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Realities of Chronic Heart Failure and Its Decompensation Factors at the Ignace Deen University Hospital Center in Conakry

Barry Ibrahima Sory*, Camara Ousmane Mamadama, Camara Abdoulaye, Baldé Elhadj Yaya, Koivogui Diarra, Diallo Salematou, Keita Fatoumata Binta, Diallo Thierno Abdoul Bobo, Keita Mamadou Saidou, Mansaré Mohamed, Baldé Mamadou Dadhi

Cardiology Department of the CHU Ignace Deen, Conakry, Guinea

Email: *ibssobarry@gmail.com, camaraomac96@gmail.com, mariboudou@gmail.com, yaya017balde@gmail.com, koivoguidiara@gmail.com, diallosalimalpha17@gmail.com, bintakeita96@gmail.com, bobotarand@gmail.com, kmasaidou95@gmail.com, mohamedmansa91@gmail.com, profdadhi@gmail.com

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Abstract

Introduction: Cardiac decompensations constitute a diagnostic and therapeutic emergency in their severe forms, such as acute pulmonary edema. Their management necessarily includes the determination and emergency treatment of the decompensation factor(s). We determined the prevalence of heart failure, its decompensation factors, the main underlying heart conditions, and in-hospital mortality. **Materials and Methods:** This was a two-year retrospective, descriptive study conducted from January 2, 2024, to December 31, 2025. The study was carried out in the Cardiology Department of Ignace Deen National Hospital. We included all hospitalized patients with decompensated chronic heart failure. Patients with incomplete medical records and those who did not agree to participate in the study were excluded from this study. The factors associated with decompensation that were investigated were: treatment discontinuation, non-adherence to the diet, hypertensive crisis, atrial fibrillation, ST-elevation acute coronary syndrome (STEMI), hyperthyroidism, pulmonary infection, chronic kidney disease, and inflammatory anemia. The analysis was conducted using SPSS 26 software, with frequencies reported for qualitative variables and means for quantitative variables. The data were collected anonymously, ensuring confidentiality. **Results:** We identified 1172 patients hospitalized for cardiac decompensation out of a total of 611 patients, representing a hospital frequency of 52.13%. The decompensation factors found were dominated by therapeutic disruption (50.90%), diet deviation (38.29%) (38.29%) and hypertensive flare-up (4.90%). Nearly 67% of our patients were being readmitted for the second time. The leading cause of heart failure was

ischemic heart disease. **Conclusion:** Understanding these factors contributing to decompensation allows the clinician to save time by better focusing the interview. In most cases, these factors were avoidable and could have been prevented through better education of the patient and their family and friends.

Keywords

Heart Failure, Decompensation Factors, Ignace Deen

1. Introduction

Heart failure (HF) is defined as the heart's inability to maintain an adequate cardiac output to meet the body's metabolic needs [1].

It is a chronic, complex and serious condition, whose symptomatology is likely to strongly affect the quality of life of patients with high lethality [2] [3].

All cardiac pathologies, whether ischemic, hypertensive, valvular, rhythmic, or related to cardiomyopathy, can lead to HF [4].

Alongside the progressive worsening of HF, the evolution of this chronic disease is marked by periods of decompensation that quickly put the patient's life at risk [5] [6]. Cardiac decompensation is an acute exacerbation situation characterized by pulmonary and/or peripheral congestive signs including acute pulmonary edema more or less associated with signs of peripheral hypo perfusion [3]. It constitutes a diagnostic and therapeutic emergency. The more frequent cardiac decompensation, the worse the prognosis [3]. Cardiac decompensation can occur without a found factor, but it is most often caused by one or more factors such as an infection, an acute hypertensive crisis, a heart rhythm disorder, or poor medication adherence [7].

This work aimed to determine the frequency of HF, its decompensation factors, the main cardiopathies involved, and the inhospital mortality of chronic HF in the cardiology department of the Ignace Deen University Hospital Center in Conakry.

2. Methods and Materials

This was a two-year retrospective, descriptive study conducted from January 2, 2024, to December 31, 2025. The study was carried out in the Cardiology Department of Ignace Deen National Hospital. We included all hospitalized patients with decompensated chronic heart failure. Patients with incomplete medical records and those who did not agree to participate in the study were excluded from this study.

