



A Study On Assessment Of Clinical Profile And Quality Of Life Of Acute Decompensated Heart Failure In Tertiary Care Hospital

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Abstract:

Heart failure is a prevalent chronic disease worldwide, and acute decompensated heart failure (ADHF) is characterized by sudden or gradual onset of heart failure symptoms requiring unplanned medical attention. The study aims to examine the clinical presentation, and Quality of life of ADHF in a tertiary care hospital, along with the demographic characteristics. The study highlights the impact of ADHF on physical and emotional well-being and help identify potential risk factors and complications. It was a prospective observational study conducted at a tertiary care hospital for a period of 6 months and 75 Patients were included. Patients were evaluated clinically and with laboratory tests. Data were collected and analysed. The majority of patients were female (84%). A combination of Diabetes and Hypertension (25.3%) was the most common past medical illness found in the patients. The most common presenting symptom was shortness of breath 42(56%). Ischemic stroke was the most common complication (20%). The overall score of QoL was found to be mostly between 51-75 (61.4%) and the mean was 52.81.

In conclusion the findings will provide valuable insights into the clinical characteristics and QoL of ADHF patients. Periodic QoL assessments could contribute to better patient management and overall outcomes in ADHF. However, as the study is conducted in a single center with a limited sample size, the results should be interpreted with caution and cannot be generalised to the broader population.

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Keywords: Acute Decompensated Heart Failure, Quality of Life, Orthopnea, Ischemic Stroke, SF-36 questionnaire, Biomarkers, HRQOL.

INTRODUCTION:

One of the most popular chronic diseases in the world is heart failure affecting 1-2% of population [1]. Acute Decompensated Heart Failure refers to the gradual development of cardiac breakdown as a clinical condition of new worsening symptoms that need hospitalization. Regardless of the underlying causes of exacerbation, pulmonary- systemic blockage is a universal finding in ADHF [2]. Maximum 15% to 20% of ADHF hospitalization involve new HF diagnoses but the majority of ADHF patients have chronic HF that gets worsen [3]. Decompensated Heart Failure can manifest acutely or as a sudden worsening of a chronic HF condition, and is categorized as follows [4]:

- "New" acute HF: Clinical events such asystole, hypertensive urgency, and collapse of the mitral chordae tendineae can result in clinical HF syndrome, which affect patients that never showed HF signs and symptoms.
- Decompensated chronic HF: Patients already diagnosed with HF may experience an abrupt or progressive worsening of their resting HF signs and symptoms, which calls for extra and urgent treatment [5].

ADHF is a condition characterized by a complex interplay of neurohormonal activation, which activates the sympathetic nervous system and renin-angiotensin-aldosterone system, leading to vasoconstriction, increased heart rate, and fluid retention, potentially worsening heart function and causing kidney volume overload leading to fluid retention, and impaired cardiac function, as the key pathophysiological mechanisms. ADHF causes myocardial dysfunction, resulting from factors like ischemia, myocardial infarction, chronic heart disease, or other issues that impair the heart's ability to pump blood effectively.

Pulmonary congestion also causes ADHF by increased pulmonary venous pressure that can lead to dyspnea, shortness of breath, and compromise gas exchange and oxygenation [6-7].

Dyspnea is the standard and defining symptom of DHF. Additionally, nighttime coughing, fluid retention in legs, lung wheezes, or rales are also indicative of symptoms. Paroxysmal overnight breathing difficulties, and the occurrence of the third heart beat are more particular symptoms of HF [6,8].

The identification of DHF depends on the previous medical report and physical checkup of the individual. Diagnostic studies also gives information on LV remodeling. Electrocardiography is essential for treatment. The other laboratory investigations include nitrogen blood count, blood urea , Creatinine, dextrose, electrolytes, and urinalysis. The primary noninvasive approach for the investigation of HF is echocardiography. In determining the identification treatment of DHF, biomarkers are helpful. Natriuretic peptides, such as BNP and NT-ProBNP, are commonly utilized and well-established in hospitals among the examined biomarkers [9].

Complications of ADHF are Low blood pressure (<8 percent) or shock (<3 percent).[10] A frequent neurological complication of HF is Ischemic Stroke. Approximately 20% of ischemic strokes are caused by cardiac disease. Arrhythmias, Thromboembolism and Hepatic dysfunction are also some of the complications [11].

