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"STUDY OF THE PREVALENCE, CLINICAL AND ECHOCARDIOGRAPHIC PROFILE AND OUTCOME OF PATIENTS WITH CARDIOMYOPATHY"

Internal Medicine

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ABSTRACT

INTRODUCTION: Cardiomyopathy is a primary disorder of the heart muscle that causes abnormal myocardial performance and is not the result of disease or dysfunction of other cardiac structures. cardiomyopathies are a heterogeneous group of diseases, but they are now classified under a new WHO/ISFC classification system. Current diagnosis and treatment of dilated cardiomyopathies varies somewhat among the various types, but the cornerstone of medical management is similar in most cases. In view of the high prevalence of chronic heart failure and underlying dilated cardiomyopathy and the lack of data on DCM, this study was undertaken. The electrocardiographic and echocardiographic profile was also evaluated in the current study.

AIMS & OBJECTIVES: To study the clinical, electrocardiographic and echocardiographic profile of the patients with cardiomyopathy.

MATERIALS & METHODS: Patients admitted with symptoms and signs of heart failure (Clinically suspected and echocardiography proven) in our tertiary care centre and attending out patient department.

OBSERVATIONS & RESULTS: All the patients presented with exertional dyspnoea. Pedal swelling was seen in 84.29% of subjects, constituting the second most common symptom followed by palpitation in 74.29% of patients. History of chest pain was seen in 35.71% of subjects followed by abdominal pain (25.71%) and syncope (1.43%).

DISCUSSION: In our study, dilated cardiomyopathy was predominantly seen in the elderly population (42.86%). Out of total 100 subjects, males comprised 64.3% and females 35.7% and mean age was 54.28 + 18. Most common type of cardiomyopathy was Dilatedcardiomyopathy (92.86%) followed by Hypertrophic cardiomyopathy (4.28%) and Restrictive cardiomyopathy (2.86%).

KEYWORDS

INTRODUCTION

Cardiomyopathies are a heterogeneous group of diseases, but they are now classified under a new WHO/ISFC classification system. The earlier definition of cardiomyopathy was one of a primary heart muscle disorder of "unknown cause". It was considered a diagnosis of exclusion. The 1980 WHO committee reserved the term cardiomyopathy for myocardial diseases of unknown cause. Dilated cardiomyopathy accounts for upto 25% of all cases of CHF. The incidence of DCM is reported to be 5 to 8 cases per 1,00,000 population per year. It occurs 3 times more frequently in males as compared to females. It is also more common in blacks.[1]

Exact epidemiological data on dilated cardiomyopathy in India are lacking. Given the high prevalence of chronic heart failure in the country and the increasing use of echocardiography, the incidence of dilated cardiomyopathy is increasing. With the rapid advancement in molecular genetics and uncovering of underlying etiologies, DCM is being recognized as a specific diagnosis and not one of exclusion. In the US, the vast majority of the cases of HF are caused by cardiomyopathy. Dilated cardiomyopathy is the most common indication for cardiac transplantation in the west.[2,3]

In view of the high prevalence of chronic heart failure and underlying dilated cardiomyopathy and the lack of data on DCM, this study was undertaken. The electrocardiographic and echocardiographic profile were also evaluated in the current study.[4]

AIMS & OBJECTIVES

1. To study the clinical profile of patients with cardiomyopathy.
2. To study the electrocardiographic and echocardiographic profile of patients with cardiomyopathy.
3. To study outcome in cardiomyopathy patients.

MATERIAL & METHODS

A total of 100 patients were studied in tertiary care centre, which included a thorough clinical evaluation and appropriate investigations like echocardiography, chest radiography and electrocardiography. Other relevant investigations pertinent to certain cases like ischemic cardiomyopathy, diabetic cardiomyopathy, alcohol cardiomyopathy, etc included coronary angiography, hemoglobin blood glucose, HbA1C, liver function tests, etc.

Source of data:
Patients admitted with symptoms and signs of heart failure (Clinically suspected and echo cardiography proven) in our tertiary care centre and attending out patient department.

Sample size :
Total 100 patients of cardiomyopathy were taken for the study.

Study subjects :
All patients who fulfilled the inclusion criteria.

Study design :
Prospective observational study

Study period : 2 years

INCLUSION CRITERIA –
Clinical criteria:
Patients with symptoms and signs of heart failure attending out patient department or admitted in tertiary care center.

Patients who gave written informed consent.
Age >14 years.

ECG criteria:
Left ventricular hypertrophy was defined as per Sokolows criteria 146,147 as R-wave in V5 or V6 + S-wave in V1 > 35 mm.

ECHO criteria of DCM143
- Left ventricular ejection fraction <45%
- Left ventricular end diastolic dimension >3 cm/ body surface area.
- Global hyokinesia.
- Dilatation of all the chambers of heart.

ECHO criteria of HCM139
- LVOT gradient > 30 mm of Hg at rest
- Asymmetrical septal hypertrophy
- Systolic anterior motion of mitral valve
- Apical hypertrophy

Exclusioncriteria:
- Valvular heart disease

- Congenital heart disease
- Patient who did not gave written informed consent to participate in the study.

OBSERVATIONS & RESULTS

Out of 100 patients included in this study, maximum number of patients belonged to age group of > 60 years (42.86%) followed by age group of 45 to 59 (31.43%). In our study, 64.29% patients were male, while 35.71% patients were female. There was male to female ratio 1.8:1.

This study found that dilated cardiomyopathy (92.86%) was most common type of cardiomyopathy followed by hypertrophic cardiomyopathy (4.28%), restrictive cardiomyopathy (2.86%).