We defined decompensated chronic heart failure as a syndrome characterized by dyspnea on exertion or at rest, orthopnea, lower extremity edema, signs of pulmonary congestion, and radiological, electrocardiographic, and echocardiographic findings consistent with the underlying heart disease.

Ischemic heart disease is characterized by constricting chest pain, signs of is-

chemia, tissue damage, and/or necrosis, with or without elevated troponin levels.

Hypertensive heart disease is characterized by dyspnea on exertion or at rest, orthopnea, lower extremity edema, signs of pulmonary congestion, and radiological, electrocardiographic, and echocardiographic findings consistent with chronic hypertension.

Dilated cardiomyopathy has been defined as a syndrome characterized by exertional or resting dyspnea, orthopnea, lower extremity edema, signs of pulmonary congestion, and radiological, electrocardiographic, and echocardiographic findings that are not attributable to hypertensive, ischemic, valvular, toxic, metabolic, or other causes.

Valvular heart disease is characterized by a combination of exertional or resting dyspnea, orthopnea, lower extremity edema, signs of pulmonary congestion, and radiological, electrocardiographic, and echocardiographic findings consistent with valvular stenosis and/or regurgitation.

Chronic pulmonary heart disease is characterized by signs of right-sided heart failure associated with pulmonary arterial hypertension secondary to chronic lung diseases.

Hyperthyroidism has been defined by the presence of a goiter and elevated levels of thyroid hormones (free T3 and T4) associated with low TSH levels.

The factors associated with decompensation that were investigated were: treatment discontinuation, non-adherence to the diet, hypertensive crisis, atrial fibrillation, ST-elevation acute coronary syndrome (STEMI), hyperthyroidism, pulmonary infection, chronic kidney disease, and inflammatory anemia. The analysis was conducted using SPSS 26 software, with frequencies reported for qualitative variables and means for quantitative variables. The data were collected anonymously, ensuring confidentiality.

3. Results

We identified 1172 patients hospitalized for cardiac decompensation out of a total of 611 patients, representing a hospitalization rate of 52.13% (**Figure 1**).

The mean age of our patients was 60 ± 34 years. The largest age group was those over 60 years of age (38.46%), followed by those aged 41 - 60 years (36.82%). There was a predominance of males, with a male-to-female ratio of 1.56 (**Table 1**).

The most common factors contributing to decompensation were non-adherence to treatment (50.90%), failure to follow the prescribed diet (38.29%), and hypertensive crises (4.90%) (**Table 2**).

The majority of our patients were admitted at NYHA Class III (60%), compared with 40% at Class IV (**Figure 2**).

More than 67% of our patients were readmitted, including 51.55% for a second hospitalization and 15% for a third or subsequent hospitalization (**Table 3**).

The etiology of heart failure was dominated by ischemic heart disease, followed by hypertensive heart disease and dilated cardiomyopathy, with prevalence rates of 52.2%, 43.69%, and 1.63%, respectively (**Table 4**).

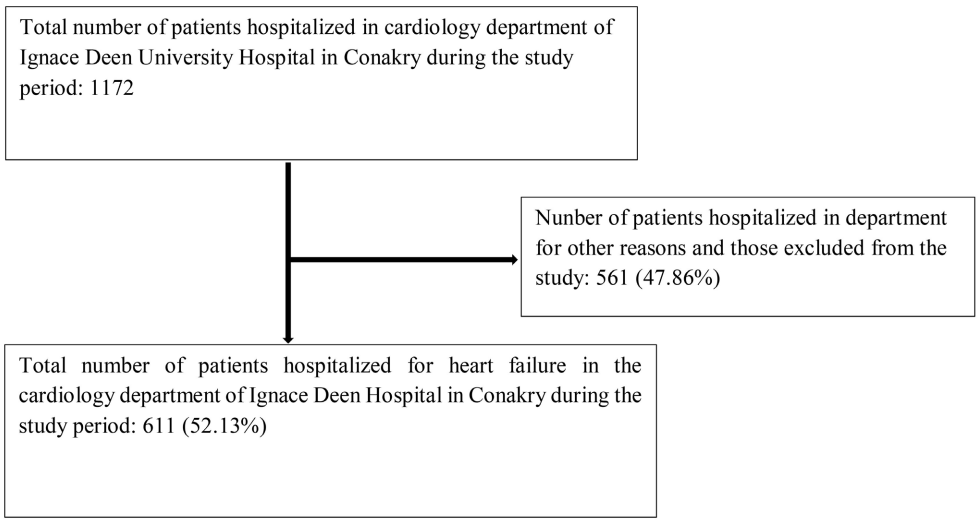

Figure 1. Flow diagram of patients hospitalized for cardiac decompensation in the cardiology department of the Ignace Deen University Hospital Center in Conakry.

