

**Original article:**

## **Study of Clinical Profile of Patients with Dilated Cardiomyopathy**

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**Abstract:**

**Introduction:** Cardiomyopathies are a heterogeneous group of diseases of the myocardium associated with mechanical and/or electrical dysfunction that usually (but not invariably) exhibit inappropriate ventricular hypertrophy or dilatation and are due to a variety of causes that frequently are genetic

**Methodology:** The present study was conducted on all newly diagnosed cases of dilated cardiomyopathy coming to the medicine OPD of Padmashree Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune. Established in 1996 College has a 1290 bedded well equipped own hospital, backed by a Research Centre.

**Results :** As shown in above table, majority of patients (85.0%) presented with swelling of feet. Out of 40, 13 (32.5%) had dyspnea, 12 (30.0%) had fatiguability, 21 (52.5%) had palpitations, 12 (30.0%) had chest pain and 8 (20.0%) had syncope.

**Conclusion:** It was concluded from the study that Dyspnea is invariable and present in all forty patients. Signs of failure are seen commonly in DCM. DCM characteristically has cardiomegaly on chest X-ray.

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**Introduction:**

Cardiomyopathies are a heterogeneous group of diseases of the myocardium associated with mechanical and/or electrical dysfunction that usually (but not invariably) exhibit inappropriate ventricular hypertrophy or dilatation and are due to a variety of causes that frequently are genetic.<sup>1</sup>

Cardiomyopathies are classified traditionally according to morphological and functional criteria into four categories: dilated cardiomyopathy (DCM), hypertrophic cardiomyopathy (HCM), restrictive cardiomyopathy (RCM) and arrhythmogenic right ventricular (RV) cardiomyopathy/dysplasia (ARVC/D). DCM is the most common form of heart muscle disease, comprising approximately 60% of all cardiomyopathies and characterized by left ventricular (LV) dilatation and systolic dysfunction. The dilated cardiomyopathy is often assumed as a common pathway of several cardiovascular pathologies.<sup>2</sup>

Dilated Cardiomyopathy is characterized by an enlarged left ventricle with decreased systolic function as measured by left ventricular ejection fraction. Systolic failure is more marked than the frequently accompanying diastolic dysfunction, although the latter may be functionally severe in the setting of marked volume overload.<sup>3</sup>

Heart Failure is a clinical syndrome that occurs in patients who, because of an inherited or acquired abnormality of cardiac structure and/or function, develop a constellation of clinical symptoms (dyspnea and fatigue) and signs (edema and rales) that lead to frequent hospitalizations, a poor quality of life, and a shortened life expectancy.<sup>4</sup>

**Methodology:**

The present study was conducted on all newly diagnosed cases of dilated cardiomyopathy coming to the medicine OPD of Padmashree Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune. Established in 1996 College has a 1290 bedded well equipped own hospital, backed by a Research Centre.

The period of data collection was from July 2014 to September 2016. After collection of data, the data entry forms were checked for their completeness and missing and incomprehensible data was rechecked from the respective participant profile. Data entry was done in MS Excel data sheet. The data cleaning and the retrieval of the missing data were done over a period of one month.

**. Study subjects:**

**Inclusion criteria**

- a. Age >18 Years.
- b. All Patients with Heart Failure confirmed as Dilated Cardiomyopathy on 2D ECHO Cardiographic Studies
- c. Priorly Diagnosed Dilated Cardiomyopathy Patients on treatment presenting with heart failure.

**Exclusion criteria**

- a. Patients with Acute Myocardial Infarction
- b. Patients with Dilated Cardiomyopathy secondary to Chronic Renal failure
- c. Patients with Valvular Heart Disease.

**Statistical Analysis**

Data management and analysis was done using Microsoft excel and Epi-info software. The frequency distribution and graph were prepared for the variables. The categorical variables were assessed using Pearson chi-square. The test was considered significant only if the p value comes out to be less than 0.05.

**Results:**

**Table 1: Gender-wise distribution of dilated cardiomyopathy patients**

Sex	Frequency	Percentage
Male	19	47.5%
Female	21	52.5%
Total	40	100%

As shown in above table, 19 (47.5%) dilated cardiomyopathy patients were male and 21 (52.5%) were female.