Out of 100 patients of DCM, 65 were male, while 35 were female.. Coronary artery disease was the commonest risk factor seen in 28.57% of the patients, followed by diabetes mellitus (20%) and alcohol (20%), followed by hypertension (15.71%), 6 patients had thyroid disease, 4 had connective tissue disorder (SLE, SS) , 4 had neuro muscular dystrophy (DMD, LGMD) and 10 patients had no risk.

All the patients presented with exertional dyspnoea. Pedal swelling was seen in 84.29% of subjects, constituting the second most common symptom followed by palpitation in 74.29% of patients. History of chest pain was seen in 35.71% of subjects followed by abdominal pain (25.71%) and syncope (1.43%).

In dilated cartiomyopathy basal crepitations and raised JVP were seen in 86.15% of the subjects. Pedal edema was present in 84.62% Gallop was seen in 52.31%. Hepatomegaly was seen in 38.46% of our patients.

In dilated cardiomyopathy the mean LV ejection fraction was 25.63+7.27. The mean LV end diastolic diameter was 60.22+5.42. The mean LV end systolic diameter was 49.17+7.16. Global hypokinesia and dilatation of all 4 chambers were seen in all the patients. In our study 89.23% had mitral regurgitation, 75.38% had tricuspid regurgitation and 3.07% had aortic regurgitation. Pericardial effusion was seen in 18.46% of patients and pulmonary hypertension seen in 18.46% of patients.

DISCUSSION

In our study, dilated cardiomyopathy was predominantly seen in the elderly population (42.86%). Out of total 100 subjects, males comprised 64.3% and females 35.7% and mean age was 54.28 + 18. Mean age and sex distribution of our study was comparabl1e to all other studies.

Teple et al[5] studied all types of cardiomyopathy, in his study 76.1% were male, 24.9% were females with mean age of 45.16 +13 years. In Hoskatti[6] study, out of total 30 subjects, males comprised 56.6% and females 43.3%, with mean age 56.88 ± 16 years. In Rithin et al[7] study, found that 56.7% were male patients and 43.3% were female patients with mean age of 58+13 years. In NM Ammash[8] study, out of total 94 subjects, males comprised 39.36%and females 60.64% with mean age 64+10.98 years. In Kamble et al[9] study (2017), out of total 50 subjects, males comprised 60% and 40% females.

In our study, out of 100 patients, 28 patients were ischemic cardiomyopathy because they had myocardial infarction in past (28.57%), 28 patients had diabetes, 23 had hypertension, 25 were alcoholic, 8 were in peripartum period, 2 patients had HIV, 2 had thyroid disease, 2 patients had CTD(SLE,SS), 2 had NMD (DMD, LGMD) and 5 patients had no risk. He had excluded ischemic cardiomyopathy in his study and he had not taken HIV, Thyroid diseases, CTD and NMD as a risk factors. In our study, we included ischemic cardiomyopathy and hence maximum number of patients (28.6%) they had CAD as a risk factor.

Echocardiographic profile The mean LV ejection fraction in our study group was 25.63. The mean LV end diastolic diameter was 60.22. The mean LV end systolic diameter was 49.17. This was similar to that in all the other studies.[4,5,6,7] In Hoskatti et al[6] the mean LV ejection fraction was 34.36%, mean LV end diastolic diameter was 5.42 cm. The mean LV end systolic diameter was 4.47 cm.LV clot was seen in 3.3 % of patients and pericardial effusion was seen in 6.6 % of patients.

Left ventricular clot was seen in two patients (1.54%). Pericardial effusion was present in 18.46% of our patients. Both these results were comparable to other studies. [4,5,6,7] Mitral regurgitation was seen in 89.23% of our patients comparable to that in other study groups. Mitral regurgitation (89.23%) was more commonly seen compared to tricuspid regurgitation (75.38%). This was due to large proportion of patients with ischemic dilated cardiomyopathy and severe LV dysfunction compared to non ischemic cardiomyopathy. AR was seen in 3.07% of patients. Mitral and tricuspid regurgitation in DCM are secondary to annular ring dilatation.

Most common type of cardiomyopathy is Dilated cardiomyopathy followed by Hypertrophic cardiomyopathy and Restrictive cardiomyopathy. Dilated cardiomyopathy is common in the elderly and middle aged males and etiology varies with age. The most common type of dilated cardiomyopathy is ischemic. The most common clinical presentation is biventricular failure. Chest radiograph showed cardiomegaly in all patients of DCM. The common abnormalities on ECG of dilated cardiomyopathy consist of sinus tachycardia, LBBB and ventricular ectopics. ECG feature of HCM patients shows T wave inversion in V2-V6 and in RCM patients, atrial fibrillation is most commonly seen. Echocardiography revealed reduced ejection fraction and global hypokinesia universally. LVOT Obstruction, asymmetrical septal hypertrophy, systolic anterior motion of mitral valve and apical hypertrophy were the ECHO findings of HCM patients while biatrial dilation and diastolic dysfunction is seen in RCM patients.

The data in present study is just the tip of iceberg. A prospective study would undoubtedly show a higher frequency. More precise data would, however, require a population study based on an echocardiographic evaluation with subsequent coronary angiography and histological examination of biopsy specimens in cases of suspected cardiomyopathy. To conclude, cardiomyopathy is a disorder with various clinical presentation and at time remains asymptomatic for long period of time. It has various etiologies and cardiomyopathy also mimics with number of other cardiovascular conditions some of which if diagnosed correctly has excellent prognosis. Our study gives idea about common clinical presentation of cardiomyopathy, their electrocardiographic and echocardiographic findings which is also a cornerstone in diagnosis.

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