Left ventricular non-compaction in children


Pediatric Cardiology, Martin, Slovakia (1);
Department of Radiology, Bratislava, Slovakia (2);
Department of Physiology and Martin Centre for Biomedicine, Jessenius Faculty of Medicine in Martin, Comenius University in Bratislava, Martin, Slovakia (3);
Clinic of Neonatology, Jessenius Faculty of Medicine in Martin, Comenius University in Bratislava, University Hospital Martin, Martin, Slovakia (4);
Faculty of Health Care, Catholic University in Ruzomberok, Slovakia (5);
Pediatric department, Jessenius Faculty of Medicine in Martin, Comenius University in Bratislava, University Hospital Martin, Martin, Slovakia (6)

Introduction

Non-compaction left venticle is a rare, geneticaly determined diseases. It is characterized by trabecular character of the left ventricular myocardium containing deep recesses, which are perfused from left ventricular cavity. It may occur as an isolated form of NCLV or it may be a part of another congenital heart diseases.

Study goals

Creation of a diagnostic algorythm by using magnetic resonance imaging in children with NCLV.
Comparison of MRI findings with echocardiographic examination as a reference method.

Patients and methods

The patient group consisted of 16 children (12 boys and 4 girls) with a diagnosis of NCLV. Diagnostic echocardiographic criteria were compared with modified MRI criteria for the diagnostics of NCLV. Echocardiography was used to exclude congenital heart diseases, to confirm increased trabeculization and presence of deep intra-trabecular recesses perfused form left ventricular cavity and to confirm endsystolic non-comacted to compacted myocardium ratio above 1,4. MRI examinaton was done by using Magenton AVANTO SQ 1,5 T with specific cardiologic software and hardware. Non-compacted to compacted myocardium ratio (NC/C) was evaluated in enddiastolic phase, in contrast to echocardiography.

Results

MRI was confirmed to be more accurate in the assessment of non-comacted myocardium layer than echocardiography. Both imaging methods are accurate enough in the measurement of left ventricular size, with minimal diferencies in obtained values. Increased trabeculization has been found mainly on the lateral wall and the apex of left ventricle, sparing the interventricular septum. Post-contrast dye induced myocardial changes of the LV have not been confirmed in children with NCLV.

Conclusions

NCLV is present also in childhood. The gold standard in diagnostics of NCLV remains echocardiography. MRI is appropriate additional method in case of non-conclusive echocardiographic finding.