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A clinical study of Dilated Cardiomyopathy in a Tertiary Care Hospital

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Abstract **Original Research Article**

Dilated cardiomyopathy is a heterogeneous group of disorders mainly affect young adult populations. Identifying the cause and ensuing treatment are still important challenges in these cases. Methods: This prospective cross-sectional study was conducted in the department of General Medicine in Govt Medical College and Hospital Mahaboobnagar, Telangana. Out of the 40 patients, two patients were lost during the study and total of n=38 patients were included. Dilated cardiomyopathy was diagnosed if enlarged left ventricle with decreased systolic function as measured by left ventricular ejection fraction. The Echocardiographic criteria for decreased systolic function with reduced ejection fraction <45% left ventricular end diastolic dimension > 3cm body surface area with global hypokinesia dilatation of all the chambers of the heart in absence of valvular disease. Results: The most common presenting symptom was Dyspnoea found in n=23 (60.53%) of the patients followed by palpitations n=19 (50%). most of the patients n=16(55.26%) in NYHA class III group n=10(26.32%) in class II and n=7 (18.42%). The mean values of LV ejection fraction were 31.2%. The left ventricular ejection fraction was > 40% in 10 patients and in between 30-39% in 20 patients in 8 patients the EF was < 20%. Conclusion: Dilated cardiomyopathy is one of the important causes of heart failure in this study it was commonly found in the male in the middle age group. The most common etiology was idiopathic the secondary cause includes alcoholism followed by diabetes and peripartum. Early recognition and treatment ensures better prognosis and prevents mortality.

Keywords: Dilated Cardiomyopathy (DCM), Tertiary care Hospital.

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INTRODUCTION

Dilated cardiomyopathy is defined as the Left Ventricular dilatation with systolic dysfunction in the absence of coronary disease or abnormal loading conditions (such as hypertension or valvular disease) proportionate to the degree of left ventricular impairment [1]. The idiopathic dilated myocardiopathy is more common than the other forms of cardiomyopathy. It is represented by ventricular dilatation and sometimes by atrial dilatation. The wall thickness may be normal or reduced and ultimately it leads to systolic dysfunction [2]. Based on the diagnostic norms the annual incidence reported in various studies is between 5-8 cases per one lakh population [3-6]. The prevalence, cause, and prognosis of Dilated Cardiomyopathy [DCM] are different in different parts of the world owing to the variety of factors, for example, the prevalence of DCM in Africa and Latin America is twice that of the other western countries [7]. Males have a 2.5 times higher risk of DCM as compared to age-matched females which are generally unexplored by the socioeconomic factors, alcohol consumption or other variables [3]. The clinical pictures vary widely among the patients and some of the patients may have no obvious symptoms and other patients may progress to refractory heart failure and systolic heart failure is more marked than diastolic dysfunction [8]. There are many cases where there is associated found bet DCM and hypertension or use of drugs like beta-adrenergic agonists or alcohol consumption [9, 10]. Therefore the important challenge when dealing with DCM is to identify the cause and ensure differentiation from the secondary of potentially reversible forms of myocardial disease. This will ensure proper treatment and improvement of symptoms and chances of survival of the individual. With this background, we in the present study tried to evaluate the patients presenting to our hospital with dilated cardiomyopathy and the clinical outcome of management of such patients.

MATERIAL AND METHODS

This prospective cross-sectional study was conducted in the department of General Medicine in Govt Medical College and Hospital Mahaboobnagar, Telangana. The institutional Ethical Committee Permission was obtained for the study after following the procedure laid down by the committee. Written consent was obtained from all the patients included in the study. A total of 40 patients with the diagnosis of Dilated Cardiomyopathy were included in the study based on the inclusion and exclusion criteria. Out of the 40 patients, two patients were lost during the study and total of n=38 patients were included. Inclusion criteria were patients diagnosed with signs and symptoms of heart failure were included. Dilated cardiomyopathy was diagnosed if enlarged left ventricle with decreased systolic function as measured by left ventricular ejection fraction. The Echocardiographic criteria for decreased systolic function with reduced ejection fraction <45% left ventricular end diastolic dimension > 3cm body surface area with global hypokinesia dilatation of all the chambers of the heart in absence of valvular disease. Exclusion criteria were patients with congenital heart diseases, coronary heart disease, and valvular heart disease. A complete history and clinical examination of all the patients was performed including the investigations like CBP, FBS, Liver function tests, Renal Function Tests, Chest X-ray, ECG and 2D echocardiography with color Doppler. The results were recorded in MS office excel and analyzed using SPSS version 17 software for windows.

