

POSTER PRESENTATION

Open Access

# Diffuse myocardial fibrosis, but not focal fibrosis identified with delayed enhancement, is an independent predictor of LV reversed remodeling in patients with idiopathic non-ischemic cardiomyopathy

Teerapat Yingchoncharoen\*, Scott D Flamm, Deborah Kwon

From 16th Annual SCMR Scientific Sessions  
San Francisco, CA, USA. 31 January - 3 February 2013

## Background

Diffuse myocardial fibrosis may be a fundamental features of adverse myocardial remodeling in idiopathic non-ischemic cardiomyopathy. As T1-weighted cardiac magnetic resonance (CMR) imaging provides an alternative method of diffuse fibrosis quantification, we sought to assess the association of myocardial T1 value to left ventricular reverse remodeling (LVRR).

## Methods

We performed CMR in 24 patients with idiopathic non-ischemic cardiomyopathy (16 men, mean age  $58 \pm 11$  years) and also in 12 healthy volunteers as control subjects. T1 mapping was performed with post-contrast Look-Locker gradient echo. Baseline echocardiography as well as hemodynamic and metabolic data were collected at the time of CMR. Patients were followed over a median time of 8 months for LVRR which was defined as a left ventricular ejection fraction (LVEF) increase of  $\geq 10$  U and a decrease in indexed left ventricular end-diastolic diameter (LVEDD) of  $\geq 10\%$  or indexed LVEDD of  $< 33$  mm/m<sup>2</sup> at 24 months. A multivariable logistic regression analysis was performed to identify associations with LVRR.

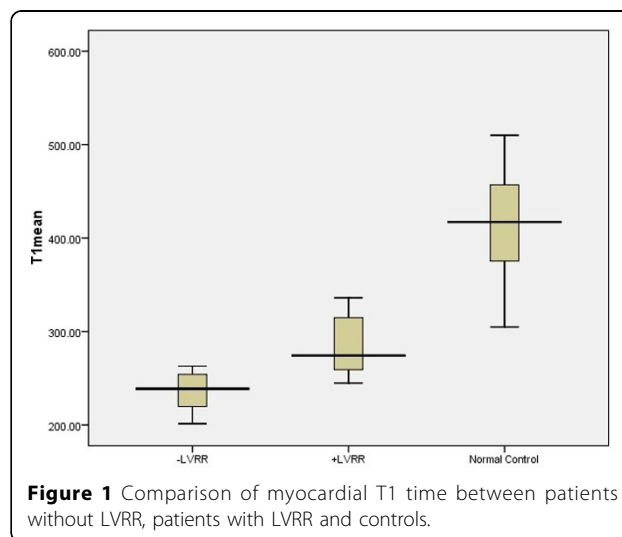
## Results

LVRR was found in 8 patients (33%). Mean T1 value was substantially lower in patients without LVRR (240+26) compared to patients with LVRR (285+35,  $p=0.002$ ) and healthy controls (413+57,  $p<0.001$ ) (Figure1). There was

no significant difference in T1 value of the non delayed-enhanced myocardium in patients with myocardial scar on delayed-enhancement imaging (264+26) and without scar (263+42,  $p=0.233$ ). LVRR was associated with baseline T1 value (HR 1.1 [95% CI 1.01-1.19]), independent of LVEF and the presence of myocardial scar on delayed-enhancement imaging (Table 1).

## Conclusions

Post contrast T1 value is a predictor of LV reversed remodeling in patients with idiopathic non-ischemic cardiomyopathy, independent of baseline LVEF and the presence of myocardial scar.



**Figure 1** Comparison of myocardial T1 time between patients without LVRR, patients with LVRR and controls.

Cleveland Clinic Foundation, Cleveland, OH, USA

**Table 1 Multivariate analysis of baseline correlates of LVRR**

Variables	HR (95%CI)	P value
Baseline LVEF	0.804 (0.643-1.004)	0.054
Presence of myocardial scar	1.552 (0.091- 26.57)	0.762
Myocardial T1 time	1.098 (1.012-1.192)	0.025

## Funding

None.

Published: 30 January 2013

doi:10.1186/1532-429X-15-S1-P109

**Cite this article as:** Yingchoncharoen *et al.*: Diffuse myocardial fibrosis, but not focal fibrosis identified with delayed enhancement, is an independent predictor of LV reversed remodeling in patients with idiopathic non-ischemic cardiomyopathy. *Journal of Cardiovascular Magnetic Resonance* 2013 **15**(Suppl 1):P109.

**Submit your next manuscript to BioMed Central and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at  
[www.biomedcentral.com/submit](http://www.biomedcentral.com/submit)

