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Clinical Characteristics, Precipitating Factors, In-Hospital Management, and 30-Day Outcomes of Patients Hospitalized with Acute Decompensated Heart Failure: A Single-Center Study from Vietnam

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Abstract

Background: Acute Decompensated Heart Failure (ADHF) remains one of the leading causes of hospitalization among older adults and is associated with substantial early morbidity and mortality. This study aimed to describe the clinical characteristics, precipitating factors, in-hospital management, and short-term outcomes of patients hospitalized with ADHF.

Methods: We conducted a descriptive cross-sectional study with short-term prospective follow-up in 191 consecutive adults (≥18 years) hospitalized with ADHF at the Cardiology Center of a regional general hospital in Northern Vietnam between March and November 2024. Demographic, clinical, laboratory, echocardiographic, treatment, and outcome data were collected during hospitalization. Patients were followed until discharge and for 30 days thereafter to assess readmission and mortality.

Results: The mean age was 69.1 ± 12.7 years, and 56.5% of patients were male. The mean left ventricular ejection fraction was 42.8 ± 15.1%, with heart failure with reduced ejection fraction (HFrEF), mildly reduced ejection fraction (HFmrEF), and preserved ejection fraction (HFpEF) accounting for 44.5%, 19.9%, and 35.6% of cases, respectively. Hypertension (81.2%), dyslipidemia (61.8%), coronary artery disease (46.1%), and type 2 diabetes mellitus (43.5%) were the most prevalent comorbidities. Poor treatment adherence (33.5%) and infection (31.9%) were the leading precipitating factors for hospitalization. During hospitalization, 94.8% of patients received intravenous diuretics, 71.2% required supplemental oxygen, and 14.1% were admitted to the intensive care unit. The median length of hospital stay was 8 (interquartile range, 6-11) days. In-hospital mortality was 8.9%. Among patients discharged alive, the 30-day readmission rate was 23.6%, while the composite endpoint of all-cause mortality or readmission within 30 days occurred in 29.9%.

Conclusions: Patients hospitalized with ADHF were predominantly older adults with a high burden of cardiovascular comorbidities and relatively severe clinical presentations. Poor treatment adherence and infection were the most common precipitating factors for hospitalization. Despite successful stabilization in most patients before discharge, in-hospital mortality and 30-day readmission rates remained substantial, underscoring the need for improved transitional care and early post-discharge management.

Keywords: Acute decompensated heart failure; Acute heart failure; Precipitating factors; Readmission; Short-term outcomes

Introduction

Heart Failure (HF) is a complex chronic clinical syndrome associated with substantial morbidity, mortality, and healthcare expenditure worldwide. More than 64 million people are currently living with HF, and its burden continues to increase owing to population ageing and the growing prevalence of cardiovascular and metabolic comorbidities, including ischemic heart disease, hypertension, diabetes mellitus, and chronic kidney disease [1]. Acute Decompensated Heart Failure (ADHF), characterized by the new onset or rapid worsening of HF symptoms and signs requiring urgent medical evaluation and treatment, represents one of the most common causes of hospitalization among adults and older individuals [2]. Contemporary clinical guidelines recognize hospitalization for ADHF as a critical event associated with poor prognosis, particularly in patients presenting with significant congestion, hypoperfusion, renal dysfunction, elevated natriuretic peptides, myocardial ischemia, arrhythmias, or multiple comorbidities [2,3]. Despite substantial advances in guideline-directed medical therapy and post-discharge disease management, ADHF remains a major contributor to hospital admissions and is associated with persistently high risks of early mortality and rehospitalization following discharge [4].

The clinical profile and outcomes of patients hospitalized with ADHF vary considerably across healthcare settings and geographic regions. Large HF registries have consistently demonstrated that these patients are typically older, have a high burden of comorbidities, receive variable implementation of guideline-directed therapies before admission, and experience unfavorable post-discharge outcomes [4,5]. In addition to established prognostic factors, such as left ventricular ejection fraction, renal function, serum sodium, NT-proBNP concentration, and comorbidity burden, potentially modifiable precipitating factors-including poor treatment adherence, infection, acute coronary syndrome, cardiac arrhythmias, uncontrolled hypertension, and acute kidney injury-play pivotal roles in triggering decompensation and guiding early clinical management [2,5]. Notably, the first 30 days after hospital discharge represent a particularly vulnerable period, during which inadequate decongestion, suboptimal optimization of medical therapy, or insufficient follow-up may substantially increase the risks of readmission and death [6,7]. However, data describing the clinical characteristics, precipitating factors, in-hospital management, and short-term outcomes of patients with ADHF in Vietnam remain limited across different healthcare settings. Therefore, this study aimed to characterize the clinical and laboratory features, precipitating factors, in-hospital treatment, and 30-day outcomes of patients hospitalized with ADHF at the Cardiology Center of a regional general hospital in Northern Vietnam.

