

Left ventricular non-compaction in children

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Introduction

Non-compaction left ventricle is a rare, genetically determined disease. 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 disease.

Study goals

Creation of a diagnostic algorithm 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 from left ventricular cavity and to confirm endsystolic non-compacted to compacted myocardium ratio above 1.4. MRI examination was done by using Magentom AVANTO SQ 1.5 T with specific cardiological 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-compacted myocardium layer than echocardiography. Both imaging methods are accurate enough in the measurement of left ventricular size, with minimal differences 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.