

original article

Echocardiographic Predictors of Clinical Outcome In Patients With Dilated Cardiomyopathy

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ABSTRACT

Background

Dilated cardiomyopathy (DCM) is defined as dilatation and impaired contraction of the left or both ventricles and idiopathic DCM is the primary indication for cardiac transplantation. The clinical course is unpredictable. Echocardiography is the definitive tool for diagnosing the presence and type of cardiomyopathy and can provide valuable prognostic information. The most commonly employed technique is the one involving mitral valve inflow patterns and the most important prognostic information is the restrictive filling pattern (RFP).

Patients and Methods

Forty patients with DCM were retrospectively analysed, and clinical and echocardiographic parameters were collected. Adverse events that happened during one year follow-up period were recorded.

Results

Seventeen patients (42.5%) had cardiac events (10 cardiac deaths and 14 rehospitalizations for heart failure). A significant increase of diabetes and S3 gallop among patients with cardiac events was recorded. The left atrial diameter (LAD) at 1-year follow up, the ejection fraction (EF) at baseline and the restrictive filling pattern (RFP) at baseline were associated with positive clinical cardiac events.

Conclusions

According to our results, patients with DCM who had increasing left atrium diameter (LAD) or RFP carried poorer prognosis, so close observation, echocardiographic follow up and intensive medical therapy are needed to avoid cardiac deaths and nonfatal cardiac events. Recent non-medical therapies such as ventricular pacing, implantable cardioverter defibrillator, mitral valve surgery and LV volume reduction could improve the prognosis in patients with DCM if applied in time. For this reason, the echocardiographic predictors are of special value.

INTRODUCTION

The aim of this study was to assess echocardiographic and haemodynamic parameters in those patients with DCM and whether these parameters could be predictors to adverse clinical outcome or not, since we can identify patients with poor prognosis and who would benefit from intensive medical therapy or cardiac transplantation.

DCM is defined as dilatation and impaired contraction of the left or both ventricle.^{1,2} DCM is responsible for 10,000 deaths and 46,000 hospitalization each year in USA, further idiopathic DCM is the primary indication for cardiac transplantation.³ DCM can be presented with symptoms of heart failure (exertional dyspnea, or thopnea and paroxysmal nocturnal dyspnea "PND"), arrhythmias, conduction disturbance, thromboembolism or sudden death. Depending on severity and duration patients with DCM can present with New York Heart Association (NYHA) class I to IV symptoms. The clinical course is largely unpredictable in the individual patient and may depend in part upon the cause of the disease.⁴ Echocardiography serves as a definitive tool for establishing the presence and type of cardiomyopathy, may provide information regarding specific aetiology and can be used accurately to track the physiologic abnormalities associated with the cardiomyopathy. Additionally, echocardiography and Doppler imaging can provide valuable prognostic information and serves as a guide to success of therapy.⁵

Several echocardiographic and Doppler findings can be related to prognosis in DCM, any of the systolic indices such as ejection fraction can be accurately calculated and are related to prognosis, Doppler ultrasound techniques can also be used to devise prognostic indices. The most commonly employed technique is mitral valve inflow patterns. The Doppler finding carrying the most important prognostic information is the restrictive pattern. This is characterized as a high E/A ratio greater than 2.5 in association with short deceleration time less than 130-150 msec. This pattern indicates a near end stage diastolic dysfunction in which the left ventricle has dilated to the point of reaching mechanical and pericardial constraint. This pattern also implies marked elevation of end-diastolic and left atrial pressures which often seen in patients with more marked degree of left atrial dilation and secondary pulmonary hypertension.⁶ Several studies demonstrated that increasing degree of mitral and tricuspid regurgitation correlate with a worsening prognosis.⁴

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