Methods

Study Design and Participants

This descriptive cross-sectional study with short-term prospective follow-up was conducted between March and November 2024 at the Cardiology Center of a regional tertiary general hospital in Northern Vietnam. As a major cardiovascular referral center serving multiple surrounding provinces, the hospital provides comprehensive emergency and inpatient cardiac care, thereby offering a representative population of patients hospitalized with Acute Decompensated Heart Failure (ADHF) across a broad spectrum of disease severity. Consecutive adult patients (aged ≥18 years) admitted with a diagnosis of ADHF during the study period were screened for eligibility. Consecutive sampling was applied until the target sample size was achieved. ADHF was diagnosed based on clinical presentation together with laboratory and echocardiographic findings according to contemporary heart failure guidelines. Patients were eligible if they provided written informed consent and had complete medical records available for data collection. Exclusion criteria included refusal to participate, incomplete clinical data, transfer to another hospital before completion of treatment, or inability to complete the 30-day post-discharge follow-up.

For all enrolled patients, demographic characteristics, cardiovascular risk factors, medical history, clinical and laboratory findings, imaging results, comorbidities, precipitating factors, in-hospital treatment, and short-term clinical outcomes were prospectively collected using a standardized case report form. All patients were followed for 30 days after hospital discharge to ascertain all-cause readmission and adverse clinical outcomes.

Data Collection and Study Variables

Data were collected prospectively using a standardized case report form developed before study initiation. Baseline demographic variables included age, sex, Body Mass Index (BMI), smoking history, duration of heart failure, and previous hospitalization for heart failure. Clinical characteristics at admission comprised New York Heart Association (NYHA) functional class, systolic blood pressure, heart rate, and clinical signs of Acute Decompensated Heart Failure (ADHF). Laboratory and imaging variables included left ventricular ejection fraction (LVEF), N-terminal pro-B-type natriuretic peptide (NT-proBNP), serum creatinine, estimated glomerular filtration rate (eGFR), serum sodium, serum potassium, hemoglobin concentration, cardiac troponin, and chest radiographic findings, including pulmonary congestion, acute pulmonary edema, and pleural effusion.

Information on major comorbidities, including hypertension, type 2 diabetes mellitus, dyslipidemia, coronary artery disease, previous myocardial infarction, atrial fibrillation, chronic kidney disease, Chronic Obstructive Pulmonary Disease (COPD), anemia, and valvular heart disease, was also recorded. Pre-admission Guideline-Directed Medical Therapy (GDMT), including Angiotensin-Converting Enzyme Inhibitors (ACEIs), Angiotensin Receptor Blockers (ARBs), Angiotensin Receptor-Neprilysin Inhibitors (ARNIs), beta-blockers, Mineralocorticoid Receptor Antagonists (MRAs), sodium-glucose cotransporter-2 inhibitors (SGLT2is), and loop diuretics, was documented. Potential precipitating factors for ADHF—including poor treatment adherence, infection, acute coronary syndrome, cardiac arrhythmias, uncontrolled hypertension, acute kidney injury, severe anemia, pulmonary embolism, discontinuation of diuretic therapy, and other clinically relevant causes—were identified; more than one precipitating factor could be recorded for each patient. Data on in-hospital management included intravenous diuretics, intravenous vasodilators, inotropic agents, vasopressors, antibiotic therapy, respiratory support (supplemental oxygen, non-invasive ventilation, or invasive mechanical ventilation), and Continuous Renal Replacement Therapy (CRRT). Major in-hospital complications were documented. Clinical outcomes included length of hospital stay, in-hospital mortality, 30-day all-cause readmission, and the composite endpoint of all-cause mortality or readmission within 30 days after discharge.

