Cardiac Magnetic Resonance in Dermatomyositis Induced Myocarditis: Should we treat the Patient or the Images?

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Received: March 17, 2015; Published: November 20, 2015

Keywords: Idiopathic inflammatory myopathies; Cardiac involvement; Cardiac magnetic resonance imaging

We report a case of a 42 years old woman, smoker, with history of biopsy proven dermatomyositis (DM), 8 years ago and normal heart function, who was admitted due to fever, rapidly progressive dyspnoea and orthopnoea. Her ECG presented sinus tachycardia (120 bs/min), LAH, mitral P waves and poor progression of R in the precordial leads. She had gallop rhythm and the biochemical profile showed SGOT = 118, SGPT = 100, γGT = 105, cTnI = 0.16. The 2D evaluation revealed pericardial effusion, pulmonary hypertension, left atrial and biventricular dilatation, diffuse LV hypokinesia and severely impaired LV-RV function. Coronary angiography and right heart catheterization were normal.

Carvedilol 6.25 mg ½ bid, furosemide 40 mg 1 bid, spironolacton 50 mg ½ once per day, and ramipril 4 mg opd was applied to treat the cardiac emergency. Additionally, intravenous, methylprednisone (250 mg) and immune globulin (50 gr) were given. Few days after treatment, marked improvement of cardiac symptoms was occurred and she was discharged with intravenous immune globulin (100 gr) and methylprednisone (125 mg), once per month for six months and subcutaneous methotrexate 10 mg once per week. After six doses of immune globulin and methylprednisone, she started a monthly therapy with Rituximab 1000 mg and she did not report any cardiac symptom again.

In T2-W and EGE the signal ratio was measured in LV myocardium as well as within latissimus dorsi in the same slice. To assess LGE, all short-axis LGEs were summed and yielded the total volume, expressed as LV proportion (% LGE).

The 1rst CMR study revealed T2 = 3.5, EGE = 32 and extensive intra-myocardial LGE in intraventricular septum, inferior and lateral wall, due to acute myocarditis. Additionally, diffuse hypokinesia, with left ventricular end diastolic (LVEDV) and end systolic (LVESV)
Polymyositis (PM)/dermatomyositis (DM) are inflammatory myopathies (IM), occasionally complicated by myocarditis. However, the correlation of cardiac manifestations with overall disease severity is controversial. To diagnose myocarditis in IM remains a challenge, due to atypical clinical presentation, high risk of death and lack of standardized diagnostic criteria. Until now, the algorithm used for IM myocarditis documentation is based on ECG, laboratory and echocardiographic findings, but these criteria are of limited value, due to lack of sensitivity and specificity [1].

CMR has been proven of value for the diagnosis and follow-up of various types of myocarditis, ranging from viral to autoimmune diseases [2-4], because of the advantage to diagnose oedema, cell infiltration and fibrotic lesions in one examination [2,3], even in cases with silent clinical presentation. Reported experience about CMR for heart evaluation in PM/DM is quite limited [5-7]. There are only two CMR studies in IM, before and after treatment. In one of them, Allanore, et al. [6] reported both clinical and CMR amelioration in 4 IM evaluated after six months of immunosuppression. In the other study, published by our group [7], the majority of clinically improved IM, had abnormal CMR three months after treatment, although the disease presented complete clinical remission.

Citation: Georgia Karabela, et al. “Cardiac Magnetic Resonance in Dermatomyositis Induced Myocarditis: Should we treat the Patient or the Images?” EC Cardiology 2.3 (2015): 141-144.
To our knowledge, this is the only case of IM induced myocarditis in which CMR was still positive for acute myocarditis two years after intensive cardiac and immunologic treatment. There are no data comparing clinical findings, CMR and endomyocardial biopsy in IM. However, it was documented in other immunologic disorders, like lupus nephritis, that there is not always agreement between clinical improvement and biopsy findings [8]. Under these circumstances, in IM induced myocarditis, which is usually characterized by lack of overt clinical presentation, the persistence of abnormal CMR findings should not be ignored. However, it remains to be proved the best type and duration of immunologic treatment and the clinical implications of the persistently abnormal CMR in IM survival.

**Bibliography**


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