**Table 2: Distribution of dilated cardiomyopathy patients according to duration of stay**

Duration of stay	Frequency	Percentage
<2 days	8	20.0%
2-7 days	19	47.5%
>7 days	13	32.5%
Total	40	100%

Mean duration of stay was  $4.8 \pm 2.3$  days. Out of 40, 19 (47.5%) patients had to stay for 2 to 7 days. Thirteen (32.5%) patients stayed for more than 7 days and 8 stayed for less than 2 days.

**Table 3: Distribution of dilated cardiomyopathy patients according to clinical presentation**

<b>Presentation</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Dyspnea</b>	<b>13</b>	<b>32.5%</b>
<b>Fatiguability</b>	<b>12</b>	<b>30.0%</b>
<b>Palpitations</b>	<b>21</b>	<b>52.5%</b>
<b>Chest pain</b>	<b>12</b>	<b>30.0%</b>
<b>Swelling of feet</b>	<b>34</b>	<b>85.0%</b>
<b>Syncope</b>	<b>8</b>	<b>20.0%</b>

As shown in above table, majority of patients (85.0%) presented with swelling of feet. Out of 40, 13 (32.5%) had dyspnea, 12 (30.0%) had fatiguability, 21 (52.5%) had palpitations, 12 (30.0%) had chest pain and 8 (20.0%) had syncope.

**Table 4: Distribution of dilated cardiomyopathy patients according to Past Medical History**

<b>Past Medical History:</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Past History of heart failure</b>	<b>30</b>	<b>75.8%</b>
<b>Ischaemic Heart disease</b>	<b>24</b>	<b>60.0%</b>
<b>Peripheral vascular disease</b>	<b>8</b>	<b>19.3%</b>
<b>Atrial fibrillation</b>	<b>13</b>	<b>32.5%</b>
<b>Coronary artery disease</b>	<b>24</b>	<b>59.0%</b>
<b>Ventricular tachycardia/fibrillation</b>	<b>4</b>	<b>9.0%</b>
<b>COPD/asthma</b>	<b>13</b>	<b>33.0%</b>
<b>Diabetes Mellitus</b>	<b>18</b>	<b>45.0%</b>
<b>Hypertension</b>	<b>30</b>	<b>75.0%</b>
<b>Hyperlipidemia</b>	<b>15</b>	<b>38.5%</b>

Past medical history among dilated cardiomyopathy patients are shown in above table.

**Table 5: Distribution of dilated cardiomyopathy patients according to Personal History**

<b>Personal History:</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Current smoker</b>	<b>6</b>	<b>14.0%</b>
<b>Alcoholic</b>	<b>18</b>	<b>45.0%</b>
<b>Consuming Tobacco</b>	<b>5</b>	<b>12.5%</b>

As shown in above table, out of 40 patients, 18 (45.0%) had history of alcohol consumption, 6 (14.0%) were current smoker and 5 (12.5%) were consuming tobacco.

**Table 6: Findings of general examination among patients of dilated cardiomyopathy**

<b>General examination:</b>	<b>mean ± SD</b>
<b>Heart rate (beats/min) ( mean ± SD)</b>	<b>88±23</b>
<b>Respiratory rate:</b>	<b>29±7.3</b>
<b>Temperature:</b>	<b>36.0±3.8</b>
<b>Body mass index (kg/m<sup>2</sup>) ( mean ± SD) (n = 38) (242)</b>	<b>29.6±7.5</b>
<b>Systolic blood pressure (mm Hg) (mean ± SD)</b>	<b>145.4±32.3</b>

As shown in above table, mean heart rate was 88±23 beats/min, mean respiratory rate was 29±7.3 per minute and mean temperature was 36.0±3.8 degree Celsius. Mean body mass index was 29.6±7.5 kg/m<sup>2</sup> and mean Systolic blood pressure was 145.4±32.3 mm of Hg.

**Table 7: Clinical signs among patients of dilated cardiomyopathy**

<b>Clinical Signs</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Jugular Venous Distension</b>	<b>31</b>	<b>77.5%</b>
<b>Hepatojugular reflux</b>	<b>19</b>	<b>47.5%</b>
<b>S3 sound</b>	<b>5</b>	<b>12.5%</b>
<b>Murmur</b>	<b>12</b>	<b>30.0%</b>
<b>Crepitation</b>	<b>39</b>	<b>97.5%</b>
<b>Hepatomegaly</b>	<b>14</b>	<b>35.0%</b>

As shown in above table, 39 (97.5%) patients found to have crepitation on systemic examination. Out of 40 patients, 31 (77.5%) had Jugular Venous Distension, 19 (47.5%) had Hepatojugular reflux and 14 (35.0%) patients had hepatomegaly.

