

Meeting abstract

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2068 Myocardium affected by left ventricular ballooning syndrome exhibits high signal on T2 weighted magnetic resonance imaging

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Introduction

Left ventricular ballooning syndrome (LVBS), also known as Tako-tsubo cardiomyopathy, is characterized by regional left ventricular dysfunction as a result of severe psychological stress. T2-weighted magnetic resonance imaging (MRI) can identify edema due to localized myocardial injury.

Purpose

To study the presence and distribution of T2 signal in patients with left ventricular ballooning syndrome.

Methods

A standard clinical cardiac MRI scan with gadolinium was performed on consecutive patients referred for evaluation of LVBS. Breath-hold T2-weighted sequences (double inversion recovery fast spin echo) were also acquired. Systolic wall thickening (SWT) was calculated from short axis cine images. The endocardial half of the myocardial wall was excluded on T2 weighted images to eliminate artifact due to slow-flowing blood. High T2 signal was defined as a signal intensity two standard deviations above that of a remote area of normal myocardium. The percentage of myocardium above this T2 threshold was determined for each myocardial segment. A follow-up cardiac MRI was offered to all patients.

Results

Six patients were studied, giving 96 myocardial segments for analysis. All patients were female, with a mean age of

54 years. Three patients had apical ballooning and three had mid-wall involvement only. All patients had normal coronary angiography. The percentage of high T2 signal was significantly greater in myocardial segments with SWT less than 25% than those with SWT greater than 25% (76 vs 43, $p < 0.001$). Five patients underwent repeat MRI scanning (mean follow up 38 days). Left ventricular function had normalized at follow up in all patients. Segments with in initial SWT $< 25\%$ had a significant reduction in high T2 signal (76 vs 26, $p < 0.001$). No delayed hyper-enhancement was evident on initial or subsequent MRI scans.

Conclusion

We describe localized high T2 signal in patients with LVBS. The high T2 signal corresponds with areas of impaired regional myocardial function and is likely to represent localized myocardial edema. This finding provides insight into the pathophysiology of LVBS and suggests another criterion by which the condition might be diagnosed.