The primary goal of DHF therapy is to improve the hemodynamics and symptoms. Acute decompensated heart failure (ADHF) is treated using a combination of pharmacological and non-pharmacological interventions. Patients often require oxygen supplementation, diuretics to remove excess fluid, vasodilators to reduce afterload, inotropic agents to enhance cardiac contractility, angiotensin converting enzyme inhibitors (ACEIs) or angiotensin receptor blockers (ARBs) for reduced ejection fraction, angiotensin receptor-neprilysin inhibitors (ARNIs) and aldosterone receptor antagonists, digoxin for rate control, and mechanical circulatory support in severe cases. Cardiac resynchronization therapy may be recommended for patients with heart failure and wide QRS complex, with individualized treatment plans based on patients' specific conditions and medical history [6,8].

Quality of life is described as "a broad concept affected in a complex way by the person's physical well-being, state of mind, level of autonomy, connections with others, and their connection to key elements of their surroundings" by the World Health Organization (WHO) [12]. QoL may be one of the effected outcomes in medical care, especially for individuals with CVDs. Pursuant to the WHO definition of health, QoL must be considered as a significant health outcome in every illness management approach. The estimation of QoL is a valid and reliable method to assess how a condition impacts a patient's function, activity, and well-being. Even early studies revealed that CVD sufferers' QoL was poorer than that of the wider population [13].

Heart failure (HF) patients have a significant mortality rate [14]. The main objectives of HF therapy are to prolong survival, enhance way of living, and stop the progression of symptoms [15,16]. Health related quality of life (HRQOL) is low in HF patients, however it is unclear whether this varies globally. Among the majority of researches that were carried out in Western (and high-income) nations, it is unfamiliar whether the prognostic significance of HRQL varies in HF sufferers from different geographical regions. However, poor HRQL has been linked to a worse prognosis [17]. Studies have found that non-Western low- and middle-

income countries account for >80% of cases of cardiovascular disease especially Heart Failure. HF has a significant impact on patients' HRQoL. The gradual loss of physical autonomy and the psychological discomfort brought on by the impairment of social interaction caused by HF have a major negative influence on patients' HRQoL. Studies have shown that variables like sexuality, marriage status, age, peer support, length of HF, psychosocial status, and illnesses are linked to lower HRQoL as a measure of HF. Most frequently, SF-36 questionnaires are used to assess HRQOL [17-20].

METHODS:

The study aims to assess the clinical outcomes and heart-related quality of life (QoL) of ADHF patients in a tertiary care hospital. The study was conducted from December 2022 to June 2023, with a sample size of 75 patients. The focus was on evaluating medical records and assessing QoL using the HRQoL SF-36 questionnaire. It was conducted in the In-patient Department of Gen Med, Gandhi Hospital, Sec 500003, Telangana state. Follow up of cases was done until discharge and pediatrics, pregnant and lactating women, outpatient department patients, unconscious and critically ill patients, and patients who departed the hospital during therapy were excluded. Data was collected through interviews, records review, and physical examinations. The study was approved by the IEC CMRCP, Hyderabad.

RESULTS:

A total of 75 cases were observed during the study period with respect to the standard criteria. These cases were identified, included and analysed for the clinical profile and quality of life of heart failure.

Table1: Age Wise Distribution of Heart Failure Patients

S.N O	Patient's Age (years)	Number of the Patients (n)	Frequency (%)
1.	26-35	9	12
2.	36-45	16	21.3
3.	46-55	10	13.4
4.	56-65	20	26.6
5.	66-75	12	16
6.	76-85	8	10.7
	Total	75	100

Table 1 depicts that out of 75 patients, maximum number of patients belongs to the age group 56-65 (26.6%) and minimum number of patients belonged from the age group 76-85 (10.7%) respectively.

