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Study of Clinical Profile of Cardiomyopathy at Tertiary Care Centre

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Abstract: Breathlessness and Paroxysmal Nocturnal Dyspnoea (PND) is a common cause of emergency visit in our country. Cardiomyopathy is among most common cause of Breathlessness and Paroxysmal Nocturnal Dyspnoea (PND). The disease is often misdiagnosed and mistreated. There are very few studies on Cardiomyopathies from India. To evaluate clinical and demographic profile of patients with cardiomyopathy**.** We undertook this study in a tertiary care Medical College of North India. It is retrospective observational study of 80 patients. Routine echocardiography was done to diagnose cardiomyopathy. Patients with DCM were then evaluated as per protocol. We had a total of 80 patients in our study with a male: female ratio of 50:30. Most patients were aged over 40 years. The most common type of cardiomyopathy is Idiopathic CMP.
Keywords: Cardiomyopathy, Breathlessness, PND (Paroxysmal Nocturnal dyspnoea).

INTRODUCTION

The term cardiomyopathy, which was used for the first time in 1957, refers to a complex group of heart muscle diseases with multiple etiologies and heterogeneous phenotypic expression [1]. In 1980, the World Health Organization (WHO) reserved the term cardiomyopathies for "heart muscle diseases of unknown cause" to distinguish cardiomyopathy from cardiac dysfunction due to known cardiovascular entities such as hypertension, ischemic heart disease, or valvular disease [2].

In 1995 WHO/International Society and Federation of Cardiology (ISFC) Task Force on the Definition and Classification of the Cardiomyopathies expanded the classification to include all diseases affecting heart muscle and to take into consideration etiology as well as the dominant pathophysiology [3]. In this 1995 classification, the cardiomyopathies were defined as "diseases of the myocardium associated with cardiac dysfunction." The American Heart Association (AHA) expert consensus panel proposed definition of cardiomyopathies is as follows: “Cardiomyopathies are a heterogeneous group of diseases of the myocardium associated with mechanical and/or electrical dysfunction, which usually (but not invariably) exhibit inappropriate ventricular hypertrophy or dilatation, due to a variety of etiologies that frequently are genetic. Cardiomyopathies are either confined to the heart or are part of generalized systemic disorders, and often lead to cardiovascular death or progressive heart failure–related disability.” This definition of cardiomyopathies, similar to that reported by the European Society of Cardiology (ESC), under the auspices of the Working Group on Myocardial and Pericardial Diseases, excludes myocardial involvement secondary to coronary artery disease, systemic hypertension, and valvar and congenital heart disease.

The prevalence of DCM in the general population is unknown. . In a study from Europe, the incidence of DCM was found to be 6.95/100 000/year.[4]Diabetes, alcoholism, neurological disorders and congenital cardiac diseases were the main associated comorbidities in DCM patients in this study. At least 25% of patients in Western populations have evidence for familial disease with predominantly autosomal dominant inheritance [5-7].

Exact prevalence of DCM in India is not known because studies regarding DCM are very rare from India. A study on pediatric patients with DCM found a very high incidence of different viral infections like CMV and Coxsackie [8]. However; similar risk factors for Indian adults are largely unknown. One study evaluated the role of inheritance in Indian DCM patients [9].

Reports focused on dilated cardiomyopathy from north India are very rarely documented. Therefore, the purpose of this study is to know the clinical features and demographic profile of patients with dilated cardiomyopathy from north India.

Aims & Objectives

To study the clinical profile and outcome of patients with cardiomyopathies

MATERIALS & METHODS

This retrospective observational study was carried out in the Department of Cardiology GRMC Gwalior, from June 2016 to march 2018. This study consist of 80 patients, with age >15 years and admitted in C.C.U and ward of cardiology department. All eligible subjects underwent relevant investigations including echocardiogram, Doppler study, electrocardiogram, chest radiogram. Proforma included age gender presenting complaints, past history, history of medications, clinical examination, and laboratory investigations. A two-dimensional echocardiographic evaluation was performed according to the standards of American Society of Echocardiography in all patients using a VIVID T8 ECHO MACHINE.

Echocardiographic diagnostic criteria for cardiomyopathy

Dilated Cardiomyopathy was diagnosed if enlarged left ventricle with decreased systolic function as measured by left ventricular ejection fraction characterizes dilated cardiomyopathy. Systolic failure is more marked than the frequently accompanying diastolic dysfunction, (Echocardiography criteria: Left ventricular ejection fraction<45%; Left ventricular end diastolic dimension > 3 cm / body surface area; Global hyokinesia; dilatation of all the chambers of heart in absence of valvular heart disease and congenital heart disease.)

Hypertrophic cardiomyopathy was labeled by features of marked left ventricular hypertrophy in the absence of other causes, such as hypertension or valve disease without LVOT obstructive gradient.

