

Poster presentation

Acute myocarditis presenting as acute coronary syndrome: clinical utility of cardiac magnetic resonance imaging

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Introduction

In patients with acute cardiac symptoms, myocarditis may be suspected on clinical grounds after normal coronary angiography.

Purpose

We analysed CMR findings in a consecutive series of patients admitted with presumed acute cardiac syndrome (ACS) in whom acute myocarditis was subsequently considered more likely in order to assess its clinical utility.

Methods

Between April 2008 and August 2009, we analysed 63 scans in patients for whom myocarditis was suspected following an admission with ACS. Eight were excluded; 3 for missed myocardial infarction (MI), and 5 with Tako-Tsubo cardiomyopathy (TTC).

Results

The mean age was 47 ± 15 years (range 21-79) and 25% were female. Serum troponin (Tn) was available in 46 (84%) and was elevated in 39 (85%). Urgent angiography was performed in 75% in whom 90% had unobstructed arteries. In the patients with abnormal angiography, epicardial or midwall focal fibrosis (FF) was detected in LV segments unrelated to the stenosed artery. The median interval from admission to CMR was 24 days (range 1-685). LV systolic function was normal in 47% and preserved with regional hypokinesia in 27%. LV impairment

(LVI) was mild in 13%, moderate in 13% and severe in none. FF was detected in 78%, and was subepicardial, mid-wall or patchy in all. T2 weighted oedema imaging was obtained in 27 (49%), and was abnormal in 48%. LVI was reported in 2/7 (29%) Tn-ve patients and 8/39 (21%) Tn+ve patients, FF was detected in 4/7 (57%) and 31/39 (79%) patients respectively ($p = ns$). Myocardial oedema was demonstrated in 12/22 (55%) Tn+ve patients and in no (0/3) Tn-ve patient (ns). In Tn+ve patients, oedema was demonstrated in 11/12 if the scan was performed < 2 weeks of symptom onset, and 1/7 if performed later ($p < 0.005$). Four patients were admitted with sustained (7%) and another patient died in hospital (2%); the LV dysfunction was mild in 4 and moderate in one.

Conclusion

In Tn+ve patients with normal angiograms, CMR contributes to potentially important diagnoses including missed MI or TTC. Abnormalities are frequent in acute myocarditis and early scans usually detect oedema. The importance of these abnormalities, their severity and persistence is largely unknown and merits further study. As sustained and death occurred without severe LVI, the diagnosis is not benign. This suggests that early (within 48 h) CMR assessment of Tn+ve patients with unobstructed coronary arteries is of benefit, with a repeat assessment in selected patients after 2 weeks.