

The Clinical Presentation and Outcome of Acute Myocarditis: Are Women With Myocarditis Sicker?

Dan Admon, Israel Gotsman, Donna Zwas, Marina Potekhin, Arthur Pollak, Chaim Lotan,
Andre Keren

Heart Institute, Hadassah University Hospital, Jerusalem, Israel

Background: Acute myocarditis is a common disease primarily affecting the young. The diagnostic process might be challenging, due to unusual presentation of the disease and lack of specificity of the diagnostic tests. We reviewed the clinical features and early outcome of consecutive patients with confirmed diagnosis of myocarditis.

Patients and diagnostic criteria: The diagnosis was based on clinical features including chest pain, history of recent febrile disease or upper respiratory infection, dyspnea, syncope, signs of acute heart failure/shock, abnormal ECG and chest X-ray and elevated cardiac enzymes. Coronary angiogram and endomyocardial biopsy were performed when indicated. During a 10 year period 70 patients fulfilled the diagnostic criteria and had full clinical, laboratory and echocardiographic records available for analysis. There were 51 (73%) males; the mean age was 37 (range 17-76) years.

Results: The commonest complains were chest pain in 81%, history of fever in 42%, and dyspnea in 22%. Elevated fever on admission was present in 35%. Abnormal ECG was found in 90% and ST elevation in 33% of the patients. Two patients had cardiogenic shock and required support of intra-aortic balloon pump. On echocardiogram LV function was normal or mildly decreased in 53 (75%), and moderate or severely decreased in 17 (25%) patients. Coronary angiography was performed in 24 (34%) pts in order to exclude an acute coronary event; the procedure was performed in 65% of those with reduced LV function but only in 24% of those with preserved LV function ($p=0.004$). Endomyocardial biopsy was also primarily performed in pts with reduced LV function (35% vs 2%, respectively, $p=0.001$). Additional differences between those with and without decrease in LV function are summarized in the following table.

LV Function	Females (%)	Age (years)	ST Elevation
Normal/Mild 53 (75%)	9 (17%)	32 (17-63)	21 (40%)
Reduced 17 (25%)	10 (59%)	53 (25-76)	1 (6%)
P value	0.002	0.05	0.01

Therapy was primarily supportive. One patient with eosinophilic myocarditis on biopsy received immunosuppression. Giant cell myocarditis was not diagnosed in this series. There were no in hospital mortalities.

Conclusions: Myocarditis presented as acute coronary syndrome in about one third of the patients in whom coronary angiography was essential for reaching the correct diagnosis. Patients with reduced left ventricular function tended to be older, were mostly females, had no ST elevation on ECG and more frequently underwent invasive evaluation (angiography and/or biopsy).