Hypertrophic obstructive cardiomyopathy was diagnosed by feature of marked left ventricular hypertrophy in the absence of other causes, such as hypertension or valve disease with LVOT obstructive gradient.

Restrictive Cardiomyopathy was diagnosed by presence of abnormal diastolic function, with mildly decreased contractility and ejection fraction (usually >30–50%). Both atria are enlarged.

Peripartum cardiomyopathy was diagnosedby features of dilated cardiomyopathy with onset in the third trimester of pregnancy or in the first five months postpartum.

Alcohol associated cardiomyopathy was labeled if features of dilated cardiomyopathy in patient with chronic alcoholic with potentially reversible with abstinence from alcohol use.

All above criteria excluded the valvular, congenital and hepertensive heart disease [10-13].

Exclusion criteria

Patients were excluded from the study if they have one or more of the following:

- Systemic hypertension (>140/90mm Hg)
- Evidence of coronary artery diseases
- Pericardial diseases
- Congenital heart disease
- Valvular heart diseases
- Cor pulmonale

RESULTS

The following section shows the results of the analysis of 80 patients with dilated cardiomyopathy

Table-1: Age and Sex Wise Distribution

Age	Male (%,n=80)	Female (%,n=80)	Total (%)
15-19	2(2.5%)	-	2(2.5%)
20-39	8(10%)	8(10%)	16(20%)
40-59	22(27.5%)	10(12.5%)	32(40%)
>60	18(22.5%)	12(15%)	30(37.5%)
Total	50(62.5%)	30(37.5%)	80(100%)

A total of 80 patients were analyzed, of which 62.5% (50) were male and 37.5%% (30) were females with male to female ratio of 1.67:1. Out of these 80 patients 62(77.5%) patients are from the 40 plus age group.

Table-2: Presenting features

Presenting Symptom	Number (%)
Breathlessness	80(100%)
Pedal edema	56(70%)
PND	50(62.5%)
Cough	32(40%)
Palpitation	32(40%)
Abdominal pain	16(20%)
Easy fatigability	16(20%)

The chief presenting complaint of DCM was breathlessness. All 80(100%) patients had breathlessness as presenting symptom, followed by pedal edema 56(70%), PND 50(62.5%), cough 32(40%), palpitation 32(40%), abdominal pain 16(20%) and easy fatigability 16(20%).

Table-3: Etiological classification of DCM

CARDIOMYOPATHY	MALE	FEMALE	TOTAL(n=80)
Idiopathic	25	16	41(51.25%)
Diabetic	10	6	16(20%)
Alcohol	10	-	10(12.5%)
Peripartum	-	5	5(6.25%)
HOCM	5	3	8(10%)

Out of total 80 patient analysed 41(51.5%) had Idiopathic DCM followed by diabetic CMP 16(20%), alcohol 10(12.5%), peripartum 5(6.25%) and HOCM 8(10%). Idiopathic DCM was most common cause of DCM in both male and female .In male patients second most common cause was shared by diabetic CMP and Alcoholic CMP. While second most common cause was Diabetic CMP in female followed by Peripartum CMP. HOCM was present in 8(10%) patients

DISCUSSION

In present study, clinical profile of patients with dilated cardiomyopathy was evaluated. Out of 80 subjects, males comprised 50(62.5%) and females 30(27.5%) patients. This finding is similar to other studies [14, 15]. The ratio of male to female patients in the present study was found to be 1.67:1 which was supported by 1.4:1 by various other studies [14, 15]. However, somewhat higher male-female ratio 4:1 is reported by Kuhn [16].

The preponderance of males could be explained on the basis of hormonal variations and genetic background, apart from differential life styles. Probably male hormones confer greater vulnerability to factors altering membrane integrity and permeability [17, 18] as it is well established that estrogens are cardio-protective [19].

Breathlessness was the commonest symptom noticed in all patients followed by PND and pedal edema. Similar type of studies by Ahmed *et al*. [20] and Jain *et al.* [21] have shown that breathlessness was present in almost all patients whereas easy fatigability was present in around three quarters of the patients. In their studies PND was present in almost half of the patients which are similar to the finding from our study. A recent study by Ganesh *et al*. [22] also shows that most patients presented with breathlessness (100%), edema (100%) and PND (58%).

In the present study we could not findout any cause/risk factor for development of CMP in almost half patient 41(51.15%). The most common identifiable causes for development of CMP in our study were Diabtes 16(20%), Alcohol 10(12.5%), Peripartum 5(6.25%) and HOCM 10(12.5%).These observations are similar to Narmani G *et al*.[23].

CONCLUSION

Idiopathic cardiomyopathy is the most common type of cardiomyopathy. DCMP is common in middle aged and elderly population. It is more common in males. Trans-thoracic echocardiogram is an important, low cost, simple and noninvasive modality of initial investigation.

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