RESULTS

A total of n=38 patients were included in the study out of which n=28 were male and n=10 were female patients. The male to female ratio was 2.8: 1 most of the patients belong to age group of 41-45 years with n=10 (26.32%) and the next age mostly involved was n=8 (21.05%) followed by n=6 (15.78%) and the other distribution of cases age wise and sex wise is given in table 1.

Table-1: distribution of cases age wise and sex wise

Age Group (yrs)	Male	Female	Total	Percentage
21 – 25	01	00	01	02.63
26 – 30	01	01	02	05.26
31 – 35	03	01	04	10.52
36 – 40	06	02	08	21.05
41 – 45	07	03	10	26.32
46 – 50	05	01	06	15.78
51 – 55	03	01	04	10.52
> 55	02	01	03	07.89
Total	28	10	38	100

The most common presenting symptom was Dyspnoea found in n=23 (60.53%) of the patients followed by palpitation n=50% and the other common findings were oliguria n=8 (21.05%), cough n=7 (18.42%), chest pain n=2 (5.26%) and some of the non-specific symptoms were found in n=8 (21.05%) of the patients.

Table-2: Showing the presenting symptoms in the patients

Symptoms	Male	Female	Total	Percentage
Dyspnoea	17	06	23	60.53
Palpitation	12	05	19	50.00
Cough	05	02	07	18.42
Swelling in legs	01	00	01	02.63
Oliguria	06	02	08	21.05
Chest Pain	01	01	02	05.26
Non-specific	05	03	08	21.05

Basal crepitations were seen in n=23 (60.52%) of the patients followed by the presence of LV systolic S3 in n=19(50%) of the patients. The apical pan-systolic murmur in n=22(57.89%). Pedal edema was seen in n=9(23.68%), Pan systolic murmur in Tricuspid region was seen in n=2(5.26%) SBP < 100mmHg was seen in n=8(21.05%), increased JVP was seen in n=4 (10.53%) shown in table 3.

Table-3: Showing the signs in the patients of the study

Signs	Male	Female	Total	Percentage
Basal Crepitations	19	04	23	60.52
Pedal edema	07	02	09	23.68
Increased JVP	03	01	04	10.53
SBP < 100mmHg	05	03	08	21.05
LVS_3	14	05	19	50.00
Pan systolic murmur MR	19	03	22	57.89
Pan systolic murmur TR	01	01	02	05.26

In the present study, we found most of the patients n=16(55.26%) in NYHA class III group n=10(26.32%) in class II and n=7 (18.42%) in class IV no patients were in the class I category (table 4).

Table-4: showing the distribution of patients according to NYHA classification

NYHA	Male	Female	Total	Percentage
Class I	00	00	00	00.00
Class II	08	02	10	26.32
Class III	16	05	21	55.26
Class IV	04	03	07	18.42

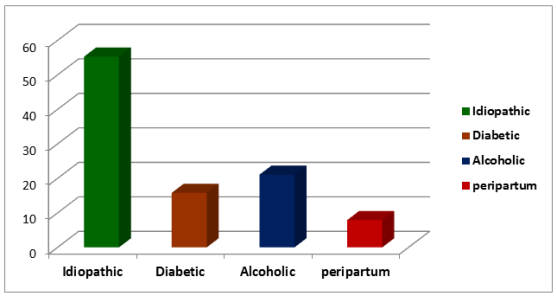
The mean values of echocardiographic parameters were analyzed in all the patients. The mean values of LV ejection fraction were 31.2%. The left ventricular ejection fraction was > 40% in 10 patients

and in between 30-39% in 20 patients in 8 patients the EF was < 20%. The mean left ventricular end-diastolic diameter was 5.66 cm. The left ventricular end systolic diameter was 4.70 cms. Global hypokinesia and dilated chambers were found in all the patients the other echocardiographic findings are shown in table 5.

