

POSTER PRESENTATION

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What is the role of cardiac MRI in the diagnosis of left ventricular non-compaction?

J Ronald Mikolich^{1,2*}, John Lisko¹, Nicholas C Boniface², Brandon M Mikolich^{1,2}

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Background

The prevalence of left ventricular non-compaction is not well established. Using 2-D echocardiography, less than 1% of patients are diagnosed with this entity. Using cardiac MRI, approximately 3% of patients have evidence of LV non-compaction. This variance may be related to the difference in spatial resolution between these 2 imaging techniques. Using a large institutional cardiac imaging database, 2-D echo and cardiac MRI results were compared in patients with LV non-compaction.

Methods

Of 1,255 patients in our cardiac imaging database, 38 patients (3%) with a diagnosis of LV non-compaction were identified. Twenty-two of these 38 patients had undergone both 2-D echo and cardiac MRI exams. The reported diagnoses with each imaging modality were tabulated, along with measurements of left ventricular antero-septal and infero-posterior wall thickness for both modalities. The 2-D echo and cardiac MRI wall thickness dimensions were statistically compared using a paired sample t-test.

Results

All 38 patients had a diagnosis of LV non-compaction on cardiac MRI, using criteria of non-compacted/compacted myocardium > 2.5 to 1.0 and deep LV trabeculations. None of the 22 patients with both 2-D echo and cardiac MRI exams had a diagnosis of LV non-compaction on their 2-D echo study. However, 15 of 22 patients (68%) had a diagnosis of LVH on their 2-D echo study, while only 3 had LVH on their cardiac MRI study. The mean ASWT on 2-D echo was 1.38 cm, while the mean ASWT on cMRI was 1.16 cm ($p < 0.005$). The mean IPWT on 2-D

echo was 1.31 cm, while the IPWT on cMRI was only 0.89 cm ($p < 0.001$).

Conclusions

These data suggest that LV non-compaction, identifiable on cardiac MRI, is frequently diagnosed as LVH on 2-D echo. This discrepancy appears to be explained by the statistically significant difference in both antero-septal and infero-posterior LV wall thickness measurements between the 2 imaging modalities. It is suspected that this difference is related to the inferior spatial resolution of 2-D echo relative to cMRI. On the basis of these data, patients with LVH on 2-D echo should be considered for a cardiac MRI exam to determine if the increased LV wall thickness is truly LVH or an undiagnosed LV non-compaction cardiomyopathy.

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Author details

¹Northeast Ohio Medical University, Rootstown, OH, USA. ²Sharon Regional Health System, Hermitage, PA, USA.

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¹Northeast Ohio Medical University, Rootstown, OH, USA
Full list of author information is available at the end of the article