

**Research Article**

A Study to assess clinical and echocardiographic profile of patients with dilated cardiomyopathy

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Abstract

Introduction: *Cardiomyopathy is a primarily disorder of the heart muscle that causes abnormal myocardial performance and is not the result of disease or dysfunction of other cardiac structures. It is an important cause of heart failure and accounts for up to 25% of all cases of heart failure.*

Materials and Methods: *A total 50 patients who were admitted at tertiary care teaching institute of North India and fulfilled inclusion criteria were evaluated by history, clinical examination, Electrocardiograph (ECG) and Echocardiography.*

Results: *Majority of the patients were above the age of 60 years of which males comprised 56% and females comprised 44%. The clinical profile of patients included signs and symptoms of biventricular failure (80%) followed by left ventricular failure (16%). Echocardiography showed reduced ejection fraction and Global hypokinesia and dilatation of all four chambers were seen in all the patients. The most common type of DCM was ischemic comprising of 33% of all cardiomyopathies followed by diabetic cardiomyopathy (24%) and peripartum cardiomyopathy (18%). Idiopathic DCM was seen in 14% of cases. While alcoholic cardiomyopathy seen in 6%. Miscellaneous group included 6% of cases. Abnormalities of pulse rate rhythm included ectopic beats (53%), tachycardia (46%), atrial fibrillation (13%) and bradycardia (3%).*

Chest x-ray, PA view showed cardiomegaly in all the cases while some patients had pleural effusion (20%). Electrocardiographic profile revealed ventricular ectopics (46%), sinus tachycardia (40%), Left bundle branch block, LBBB, (40%), right bundle branch block, RBBB, non specific ST-T changes (26%) and atrial fibrillation (13.3%). Echocardiography showed reduced ejection fraction and global hypokinesia in all the patients

Conclusion: *Dilated cardiomyopathy is common and an important cause of heart failure in the elderly and middle aged population and the etiology varies with age. Biventricular failure was the most common clinical presentation (80%) followed by left ventricular failure (16%) and then right heart failure (3%). The most common type was Ischaemic.*

Introduction

Cardiomyopathy is a primarily disorder of the heart muscle that causes abnormal myocardial performance and is not the result of disease or

dysfunction of other cardiac structures. It is an important cause of heart failure and accounts for up to 25% of all cases of heart failure. Dilated Cardiomyopathy (DCM) represents the final

common pathway produced by a variety of ischaemic, toxic, metabolic, and immunological mechanisms damaging the heart muscle. DCM is an important cause of heart failure and accounts for up to 25% of all cases of heart failure. The incidence of DCM is reported to be 5-8 cases per 100,000 populations per year. It occurs 3 times more frequently in males as compare to females.

Aims and Objectives

To study the Clinical, Electrocardiographic and Echocardiographic profile of patients with dilated cardiomyopathy.

Materials and Methods

A total 50 cases of DCM were selected as per inclusion and exclusion criteria from medicine ward of a tertiary care teaching institute.

Study design: This is a cross-sectional study.

Setting: This study was conducted from 1 August 2017 to 1 April 2018(8 Months) in a tertiary care teaching institute of North India.

Inclusion criteria

Patients with symptoms and signs of heart failure were included in this study.

Exclusion criteria

Valvular heart diseases.

Congenital heart diseases.

A total 50 patients were selected as per inclusion and exclusion criteria. Selected Patients were evaluated clinically, ECG and Echocardiography with all other necessary investigations required for study was done.

Observations and Results

Table 1: Demographic profile Age group (years) n (%) Male and Female.

Age Group(years)	Male	Female	Total
1-19	0	2	2
20-30	3	3	6
40-59	6	6	12
>60	20	10	30
Total	28(56%)	22(44%)	50

Majority of the patients were above the age of 60 years of which males comprised 56% and females comprised 44%.

Table 2 Symptoms

Symptoms	n(%)
Dyspnoea	50(100)
Palpitations	28(56)
PND	60(60)
Orthopnoea	26 (52)
Chest pain	20(40)
Pedal oedema	35(70)
Cough	30(60)
Abdominal pain	16(32)
Easy fatigability	41(82)
Syncope	8 (16)
Asymptomatic	0(0)
Miscellaneous	3(6)

PND-Paroxysmal nocturnal dyspnoea.

