Isolated left ventricular non compaction: Relationships between MRI criterias for non compaction and clinical events.

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BACKGROUND:
Isolated ventricular non compaction is a congenital cardiomyopathy, based on an arrest of normal embryonic myocardium development and characterized by the presence of a two-layered myocardial structure with a compacted epicardial band and a non compacted endocardial layer of prominent trabeculations with deep intertrabecular recesses. Ventricular non compaction is sometimes complicated by ventricular dysfunction and heart failure, malignant arrhythmias or cardioembolism. The aim of our study is to look for a potential relationship between MRI’s non compaction criteria and these clinical events.

METHODS AND RESULTS:
Among all cardiovascular MRI realized at the University Hospital of Nantes between 2004 and 2012, 120 patients presented MRI’s non compaction criteria, but 45 of these patients had another associated cardiomyopathy and so were excluded. 75 patients fulfilled the diagnosis of isolated ventricular non compaction and were included in the study (63% male, mean age 43 +/- 15 years).
LV ejection fraction, LV volumes, global LV mass, compacted LV mass, number of non compacted segments and non compaction score were measured. Non compaction score was the sum of the ratio of the thickness of non compacted to compacted myocardial layers superior to 2.3, measured in the diastolic phase.
We tried to establish some associations between clinical events and MRI data. Mean LVEF was 53 +/- 11%, negatively correlated with non compaction score (p = 0.04). Mean number of non compacted segments and mean non compaction score were significantly higher in patients with stroke (respectively p=0.056 and p=0.014). Nevertheless, there were no statistical association between ventricular arrhythmias and LVEF, number of non compacted segments or non compaction score.

CONCLUSION:
Our study, which is, so far, the largest prognostic MRI study of isolated ventricular non compaction, shows a clear association between non compaction extension and LVEF degradation or stroke incidence but no evident relationship with ventricular arrhythmias risk. Thus, according to our results, MRI evaluation of non compacted extension did not seem to be a good predictor for the stratification of the risk of ventricular arrhythmias.