Table-5: Showing the Echocardiographic findings in the patients

Echo findings	Mean ± SD
Systolic dimension (mm)	58.54 ± 3.35
Diastolic dimension (mm)	67.22 ± 2.56
Fractional Shortening (%)	07.90 ± 1.15
Ejection Fraction (%)	31.2 ± 1.56
LA diameter (mm)	36.66 ± 5.5
RV diastolic diameter (mm)	31.2 ± 3.2
EDV	189.5 ± 8.5
ESV	131.33 ± 10.5

The most common etiology of Dilated cardiomyopathy found in these patients were found to be idiopathic in n=21 (55.26%) of patients and diabetes was found in n=6 (15.79%) of patients and alcoholic etiology was noted in n=8 (21.05%) of patients and peripartum was found in n=3 (7.89%) of patients.



Graph-1: Etiology of Dilated cardiomyopathy in this study

DISCUSSION

The present study was conducted on 38 patients diagnosed with Dilated Cardiomyopathy visiting our Hospital. All the patients included in the study were adults with the Mean age of 43.5 years. The mean age of patients in one study by Jain A *et al.* was found to be 42.6± 9.1 years our results are comparable to it. Some other studies have found the mean age as 44 ± 10 years [11]. A study of the epidemiology of dilated cardiomyopathy in 107 patients by Ushasree *et al.* [12] found that most of the patients were adults. In this study, we found the male to female ratio of cases to be 2.8: 1. The male to female ratio for DCM by some studies have been found from 1.5: 1 to 2: 1. Kuhn et al; in their study have found the ratio of DCM as 4:1 [7, 13, 14]. The most common clinical sign was dyspnoea and easy fatigability in 60.53% of the patients. Ahmed *et al.* [15] found the presence of breathlessness in almost all patients and easy fatigability was present in 75% of the patients. Ganesh *et al.* [16] have shown that 100% of the patients were presented with breathlessness, edema and PND was reported in 58% of the patients. The other important signs in the present study in decreasing order were Basal crepitations, LVS3 and Pansystolic murmur in Mirtal region. Our results were comparable to results found be Praful J Dudharejia *et al.* [17]. In the present study out of 38 patients of DCM, idiopathic cause was found in n=21 (55.26%) Fuster V *et al.* [18] found idiopathic DCM in 52% of the cases which is in agreement with the results of the present study. Among the secondary causes of Alcoholic DCM was most common with n=8 (21.05%) of cases. Fowler *et al.* [19] in their study found the incidence of alcoholic DCM to be 20% closely resembling with the results of the present study. The incidence of diabetic cardiomyopathy was found to be equal to n=6 (15.79%) of cases and the peripartum cardiomyopathy was found in n=3 (7.89%) of the cases. Fuster *et al.* [18] found the incidence of peripartum cardiomyopathy to be 2.8% and Fuster V *et al.* [18] found the incidence to be equal to 8.5% our results are in agreement with Fuster V. Most of the patients in this study belonged to NYHA class III n=16(55.26%) followed by n=10(26.32%) in class II and n=7 (18.42%) in class IV no patients were in the class I category. Mukul Kumar *et al.* have found case distribution as 50%, 46.7% and 3.3% in class I, II and III respectively and no case in class IV [19]. The reason could be because of late presentation of the patients to our tertiary care hospital because patients tend to ignore the initial symptoms and seek the treatment at a later stage. In this study Doppler echocardiography showed varying degree of left ventricular dilatation and reduced ejection fraction there is global hypokinesia. The patients with volume overload tend to have larger ventricles with ventricles of spherical shape. Most of the patients were treated with beta-blockers and ace inhibitors and diuretics and there was a slight improvement in ejection fraction in all the patients.

CONCLUSION

Dilated cardiomyopathy is one of the important causes of heart failure in this study it was commonly found in the male in the middle age group. The most common etiology was idiopathic the secondary cause includes alcoholism followed by diabetes and peripartum. Early recognition and treatment ensures better prognosis and prevents mortality.

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