Data Collection Procedures

Eligible patients were consecutively enrolled throughout the study period. Clinical, laboratory, imaging, and treatment data were prospectively collected by trained investigators from electronic medical records, inpatient charts, echocardiographic reports, and the hospital laboratory information system using a standardized case report form. After discharge, patients were followed for 30 days through scheduled outpatient visits or structured telephone interviews with patients or their caregivers to ascertain readmission and mortality. All study data underwent completeness and consistency checks before database entry. Any discrepancies were verified against the original source documents to ensure data accuracy and minimize data entry errors.

Statistical Analysis

Statistical analyses were performed using Stata version 20.0 (StataCorp LLC, College Station, TX, USA). Categorical variables are presented as frequencies and percentages. Continuous variables with a normal distribution are expressed as mean ± Standard Deviation (SD), whereas non-normally distributed variables are presented as median and Interquartile Range (IQR). Comparisons between groups were performed using Pearson's chi-square test or Fisher's exact test for categorical variables, as appropriate. Continuous variables were compared using Student's *t*-test for normally distributed data or the Mann-Whitney U test for non-normally distributed data. All statistical tests were two-sided, and a P value <0.05 was considered statistically significant.

Results

Among the 191 patients with acute decompensated heart failure, the mean age was 69.1 ± 12.7 years, and 53.4% were aged ≥70 years. Men accounted for 56.5% of the study population, and the mean body mass index was 22.7 ± 3.4 kg/m². A current or former smoking history was reported in 35.6% of patients. Most patients had been diagnosed with heart failure for more than 1 year (63.4%), while 38.7% had previously been hospitalised for heart failure. At admission, 53.9% of patients were classified as NYHA functional class III and 28.3% as class IV. The mean systolic blood pressure and heart rate were 132.8 ± 25.6 mmHg and 94.3 ± 20.1 beats/min, respectively (Table 1).

Variable	Overall (N = 191)
Age, years	69.1 ± 12.7
Age group, n (%)	
<60 years	34 (17.8)
60-69 years	55 (28.8)
70-79 years	69 (36.1)
≥80 years	33 (17.3)
Sex, n (%)	
Male	108 (56.5)
Female	83 (43.5)
Body mass index, kg/m²	22.7 ± 3.4
Smoking history, n (%)	
Current or former smoker	68 (35.6)
Never smoker	123 (64.4)
Duration of heart failure, n (%)	
≤1 year	70 (36.6)
>1 year	121 (63.4)
Previous hospitalisation for heart failure, n (%)	
Yes	74 (38.7)
No	117 (61.3)
NYHA functional class at admission, n (%)	
I-II	34 (17.8)
III	103 (53.9)
IV	54 (28.3)
Systolic blood pressure, mmHg	132.8 ± 25.6
Heart rate, beats/min	94.3 ± 20.1

Table 1: Baseline demographic and clinical characteristics of the study population.

Data are presented as mean ± standard deviation or n (%). Abbreviation: NYHA, New York Heart Association.

As shown in Table 2, the mean left ventricular ejection fraction was 42.8 ± 15.1%. Heart failure with reduced ejection fraction was the most common phenotype, accounting for 44.5% of patients, followed by heart failure with preserved ejection fraction (35.6%) and heart failure with mildly reduced ejection fraction (19.9%). The median NT-proBNP concentration was 4320 pg/mL (IQR, 2380-8460), and the median serum creatinine concentration was 104 µmol/L (IQR, 84-143). An estimated glomerular filtration rate below 60 mL/min/1.73 m² was observed in 34.0% of patients, while elevated troponin was detected in 23.0%. Pulmonary congestion was the most frequent chest radiographic finding (70.2%), followed by pleural effusion (24.1%) and acute pulmonary oedema (12.6%).

Variable	Overall (N = 191)
Left ventricular ejection fraction, %	42.8 ± 15.1
Heart failure phenotype, n (%)	
HFrEF, LVEF <40%	85 (44.5)
HFmrEF, LVEF 40-49%	38 (19.9)
HFpEF, LVEF ≥50%	68 (35.6)
NT-proBNP, pg/mL	4320 (2380-8460)
Serum creatinine, µmol/L	104 (84-143)
Estimated glomerular filtration rate, n (%)	
≥60 mL/min/1.73 m²	126 (66.0)
<60 mL/min/1.73 m²	65 (34.0)
Serum sodium, mmol/L	136.4 ± 5.1
Serum potassium, mmol/L	4.3 ± 0.7
Haemoglobin, g/L	118.7 ± 19.5
Troponin elevation, n (%)	
Yes	44 (23.0)
No	147 (77.0)
Chest radiographic findings, n (%)	
Pulmonary congestion	134 (70.2)
Acute pulmonary oedema	24 (12.6)
Pleural effusion	46 (24.1)

Table 2: Laboratory, radiographic, and echocardiographic findings at admission.