**Discussion:**

Chest pain though uncommon is a recognized feature of IDC. It is reported to occur in approximately 10% of patients.<sup>58</sup> Chest pain is generally atypical in nature but occasionally has the features suggesting myocardial ischemia. In asymptomatic disease the physical signs are minimal and subtle but as the heart failure develops the signs of congestive heart failure without obvious cause appear. The peripheries are constricted and the peripheral pulse is low volume. There is commonly tachycardia at rest. Jugular venous pressure is usually raised. When the patient is in sinus rhythm, there is a prominent “a wave” followed by a poorly marked “X descent” and a prominent “V wave” due to tricuspid regurgitation. When there is atrial fibrillation the “a wave” disappears with the presence of a single wave due to a combination of right atrial filling and tricuspid regurgitation. Cyanosis appears in severe cases.

Sometimes when typical, this pain can be indistinguishable from ischemic angina pain necessitating need for coronary angiography to rule out coronary artery disease. Chest pain could also be secondary to the mechanical effect of an enlarged heart, a reduction in the coronary flow reserve<sup>59</sup> or a rise in pulmonary artery pressures. Investigating chest pain by exercise testing and/ coronary angiography is an important consideration in such patients since the clinical picture and echocardiography may not be able to differentiate between IHD and IDC.

Syncope, an uncommon complaint, may be due to transient ventricular arrhythmias. The presence of this symptom in 20% of our group does not correlate well with the recording of ventricular arrhythmias on 24-hour ambulatory Holter ECG. In one patient it was due to complete heart block. Since this particular patient was aged 62 years, conduction tissue degeneration of old age could be the cause of CHB. Another explanation of syncope or pre-syncope in patients with IDC could be a low cardiac output state. The resting ECG is almost always abnormal in IDC<sup>60</sup>. A variety of abnormalities may be present; the most consistent being left ventricular hypertrophy (LVH) pattern and occasionally biventricular hypertrophy (BVH) pattern. In the initial stages only non-specific depolarisation abnormalities may be seen.

In the present study, 39 (97.5%) patients found to have crepitation on systemic examination. Out of 40 patients, 31 (77.5%) had Jugular Venous Distension, 19 (47.5%) had Hepatojugular reflux and 14 (35.0%) patients had hepatomegaly. The apex impulse is displaced laterally due to cardiac enlargement and is diffuse. Pulsations to the left of the sternum may also be present suggesting right ventricular dilatation. Auscultation often reveals murmurs of tricuspid and mitral regurgitation. A gallop rhythm is common. At this time pulmonary congestion, hepatomegaly due to vascular congestion and oedema (often with ascites) are commonly present. As the cardiac output becomes dangerously low a trace of icterus appears, due to hepatic congestion (or occasionally to pulmonary infarction) associated with signs of peripheral vasoconstriction.

In the present study, out of 40 patients of dilated cardiomyopathy, 4 (10.0%) belonged to class I of NYHA heart failure, 15 (37.5%) belonged to class II, 13 (32.5%) belonged to class III and 8 (20.0%) belonged to class IV. Dyspnea on exertion of varying severity, the major presenting symptom, was present in all our patients. Other studies<sup>61</sup> have reported 75-85% patients presenting with this complaint, while Sugrue<sup>62</sup> in a population based study of IDC found that 90% of patients were in III or IV functional class NYHA (New York Heart Association). In the present study, past history of heart failure was seen in 75.8% cases, Ischemic Heart disease in 60% cases, Peripheral

vascular disease in 19.3% cases, COPD/asthma in 33.0% cases, Coronary artery disease in 59% cases, Hypertension in 75.0% cases, Hyperlipidemia in 38.5% cases, Atrial fibrillation in 32.5% cases and Diabetes Mellitus in 45.0% cases.

**Conclusion:**

It was concluded from the study that Dyspnea is invariable and present in all forty patients. Signs of failure are seen commonly in DCM. DCM characteristically has cardiomegaly on chest X-ray.

**References:**

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