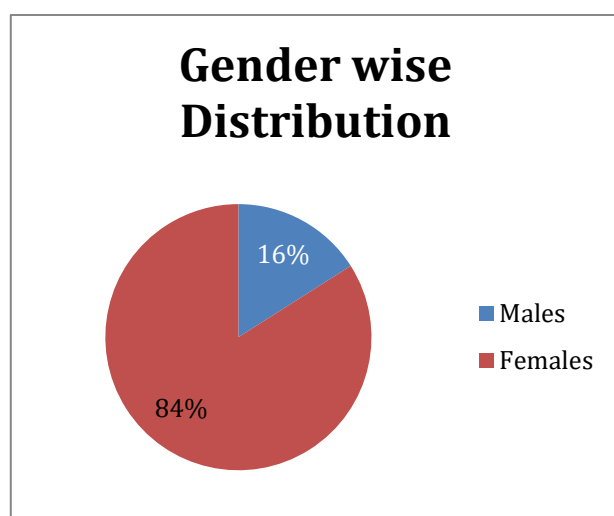


Figure 1: Gender-wise distribution

Figure 1 indicates that out of 75 patients, 63(84%) patients were females and 12 (16%) were males, indicating predominance of females in our study.

Table 2: Past history of Stroke in Heart Failure Patients

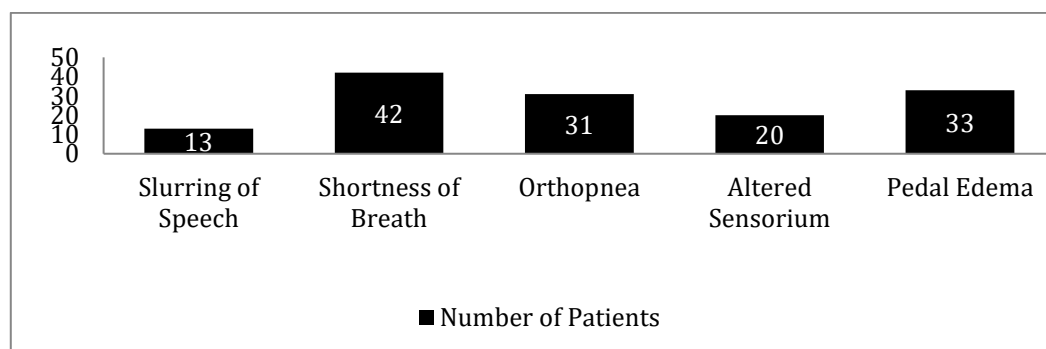
S.No	Past History of Stroke	Number of patients	Frequency (%)
1.	Present	6	8
2.	Not present	69	92
	Total	75	100

Table 2 indicates that out of 75 patients, 69 (92%) patients had no history of stroke while 6 (8%) already had a history of stroke.

Table 3: Past Medical Illness for Heart failure patients

S.No	Disease	Number of Patients	Frequency (%)
1.	Diabetes	6	8
2.	Hypertention	14	18.6
3.	Combination of Diabetes and Hypertention	19	25.3
4.	Others (asthma,thyroid)	2	2.6

The above table reveals that among 75 patients, highest number of the patients 19 (25.3%) had a past medical illness of both, Diabetes and Hypertention, after that 14 (18.6%) patients who had only Hypertention and 6(8%) who had a past medical history of only Diabetes while 2(2.6%) cases had asthma and thyroid respectively.

**Figure 2: Clinical features of ADHF**

The above figure depicts the clinical features of ADHF, it shows that the majority showed signs of shortness of breath-42(56%) followed by orthopnea- 31(41.3), pedal edema – 33(44%), altered sensorium- 20(26.6%) and slurring of speech-13 (17.3%).

Table 4: Social Activities of Heart Failure Patients

S.No	Social Activity	Number of Patients	Frequency (%)
1.	Alcohol Consumption	9	12
2.	Tobacco Chewing	3	4
3.	Smoking	6	8
4.	Gutka Chewing	1	1.3
5.	Toddy Drinking	4	5.3

Table 4 shows the social activities of 75 patients, out of which majority of patients 9 (12%) had a habit of consuming alcohol, followed by 6 (8%) patients that had a habit of smoking, 4 (5.3%) with a habit of drinking toddy, 3 (4%) were addicted to drinking toddy and 1 (1.3%) with a habit of drinking toddy.

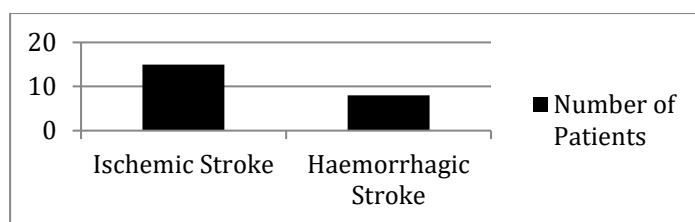


Figure 3: Complication of ADHF

Figure 3 depicts the major complications of ADHF among 75 patients. 23 patients had complications out of which 15 (20%) patients had Ischemic stroke and 8 (10.6%) had Haemorrhagic stroke.

