured with Echo was not well correlated with the clinical cardiac functional score. Significant systolic dysfunction was detected by cMRI in 34 patients with dilated cardiomyopathy, left ventricular noncompaction or endocardial fibroelastosis. Significant diastolic dysfunction was detected by cMRI in 19 patients with hypertrophic cardiomyopathy or restrictive cardiomyopathy showing an alteration in PFR and EDV.

**Conclusion:** Both cMRI and echo are of great value in the diagnosis and the assessment of cardiac function in pediatric patients with cardiomyopathy. CMRI could accurately display the characteristic morphological changes in the hearts with cardiomyopathies and late gadolinium enhancement on cMRI may reveal myocardial fibrosis, which has obvious advantages over echo measurements in the diagnosis. Furthermore, cMRI can measure quantitatively the ventricular function because it does not make invalid geometrical assumptions.

### **Biography**

Jie Tian is the Professor of Pediatrics, Doctoral supervisor as well as Vice-president of Children's Hospital of Chongqing Medical University. He is also Vice-Chairman of China Pediatric Cardiology Society and Deputy Director of Chongqing Cardiology Committee.

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