The clinical profile of patients included symptoms of biventricular failure (80%) followed by left ventricular failure(16%).

Table 3 Signs

Signs	n(%)
Basal crepitations	47(94)
Raised JVP	36 (72)
Hepatomegaly	23 (46)
Pedal oedema	38 (76)
LV S3	23 (46)
RV S3	10 (20)
Pansystolic Murmur at apex(MR]	23 (46)
Pansystolic Murmur at tricuspid area	5 (10)
SBP<100mm Hg	23(26)

JVP-Jugular venous pressure, SBP-Systolic blood pressure, LV-Left ventricular, RV-Right ventricular.

The clinical profile of patients included signs of biventricular failure (80%) followed by left ventricular failure(16%).

Table 4 Heart Failure

Compartment involved	n(%)
LVF	8 (16)
RVF	2 (3)
Biventricular	40(80)

LVF-Left Ventricular failure, RVF-Right ventricular failure.

The clinical profile of patients included biventricular failure(80%) followed by left ventricular failure(16.6%).

Table 5 Echocardiographic Profile

Parameter	Range(%)	n(%)
Ejection fraction	40-45	8(16)
	30-39	18(36)
	20-29	20(40)
	<20	3(6)
LVEDD	4.5-49cm	6(13)
	5.0-5.9cm	17(33)
	>6cm	26(53)

LVSD	3.4-4.0cm	10(20)
	4.0-4.9	16(32)
	>5cm	7(14)
MR		37(74)
TR		5(10)
Pericardial effusion		3(6)

TR (Tricuspid regurgitation),MR(Mitral Regurgitation), LVEDD (Left ventricular end-diastolic diameter), LVESD (Left Ventricular end-systolic diameter).

Global hypokinesia and dilatation of all four chambers were seen in all the patients. The mean LV ejection fraction was 30.87%. The LV ejection fraction was <20% in 6% of patients. It was between 20 and 29% in 40%, between 30% and 39% in 36% of patient, and between 40 and 45% in 16% of patients. The mean LV end diastolic diameter was 5.86cm with majority, i.e., 53% of subjects having LV end-diastolic diameter more than 6cm. The mean LV end-diastolic diameter was 4.75cm with majority of patients (66%) having end systolic diameter more than 5cm.

Table 6 Etiological distribution

Cardiomyopathy	n(%)
Ischemic	16(33)
Idiopathic	7(14)
Diabetic	12(24)
Peripartum	9(18)
Alcoholic	3(6)
Miscellaneous	3(6)

The most common type of DCM was ischemic comprising of 33% of all cardiomyopathies followed by diabetic cardiomyopathy (24%) and peripartum cardiomyopathy (18%). Idiopathic DCM was seen in 14% of cases. While alcoholic cardiomyopathy seen in 6%. Miscellaneous group included 6% of cases.

Abnormalities of pulse rate rhythm included ectopic beats (53.3%), tachycardia (46.6%), atrial fibrillation (13.3%) and brady cardia (3.3%).

Chest x-ray, PA view showed cardiomegaly in all the cases while some patients had plueral effusion (20%).

Electrocardiographic profile revealed ventricular ectopics (46%), sinus tachycardia (40%), Left bundle branch block, LBBB, (40%), right bundle branch block, RBBB, non specific ST-T changes (26%) and atrial fibrillation (13.3%).

Conclusion

Dilated cardiomyopathy is common and an important cause of heart failure in the elderly and middle aged population and the etiology varies with age. Biventricular failure was the most common clinical presentation (80%) followed by left ventricular failure (16%) and then right heart failure (3%). The most common type was Ischaemic.

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References

1. Libby P, Braunwald E, A Braunwald's Heart Disease-Text book of Cardiovascular Medicine: The Cardiomyopathies 7th edition.
2. Kannel WB. Prevalence of congestive Heart failure in Framingham Heart study subjects. *Circulation* 1994;13:s107-12.
3. Rabbani M, Zaheer M, Shirazi N. Clinical ECG Echocardiographic profile of patients with Dilated Cardiomyopathy. *Indian J Cardio* 2005;8:25-9.
4. Vijayaraghwan G. API Text book of Medicine Disorders of myocardium. 7th edition page-490-1.
5. Dennert R, Heymans S. Dilated Cardiomyopathy possible triggers and treatment strategies. *Neth Heart* 2012;20:332-5.