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General Medicine

Study of Cardiac Abnormalities in Patient with Cirrhosis of Liver

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Abstract **Original Research Article**

Background: Cirrhosis is defined as diffuse disruption of the normal architecture of the liver with fibrosis and nodule formation. There are significant secondary effect of cirrhosis on cardiac, pulmonary and renal systems. Cirrhotic cardiomyopathy includes combination of reduced cardiac contractility with systolic and diastolic dysfunction and electrophysiological abnormalities. ***Objectives:*** To analyze the cardiac abnormalities in cirrhotic patients. ***Materials and methods*:** This is a retrospective study conducted at Department of General Medicine, MIMS, Mandya. ECG and 2D ECHO reports of patients admitted with cirrhosis of liver were obtained from case sheets, data entered into Excel sheet and analysed. ***Results:*** Out of the hundred patients included in study, 43 Patients had diastolic dysfunction, 19 patients had systolic dysfunction on echocardiography. 26 patients had dilated cardiomyopathy, 4 patients had mitral regurgitation, 5 patients had atrial fibrillation, 3 patients had RV dysfunction with pulmonary hypertension, ECG in 40 patients showed QTc prolongation. ***Conclusion*:** In our study Diastolic dysfunction was the most common cardiac abnormality found on echocardiography. Apart from conventional complications of cirrhosis, cardiac abnormalities are frequently present in patients with cirrhosis of liver. Which will adversely affect morbidity and mortality in these patients.

Keywords: Cardiac abnormalities, Cirrhosis of Liver, Diastolic Dysfunction.

INTRODUCTION

Cirrhosis is defined as diffuse disruption of the normal architecture of the liver with fibrosis and nodule formation. The most common cause of cirrhosis include intake of excess alcohol, viral hepatitis, Non-alcoholic steatohepatitis (NASH) and autoimmune diseases.

There are significant secondary effect of cirrhosis on cardiac, pulmonary and renal systems. The hyperdynamic circulation in patient with cirrhotic disease was described 60 years ago [1]. Successive experimental and clinical studies have lent support to an underlying cardiac dysfunction [2-4].

This syndrome has been termed cirrhotic cardiomyopathy includes combination of reduced cardiac contractility with systolic and diastolic dysfunction and electrophysiological abnormalities.

Systolic incompetence can be demonstrated by pharmacological or physical stress and has been recently implicated in the development of renal failure in advanced disease [5].

Diastolic dysfunction in cirrhosis may reflect ventricular hypertrophy, altered collagen structure and it seems it is related to prognosis of the patient [6, 7].

The electrocardiographic QT interval is prolonged in about half of the cirrhotic patients and may be related to the patient's clinical characteristics and survival [8].

This study was planned to find out cardiac abnormalities present in the patients with cirrhosis of liver.

MATERIALS AND METHOD

This is a retrospective study done at Department of General Medicine, Mandya Institute Of medical Sciences (MIMS), Mandya among patients admitted with Cirrhosis of liver. 100 patients admitted with cirrhosis of liver are included in this study. 2D ECHO reports, ECG obtained from case sheets from hospital record, data entered into MS Excel sheet and analysed.

RESULTS

100 patients were included in the study. The average age of the patients with cirrhosis was 47.33.cirrhosis of liver due to alcohol were 94 patients and non alcoholic cirrhosis were 6. It included 91 Male and 9 female patients Table-1.

Out of hundred cirrhosis patients, 43 Patients had diastolic dysfunction and 19 patients had systolic dysfunction on echocardiography. 26 patients had dilated cardiomyopathy, 4 patients had mitral regurgitation, 5 patients had atrial fibrillation, 3 patients had RV dysfunction with pulmonary hypertension, ECG in 40 patients showed QTc prolongation Figure-1.

Table-1: Patient variables

Average age (years)	**47.33**
Male	91
Female	9
Non alcoholic cirrhosis	6
Alcoholic cirrhosis	94

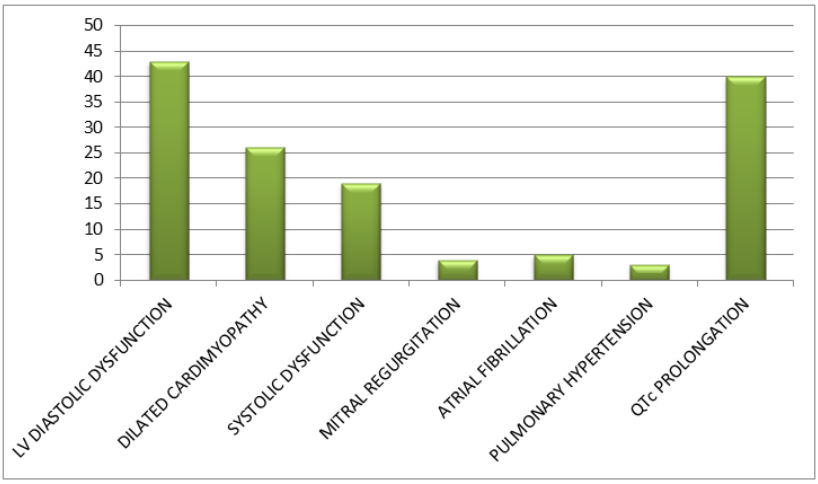

Fig-1: Cardiac abnormalities in patients with cirrhosis

DISSCUSION

Cirrhosisis one of the leading cause morbidity and mortality in alcoholics. Cirrhotic cardiomyopathy includes combination of reduced cardiac contractility with systolic and diastolic dysfunction and electrophysiological abnormalities.

A retrospective study was conducted to identify the common cardiac abormalities in patients with cirrhosis of liver. In the study we found that 43% of the patients had LV Diastolic Dysfunction which match similar studies by A. Salari *et al*., [9] and L. Achecar *et al*., [10] in which they found LVDD to be in 51% and 50% respectively.

In the study we found that 40% of the patient had QTc prolongation which match similar studies Bernardiet al.[8]and Shweta Patil *et al*., [11] in which they found QTc prolongation to be 46.8% and 38.33%respectively. QTc prolongation predicts severe arrhythmias and sudden death.

Cardiac dysfunction is a common complication of advanced cirrhosis that can make a variety of disturbances, specially QT interval prolongation and diastolic dysfunction. Duration of disease, increased age, and severity of cirrhosis can increase the severity of diastolic dysfunction.

CONCLUSION

In our study Diastolic dysfunction was the most common cardiac abnormality found on echocardiography. Apart from conventional complications of cirrhosis, cardiac abnormalities are frequently present in patients with cirrhosis of liver. Which will adversely affected morbidity and mortality in these patients. Due to diagnostic difficulties in Cirrhotic Cardiomyopathy, the increased awareness is important in preventing the complications of cirrhotic cardiomyopathy. More acute interventional cardiac studies may be promoted for early detection of cardiomyopathy secondary to cirrhosis.

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