Table 1. Distribution of patients according to socio-demographic characteristics.

Socio-demographic characteristics	Effective (n = 611)	Percentage
Age ranges		
- 20 - 40	151	24.71
- 41 - 60	225	36.82
- >60	235	38.46
Mean age standard deviation	60 ± 34	
Gender		
- Male	373	61.04
- Female	238	38.95
Ratio (H/F)	1.56	

Table 2. Distribution of patients according to decompensation factors.

Decompensation factors	Effective (n = 611)	Percentage
Therapeutic break	**311**	**50.9**
Diet slip	234	38.29
Hypertensive Crisis	30	4.9
Atrial Fibrillation	21	3.43
SCA	9	1.47
Lung Infection	4	0.65
Hyperthyroidism	1	0.16
Chronic kidney failure	1	0.16
Inflammatory anemia	8	1.30

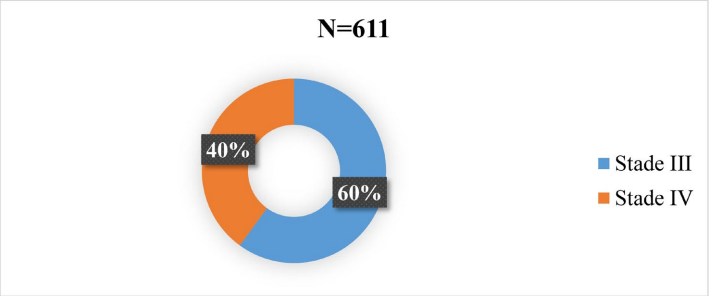

Figure 2. Distribution of patients according to heart failure stage.

Table 3. Distribution of patients according to the number of hospitalizations for heart failure.

Number of Admition	Effective (n = 611)	Percentage
1irst Admition	199	32.56
Readmition hospitalisation	412	67.43
- 2e Admition	315	51.55
- 3e Admition and more	97	15

Table 4. Distribution of patients according to the etiology of heart failure.

Etiologies	Effective (n = 611)	Percentage
Ischemic heart disease	319	52.2
Hypertensive Cardiopathy	267	43.69
Dilated cardiomyopathy	10	1.63
Valvulopathy	11	1.8
CPC	4	0.65
Hyperthyroïdism	1	0.16

4. Discussion

During our study, we identified 611 patients hospitalized for cardiac decompensation out of a total of 1172 patients, representing a hospitalization rate of 52.13%. This result is comparable to that reported by Askshay S *et al.*, who reported a hospitalization rate of 50% [8], and is significantly higher than the 35.15% reported by Makali MA *et al.* in Niger [9].

The age group most affected was those over 60 years of age, with a prevalence of 38.46%. Our findings are consistent with those in the literature, which indicate that heart failure occurs primarily in older adults [10] [11]. Barry IS *et al.*, in a study on heart failure in the elderly, reported a mean age of 75.32 years; the most common age group was 65 - 74 years (45.37%), and the sex ratio was 1.29 [12].

The study revealed a male predominance, with 61.04% males and 38.95% females, resulting in a sex ratio (M/F) of 1.5. Our findings were similar to those of Kingue in Yaoundé, who reported a sex ratio of 1.3 in favor of males [13].

Ischemic heart disease was the leading cause of HF, accounting for 52.20% of

cases, followed by hypertensive heart disease and valvular heart disease, accounting for 43.69% and 1.80%, respectively. Our results differed from those of Kingué *et al.* [13] in Yaoundé, who reported a prevalence of cardiomyopathy of 24.55%. These findings could be explained by the advanced age of our patients and the fact that valvular heart disease is often secondary to AAF.