Data are presented as mean ± standard deviation, median (interquartile range), or n (%). Abbreviations: HFmrEF, heart failure with mildly reduced ejection fraction; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; LVEF, left ventricular ejection fraction; NT-proBNP, N-terminal pro-B-type natriuretic peptide.

Hypertension was the most prevalent comorbidity, affecting 81.2% of patients, followed by dyslipidaemia (61.8%), coronary artery disease (46.1%), and type 2 diabetes mellitus (43.5%). Anaemia and chronic kidney disease were present in 36.6% and 34.0% of patients, respectively, while atrial fibrillation was documented in 24.1%. Before admission, loop diuretics were used by 67.5% of patients, ACEIs, ARBs, or ARNIs by 62.3%, and beta-blockers by 57.6%. Mineralocorticoid receptor antagonists and SGLT2 inhibitors were prescribed in 42.9% and 25.1% of patients, respectively (Table 3).

Variable	**Overall (N = 191)**
Comorbidities, n (%)	
Hypertension	155 (81.2)
Dyslipidaemia	118 (61.8)
Coronary artery disease	88 (46.1)
Type 2 diabetes mellitus	83 (43.5)
Anaemia	70 (36.6)
Chronic kidney disease	65 (34.0)
Atrial fibrillation	46 (24.1)
Valvular heart disease	41 (21.5)
Chronic obstructive pulmonary disease	35 (18.3)
Previous myocardial infarction	29 (15.2)
Pre-admission medical therapy, n (%)	
Loop diuretics	129 (67.5)
ACEI, ARB, or ARNI	119 (62.3)
Beta-blockers	110 (57.6)
Mineralocorticoid receptor antagonists	82 (42.9)
SGLT2 inhibitors	48 (25.1)

Table 3: Comorbidities and pre-admission medical therapy.

Data are presented as n (%). Abbreviations: ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; ARNI, angiotensin receptor-neprilysin inhibitor; SGLT2, sodium-glucose cotransporter 2. Table 4 presents the precipitating factors associated with acute decompensation. Poor treatment adherence was the most frequently identified factor (33.5%), followed by infection (31.9%). Respiratory tract infection accounted for most infection-related cases, occurring in 24.6% of the overall cohort. Other commonly identified factors included acute coronary syndrome (18.8%), tachyarrhythmia (16.2%), discontinuation of diuretic therapy (12.0%), and acute kidney injury (11.5%). No identifiable precipitating factor was found in 20.4% of patients. As more than one precipitating factor could be recorded for an individual patient, the percentages were not mutually exclusive.

Precipitating factor, n (%)	Overall (N = 191)
Poor treatment adherence	64 (33.5)
Infection	61 (31.9)
Respiratory tract infection	47 (24.6)
Urinary tract infection	9 (4.7)
Other infection	5 (2.6)
No identifiable precipitating factor	39 (20.4)
Acute coronary syndrome	36 (18.8)
Tachyarrhythmia	31 (16.2)
Discontinuation of diuretic therapy	23 (12.0)
Acute kidney injury	22 (11.5)
Severe anaemia	18 (9.4)
Uncontrolled hypertension	16 (8.4)
Pulmonary embolism	4 (2.1)

Table 4: Precipitating factors for acute decompensated heart failure.

Data are presented as n (%). Individual patients could have more than one precipitating factor; therefore, the cumulative percentage may exceed 100%. During hospitalisation, 94.8% of patients received intravenous diuretics, 33.0% received intravenous vasodilators, and 42.9% were treated with antibiotics. Inotropic agents and vasopressors were administered to 15.2% and 9.4% of patients, respectively. Supplemental oxygen was required in 71.2% of cases, while 14.7% received non-invasive ventilation and 6.3% underwent invasive mechanical ventilation. Cardiogenic shock and severe ventricular arrhythmias occurred in 7.9% and 6.8% of patients, respectively. The median length of hospital stay was 8 days (IQR, 6-11), and in-hospital mortality was 8.9%. Among the 174 patients discharged alive, 23.6% were readmitted within 30 days, and 29.9% experienced the composite outcome of all-cause mortality or readmission during the 30-day follow-up period (Table 5).

