

Poster presentation

Is subendocardial or transmural late gadolinium enhancement able to differentiate between dcm and icm on cardiac mri?

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Introduction

In ischemic cardiomyopathy (ICM), subendocardial and transmural late gadolinium enhancement (LGE) on cardiac magnetic resonance imaging (CMR) are useful findings to differentiate from dilated cardiomyopathy (DCM). The previous studies emphasize that all ICM shows subendocardial or transmural LGE based on fibrosis of infarcted myocardium, however ICM with no LGE such as hibernated myocardium caused low EF and LV dilatation as well as DCM also exists.

Purpose

The purpose of our study is to evaluate LGE pattern in patients with low EF and LV dilatation, and to clarify the feasibility for classifying ICM from DCM applied to LGE pattern.

Methods

Ninety patients with LVEF < 40% and LVdD >60 mm on CMR were enrolled in the study (71 male, mean age 52 y.o). Secondary cardiomyopathy and previously diagnosed ischemic heart disease were excluded. All patients underwent coronary angiography (CAG), on the basis of which we classified into DCM (n = 82) and ICM (n = 8). ICM was defined as improvement of LVEF and LV dilatation after revascularization. Whole heart was divided into 17-segments according to the AHA recommendation. LGE

pattern; such as localization (5 patterns: subendocardial, transmural, mid-wall, epicardial, and mixed), distribution (3 types: patchy, linear: greater than 50% of a flabelate segment and within 50% of the extent, and diffuse), and extent (5 point scales: 0 = none, 1 = 1% to 25%, 2 =

Number of LGE segment		DCM 211seg.(%)	ICM 30seg.(%)
Localization	transmural	17 (8.1)	0 (0)
	epicardial	43 (20.4)	2 (6.7)
	mid-wall	104 (49.3)	0 (0)
	endocardial	45 (21.3)	28 (93.3)
	mixed	2 (0.9)	0 (0)
Distribution	patchy	34 (16.1)	5 (16.6)
	linear	148 (70.1)	20 (66.7)
	diffuse	29 (13.7)	5 (16.6)
Extent	25%<=	105 (49.8)	12 (40.0)
	25<, <=50	79 (37.4)	13 (43.3)
	50<, <=75	8 (3.8)	4 (13.3)
	<75%	19 (9.0)	1 (3.3)

Figure 1

26% to 50%, 3 = 51% to 75%, and 4 = 76% to 100% of LV wall thickness of LGE) were assessed.

Results

In DCM, 46 patients (58%) had LGE (221 of 1394 seg., 16%). In ICM, 5 patients (63%) had LGE (30 of 136 seg., 22%). The results of LGE segment analysis were shown on the table. Mid-wall LGE in DCM and endocardial LGE in ICM were characteristic findings (Chi-square test: $P < 0.0001$). Diagnostic ability of subendocardial or transmural LGE findings to distinguish DCM from ICM was; sensitivity 62.5%, specificity 87.8%, PPV 33.3 %, and NPV 96.0%, Figure 1.

Conclusion

LGE pattern of CMR is not feasible findings for classifying ICM from DCM precisely in patients with both LV dilatation and low EF. On the other hand, the mid-wall LGE was also certified as definitive findings in only DCM.

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