Table 5: Diagnosis using Biomarkers (HFrEF) in Heart Failure Patients

S.No	HFrEF	Number of Patients	Frequency (%)
1.	Used for diagnosis	12	16
2.	Not used for diagnosis	63	84
	Total	75	100

The overhead table exhibits that out of 75 patients, 12 (16%) patients were diagnosed using Heart Failure related Ejection Fraction which shows <40% left ventricular ejection fraction (LVEF) while 63 (84%) patients were diagnosed without it.

Table 6: Overall Score of SF-36 HRQoL

S.No	Overall Score	Number of Patients	Frequency (%)
1.	0-25	1	1.3
2.	26-50	28	37.3
3.	51-75	46	61.4
4.	76-100	0	0
	Total	75	100

Table 6 indicates the overall scores of SF-36 HRQOL of 75 patients, out of which 46 (61.4%) patients scored between 51-75 and no patient scored between 76- 100.

Table 7: The Mean scores of the participants for the SF-36 QoL domains

S.No	Sub-scale	Mean
1.	Physical Functioning	63.16
2.	Role Limitations due to Physical Health	40.34
3.	Role Limitations due to emotional problems	39.63
4.	Energy\Fatigue	57.56
5.	Emotional well being	67.81
6.	Social Functioning	72.04
7.	Pain	46.78
8.	General Health	60.74
9.	Health Change	29
	Overall Score	52.81

Table 7 indicates the mean values of the various life domains of the questionnaire in which the mean of Physical functioning is 63.16, Role Limitations due to Physical Health is 40.34, Role Limitations due to emotional problems is 39.63, Energy\Fatigue is 57.56, Emotional well being is 67.81, Social Functioning is 72.04, Pain is 46.78, General Health is 60.74, Health Change is 29 and the mean of complete quality of life result was known to be 52.81.

DISCUSSION:

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A prospective observational study was conducted to assess and evaluate the study on clinical profile of acute decompensated heart failure patients. The focus of this study was to assess the quality of life in ADHF patients by using SF-36 Questionnaire. A total of 75 cases were identified, included and analysed for the study from inpatients unit of department of general medicine, Gandhi Hospital, Secunderabad.

In the study the total percentage of female patients (84%) was comparatively more than that of male patients (16%) which is identical to the study reported by Mouaz Alsawas (2019) [21].

In our research the highest number of patients were of the class of ages 56-65 (20) which is contrary to the work done by Nahid Azad (2014) which demonstrated that almost 50% of the patients above 75years [22].

Our present work involved patients with a past history of stroke (8%) indicating that stroke may have chance of risk factor for ADHF which is similar to the report given by Woohyeun Kim (2018) [23].

Among the data of various past medical illnesses in this research, out of 75 cases it is established that patients having both, diabetes and Hypertension were the most common (25.3%) followed by only hypertension (18.6) and then diabetes (8) which is alike the study reported by John R. Petrie (2018) [24]. This depicts that patients tolerating both the illnesses are more susceptible to the risk of ADHF.

In this investigation among the manifestations of ADHF most no. of cases out of 75 had shortness of breath (56%) followed by pedal edema (44%) and orthopnea (41.3) which is alike the work done by Arati A. Inamdar (2016) [25].

Analyzing from our work out of 75 cases, 23 patients showed complications with ADHF among them vast no. of complications was found to be ischemic stroke (20%) which indicated that it is a major complication which coincides with the study conducted by Moritake Iguchi (2021) [26].

Our research indicates out of 75 cases the mean score of overall quality of life was found to be 52.81 which is moderate and the role limitations due to physical wellness (40.34) had the least mean score which coincides to the study done by Muslet Alharbi (2022) [27].

CONCLUSION:

Our study suggests that ADHF is more prevalent in women and a combination of Diabetes and Hypertension is a vital risk factor. The most occurring symptoms are shortness of breath and pedal edema and a major complication was found to be Ischemic stroke. Our study concludes that ADHF has a major impact on physical and emotional well being of the patients and the overall quality of life of patients was found to be moderate. Thus, we conclude that periodic quality of life assessment should be encouraged in order to minimize their physical and psychological concerns.

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