

Myocardial delayed enhancement detected by MRI was related with the long-term prognosis in patients with heart failure due to nonischemic dilated cardiomyopathy

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Background: We previously reported that myocardial delayed enhancement (DE) could be detected by MRI in patients with nonischemic dilated cardiomyopathy. We hypothesized that myocardial DE may be related to improvement of the LV diameter and plasma brain natriuretic peptide (BNP) and may be related with the long-term prognosis in patients with nonischemic dilated cardiomyopathy.

Methods: We performed Gd-enhanced segmented inversion-recovery turboFLASH MRI in 27 patients referred for heart failure due to nonischemic dilated cardiomyopathy, whose LV end-diastolic volume index $>90\text{ml}/\text{m}^2$ and LV ejection fraction $<50\%$. We followed the patients for a mean of 12 ± 6 months.

Results: Myocardial DE was present in 13 patients. The percent change of the LV end-diastolic diameter from baseline to 6 months after medical therapy (-6 ± 12 versus $-13\pm9\%$) and the BNP level at 6 months after medical therapy (157 ± 148 versus $67\pm130\text{pg}/\text{ml}$) were not significantly different between the patients with and without DE. During the follow-up period, 3 cardiac death was observed in 8 patients with DE $>8\%$ LV whereas no patients with DE $<8\%$ LV died. Kaplan-Meier analysis demonstrated that the patients with DE $>8\%$ LV had significantly increased mortality compared to those with DE $<8\%$ LV ($p<0.05$).

Conclusion: Myocardial DE was not related with improvement of LV diameter and plasma BNP but may be related with the long-term prognosis in patients with heart failure due to nonischemic dilated cardiomyopathy.

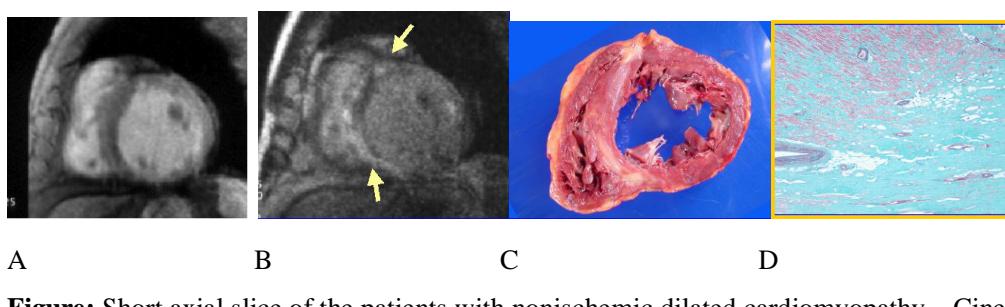


Figure: Short axial slice of the patients with nonischemic dilated cardiomyopathy. Cine MRI at end-diastole (A), Gd-enhanced inversion-recovery MRI (B), macroscopic section of autopsied heart (C), and Elastica-Masson stain (x 120) of the Gd-enhanced lesion at the inferior interventricular septum (D). Myocardial delayed enhancement was concordant with myocardial fibrosis examined by autopsy.