Variable	Overall (N = 191)
In-hospital pharmacological treatment, n (%)	
Intravenous diuretics	181 (94.8)
Intravenous vasodilators	63 (33.0)
Inotropic agents	29 (15.2)
Vasopressors	18 (9.4)
Antibiotics	82 (42.9)
Respiratory and critical care support, n (%)	
Supplemental oxygen	136 (71.2)
Non-invasive ventilation	28 (14.7)
Invasive mechanical ventilation	12 (6.3)
Continuous renal replacement therapy	7 (3.7)
Intensive care unit admission	27 (14.1)
In-hospital complications, n (%)	
Cardiogenic shock	15 (7.9)
Severe ventricular arrhythmias	13 (6.8)
Clinical outcomes	
Length of hospital stay, days	8 (6-11)
In-hospital mortality, n (%)	17 (8.9)
Discharged alive, n (%)	174 (91.1)
30-day all-cause readmission, n/N (%)	41/174 (23.6)
30-day all-cause mortality or readmission, n/N (%)	52/174 (29.9)

Table 5: In-hospital management and short-term clinical outcomes.

Data are presented as median (interquartile range), n (%), or n/N (%). Thirty-day outcomes were calculated among the 174 patients discharged alive. Abbreviation: ICU, intensive care unit.

Discussion

Our study demonstrated that patients hospitalized with Acute Decompensated Heart Failure (ADHF) were predominantly older adults, with more than four-fifths aged ≥60 years. This finding is consistent with the well-established epidemiology of ADHF, in which hospital admissions occur mainly among elderly patients with longstanding heart failure and multiple chronic comorbidities. Large international registries have consistently shown that advanced age is a defining characteristic of patients hospitalized for ADHF and is closely associated with increased comorbidity burden, reduced physiological reserve, and poorer post-discharge outcomes [8,9]. Men slightly outnumbered women in our cohort, which may reflect the relatively high prevalence of coronary artery disease and smoking history. In addition, most patients had experienced heart failure for more than one year, and nearly two-fifths had a previous heart failure hospitalization, indicating that admission for ADHF commonly represents recurrent decompensation during the course of chronic heart failure rather than an isolated clinical event. The predominance of NYHA class III-IV symptoms further suggests that many patients presented after developing substantial congestion and functional deterioration.

Regarding cardiac function, the mean left ventricular ejection fraction was approximately 43%, with HFrEF representing the largest subgroup. Nevertheless, more than half of hospitalized patients had either HFmrEF or HFpEF, highlighting that ADHF is not confined to reduced ejection fraction alone. Contemporary epidemiological studies have reported a progressive increase in HFpEF among hospitalized patients, largely driven by population ageing and the growing prevalence of hypertension, diabetes mellitus, chronic kidney disease, and other metabolic comorbidities [10,11]. The relatively high proportion of HFpEF observed in our study is therefore consistent with the advanced age and high prevalence of hypertension in this cohort. Elevated NT-proBNP concentrations together with frequent radiographic pulmonary congestion indicate that volume overload remained the predominant clinical presentation at admission. Furthermore, approximately one-third of patients had impaired renal function, emphasizing the close interaction between acute heart failure and cardiorenal dysfunction. From a clinical perspective, renal impairment is particularly relevant because it directly influences diuretic responsiveness, therapeutic optimization, and in-hospital prognosis.

Our findings also highlight the substantial burden of comorbidities among patients with ADHF. Hypertension was the most prevalent condition, followed by dyslipidaemia, coronary artery disease, type 2 diabetes mellitus, anaemia, and chronic kidney disease. This pattern reflects the contemporary profile of patients with heart failure, in whom multiple cardiovascular and non-cardiovascular comorbidities frequently coexist and require long-term multidisciplinary management [12,13]. Hypertension remains a major contributor to left ventricular hypertrophy, diastolic dysfunction, and the development of HFpEF, whereas coronary artery disease and previous myocardial infarction probably explain the considerable proportion of patients with HFrEF in our cohort. Atrial fibrillation was present in approximately one-quarter of patients and likely acted both as a precipitating factor for decompensation and as a consequence of advanced heart failure.

Importantly, although loop diuretics were widely prescribed before admission, the use of guideline-directed medical therapy-including ACEIs/ARBs/ARNIs, beta-blockers, MRAs, and SGLT2 inhibitors-remained suboptimal. This finding suggests persistent opportunities to improve outpatient heart failure management, particularly among elderly patients with multiple comorbidities or impaired renal function.

