

Scarring of heart muscle linked with increased risk of death in patients with type of cardiomyopathy

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Detection of midwall fibrosis (the presence of scar tissue in the middle of the heart muscle wall) via magnetic resonance imaging among patients with nonischemic dilated cardiomyopathy (a condition affecting the heart muscle) was associated with an increased likelihood of death, according to a study appearing in the March 6 issue of *JAMA*.

Nonischemic dilated cardiomyopathy is associated with significant illness and death due to progressive heart failure (HF) and [sudden cardiac death](#) (SCD). Despite therapeutic advances, 5-year mortality remains as high as 20 percent. "Risk stratification of patients with nonischemic dilated cardiomyopathy is primarily based on [left ventricular ejection fraction](#) [LVEF; a measure of how well the [left ventricle](#) of the [heart pumps](#) with each contraction]. Superior prognostic factors may improve patient selection for implantable cardioverter-defibrillators (ICDs) and other management decisions," according to background information in the article. Attention has recently focused on whether detection of myocardial replacement fibrosis (scarring of the heart muscle) may assist with risk stratification in dilated cardiomyopathy. Fibrosis is associated with contractile impairment.

Ankur Gulati, M.D., of Royal Brompton Hospital, London, and colleagues evaluated whether midwall fibrosis (detected by late gadolinium enhancement [cardiovascular magnetic resonance](#) [LGE-CMR] imaging) predicts risk of death, independently of LVEF and other established prognostic factors in dilated cardiomyopathy. The study included 472 patients with dilated cardiomyopathy referred to a U.K. center for CMR imaging between November 2000 and December 2008 after presence and extent of midwall replacement fibrosis (scarring of the heart muscle present in the middle of the heart muscle wall)

were determined. Patients were followed up through December 2011.

During a median (midpoint) follow-up of 5.3 years, there were 73 deaths. Overall, 38 of 142 patients with midwall fibrosis (26.8 percent) died compared with 35 of 330 patients without midwall fibrosis (10.6 percent). After analysis, both the presence and percentage extent of midwall fibrosis were significant independent predictors of all-cause mortality. The arrhythmic composite end point (SCD or aborted SCD) occurred in 65 patients (14 percent). Analysis indicated that patients with midwall fibrosis were more than 5 times more likely to experience SCD or aborted SCD compared with patients without midwall fibrosis (29.6 percent vs. 7.0 percent).

"After adjustment for LVEF and other conventional prognostic factors, both the presence of fibrosis and the extent were independently and incrementally associated with all-cause mortality. Fibrosis was also independently associated with cardiovascular mortality or cardiac transplantation, SCD or aborted SCD, and the HF composite [HF death, HF hospitalization, or cardiac transplantation]," the authors write.

Also, the addition of fibrosis to LVEF significantly improved risk reclassification for all-cause mortality and the SCD composite.

"Our findings suggest that detection and quantification of midwall fibrosis by LGE-CMR may represent useful markers for the [risk stratification](#) of death, ventricular arrhythmia, and HF for patients with dilated cardiomyopathy," the researchers write.

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