Treatment discontinuation and dietary non-compliance were the most common factors contributing to decompensation, with frequencies of 50.90% and 38.29%, respectively. Our results are lower than those of Damouro in Lomé, who reported that the main factor contributing to decompensation in his study was treatment non-adherence, with a frequency of 87.4%, followed by hypertensive crisis and poor diet, with frequencies of 63.1% and 34.9%, respectively [10]. Our results differ from those reported by Anaïs in her 2013 doctoral thesis at Paris Descartes University on the triggers of cardiac decompensation in elderly patients, which found that the primary factor was infections (especially pulmonary) with a frequency of 71%, followed by cardiac arrhythmias and anemia with frequencies of 19% and 12%, respectively [14]. This high rate of treatment discontinuation could be explained by: the high cost of managing heart failure, a condition that requires long-term treatment; the low economic status of patients, which prevents them from consistently adhering to their treatment; and the low educational level of patients.

The third most common precipitating factor was a hypertensive crisis, occurring in 4.9% of cases. According to the literature, older patients are at greater risk of developing visceral distress—particularly cardiogenic pulmonary edema following a hypertensive crisis [15]. In fact, a hypertensive crisis can lead to cardiac decompensation, especially in older adults, whose ability to adapt to increased blood pressure is diminished.

Atrial fibrillation ranked fourth and accounted for 3.43% of triggering factors. The pathophysiology and risk factors for heart failure and AF are closely linked [16]. It is therefore understandable that when atrial fibrillation occurs, an exacerbation of heart failure is observed.

Acute ST-elevation myocardial infarction was responsible for cardiac decompensation in 1.47% of cases. Despite numerous advances in the diagnosis and treatment of acute myocardial infarction, a significant residual risk remains, resulting in high mortality rates [17]. The incidence of heart failure following a myocardial infarction is higher [18]. Patients who have suffered a myocardial infarction are at high risk of developing heart failure, and a delay in diagnosis compromises the patient's prognosis. In our patients, inflammatory anemia was responsible for 1.30% of cases of decompensation. Our findings differ from those of Barsheshet A *et al.*, who reported iron-deficiency anemia as a factor in decompensation [19].

The presence of anemia is a poor prognostic factor in chronic heart failure: increased mortality, worsening of clinical symptoms, and deterioration in functional status [20]. This was confirmed in older adults in the SENIORS study,

where anemia was identified as an independent risk factor for mortality and hospitalization in chronic heart failure [21]. The majority of our patients were being hospitalized for the second time, accounting for 67.43% of cases. This high rate of rehospitalization may be attributed to a lack of patient education, but in our context, it could also be explained by the absence of curative treatment for most of the underlying heart conditions responsible for heart failure.

Stage III (60%) heart failure according to the NYHA classification was the most common. This finding is comparable to that of Wolf PA *et al.* (2022), who reported that 54% of patients were classified as NYHA Class III - IV, and 46% as Class I - II [16]. Another study conducted in Yaoundé, Cameroon, showed that 44% of patients were in class III and 7% in class IV [13]. More broadly, in low- and middle-income countries (LMICs), it has been observed that between 30.1% and 56.4% of patients with heart failure were diagnosed at an advanced stage (NYHA Class III or IV) at the time of their initial evaluation [17].

In our study, in-hospital mortality was 6.5%. In a previous study conducted in the same department, which examined factors contributing to heart failure decompensation, Barry IS *et al.* found a mortality rate of 7.5% and a mean length of stay of 10 days [22]. This decline in mortality in our department could be explained by the significant improvement in our technical capabilities.

5. Conclusion

The factors contributing to decompensation in chronic heart failure identified in our study were similar to those reported in the literature. Understanding these factors allows clinicians to save time by better tailoring their clinical interviews. In most cases, these factors were avoidable and could be prevented through improved education of patients and their caregivers.

Study Limitations

Incomplete data entry and the retrospective nature of the study were our main challenges.

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Camara Abdoulaye; Koivogui Diarra; Diallo Salematou; Keita Fatoumata; and Diallo Thierno Abdoul Bobo contributed to data collection and the statistical analysis of the study.

Keita Mamadou Saidou and Mansaré Mohamed actively participated in the translation of the manuscript into English.

Conflicts of Interest

The authors declare no competing interests.

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