The precipitating factors identified in our study were broadly consistent with those reported in previous ADHF registries. Poor treatment adherence and infection were the two most common triggers, followed by acute coronary syndrome, tachyarrhythmia, discontinuation of diuretic therapy, and acute kidney injury. Previous studies have similarly demonstrated that medication non-adherence, infection, myocardial ischaemia, cardiac arrhythmias, and uncontrolled hypertension are among the leading causes of acute decompensation and are associated with prolonged hospitalization and adverse short-term outcomes [14]. Of particular clinical importance, poor treatment adherence and discontinuation of diuretic therapy represented a substantial proportion of potentially preventable admissions. These findings reinforce the importance of structured patient education, medication reconciliation, early post-discharge follow-up, and timely recognition of worsening congestion. Respiratory tract infection also emerged as a major trigger, which is consistent with the advanced age and high prevalence of chronic pulmonary disease, diabetes, and chronic kidney disease in our cohort. Meanwhile, the absence of an identifiable precipitating factor in one-fifth of patients highlights the multifactorial nature of ADHF in routine clinical practice.

Intravenous diuretics were administered to nearly all patients, reflecting their central role in relieving congestion during hospitalization. Current international guidelines continue to emphasize early decongestion, careful assessment of diuretic response, and close monitoring of renal function and electrolyte balance throughout the acute phase of treatment [15]. The use of intravenous vasodilators, inotropes, and vasopressors indicates that a considerable proportion of patients experienced haemodynamic instability requiring advanced circulatory support. Likewise, the high requirement for supplemental oxygen and ventilatory support underscores the clinical burden of pulmonary congestion and acute respiratory failure in ADHF. Approximately one in seven patients required intensive care, while cardiogenic shock and severe ventricular arrhythmias remained important in-hospital complications, illustrating the heterogeneous severity of patients admitted with ADHF. Beyond stabilization during hospitalization, increasing evidence supports the early initiation or optimization of guideline-directed medical therapy, including SGLT2 inhibitors when appropriate, before discharge to improve subsequent clinical outcomes [16].

Short-term outcomes in our cohort indicate that the period immediately following discharge remains clinically vulnerable. Although most patients were discharged alive after a median hospital stay of eight days, nearly one-quarter required rehospitalization within 30 days, and almost one-third experienced the composite outcome of death or readmission during follow-up. These findings are consistent with evidence from large registries and randomized clinical trials showing that patients hospitalized for ADHF remain at particularly high risk of recurrent events during the first weeks after discharge [8,9,13]. Although the observed 30-day readmission rate was somewhat lower than that reported in some high-risk populations, it remains clinically meaningful and highlights the need for comprehensive discharge planning. Strategies including complete decongestion before discharge, optimization of guideline-directed medical therapy, early outpatient follow-up, and structured heart failure management programmes may help reduce early readmissions and improve post-discharge outcomes.

Several limitations should be acknowledged when interpreting the findings of this study. First, this was a single-centre descriptive study conducted at a tertiary cardiovascular centre; therefore, the patient population and treatment practices may not fully represent other healthcare settings, limiting the generalizability of our findings. Second, the sample size was relatively modest, which restricted subgroup analyses and limited the ability to explore predictors of specific clinical outcomes. Third, follow-up was limited to 30 days after discharge and therefore did not capture longer-term mortality, rehospitalization, or disease progression. In addition, several prognostically important factors-including post-discharge medication adherence, achievement of target doses of guideline-directed medical therapy, residual congestion at discharge, frailty, quality of life, socioeconomic status, and participation in structured heart failure management programmes—were not evaluated. Finally, owing to the descriptive study design, our findings describe the clinical profile and outcomes of this cohort but do not permit causal inference regarding the associations between clinical characteristics and subsequent adverse events.

Conclusion

Patients hospitalized with acute decompensated heart failure were predominantly older adults with a substantial burden of comorbidities, particularly hypertension, dyslipidaemia, coronary artery disease, and type 2 diabetes mellitus. Poor treatment adherence and infection were the most common precipitating factors for hospitalization. Although most patients were clinically stable at discharge, in-hospital mortality and 30-day readmission remained considerable. These findings highlight the persistently high prognostic burden of acute decompensated heart failure and underscore the need for careful transitional care and close monitoring during the early post-discharge period.

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