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The Problem of Rehospitalisation for Heart Failure at the Cardiology Department of the Hôpital National Ignace Deen

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Abstract

Introduction: Despite current therapeutic advances, heart failure in sub-Saharan Africa remains a common, serious and costly disease, particularly due to rehospitalizations. The objective of this work was to determine the proportion of rehospitalizations for heart failure and to identify etiological factors. **Methodology:** This was a retrospective descriptive study with a duration of 8 months from April 1 to November 30, 2021. This study included all patients rehospitalized in the department for Heart Failure and who agreed to participate in our study. **Results:** During the period of our study, 437 patients were hospitalized in the HF department, among which we collected 126 cases of rehospitalization for HF with a frequency of 28.83%. The mean age of our patients was 46.32 ± 18.98 years with the extremes of 15 to 84 years. The most affected age group was between 35 and 44 years old in 24 cases, *i.e.* a frequency of 19%. We observed a female predominance of 64 cases, *i.e.* a frequency of 50.8% compared to 62 cases, *i.e.* a frequency of 49.2% with a sex ratio (M/F) equal to 0.96. 98 cases of our patients, *i.e.* a frequency of 77.8%, were mutual insurance companies who felt they had the necessary support from those around them. In our sample, the underlying heart disease was mainly represented by valvular heart disease in 59 cases, followed by hypertensive heart disease in 42 cases with the respective frequencies of 46.82% and 33.33%. The majority of our patients were rehospitalized (1 - 3) times after a first episode of HF flare-up in 117 cases or 92.9%. Irregularity at control and therapeutic break were the most common decompensation factors with frequencies of 75.8% and 74.2% respectively. The majority of our patients were rehospitalized (1 - 3) times after a first episode of HF flare-up in 117 cases or 92.9%.

Irregularity at control and therapeutic break were the most common decompensation factors with frequencies of 75.8% and 74.2% respectively. **Conclusion:** It appears in this study that rehospitalizations for heart failure are frequent, linked to irregularity in control and the lack of therapeutic education.

Keywords

Heart Failure, Rehospitalisation, Valvular Heart Disease

1. Introduction

Despite current therapeutic advances, heart failure in sub-Saharan Africa remains a frequent, serious and costly disease, particularly due to re-hospitalisation.

Readmission rates for heart failure remain high [1], with 50% or more of patients requiring readmission within six months of discharge from hospital [2] [3]. Aware that reducing the rate of rehospitalisation would both reduce healthcare costs and improve the quality of care, both public and private health insurance organisations are increasingly taking rehospitalisation into account in their performance-based remuneration schemes [4].

In sub-Saharan Africa, a multicentre evaluation study conducted in 2006 showed that New York Heart Association (NYHA) stage IV heart failure was the second most common cardiovascular emergency after hypertension, accounting for 27.5% of cases [5]. There are several causes of heart failure, the most important of which are hypertension, coronary artery disease, valvular heart disease and cardiomyopathy [6].

Growing awareness of the need to reduce readmission rates has led national authorities and university hospitals to undertake research to identify predictive factors for assessing the risk of readmission for patients with heart failure, and to devise measures to prevent readmissions.

The aim of this study was to determine the proportion of hospital admissions for heart failure and to identify the aetiological factors.

2. Patients and Methods

This work was carried out in the cardiology department of the Hôpital National Ignace Deen, the only national reference department for the management of cardiovascular pathologies. Hospitalised patients came from both urban and rural areas.

This was a retrospective descriptive cross-sectional study lasting eight (8) months, from 1 April to 30 November 2021.

The inclusion criteria for this study were all patients readmitted to the department for heart failure after their first episode and who agreed to take part in the study.

The hospital register and patient files were used to collect data; the Girerd questionnaire was used to assess compliance with medication. It consists of six items:

Have you forgotten to take your medication?

Have you run out of medication since your last consultation? Are you often late in taking your medication?

No treatment because some days memory fails,

Do you have the impression that your treatment is doing you more harm than good? Do you think you are taking too many medicines?

Each item was assigned a point if the answer to the question asked was yes or no. The level of compliance with medication was qualified as good if the total number of points was zero.

It was said to be average if the number of points was between one and two. It was said to be poor if the total number of points was greater than or equal to "3".

For compliance with dietary hygiene measures, we used a questionnaire on compliance with dietary hygiene measures combining: The low-salt diet and physical activity;

Patients would be said to be compliant if they followed these hygienic and dietary measures very often; they would be non-compliant if they followed them less than half the time or rarely.

Finally, with regard to factors relating to healthcare staff, the lack of time taken by staff to explain to patients the dangers of neglecting their illness leads to non-compliance with treatment, failure to follow a healthy diet and recourse to alternative medicines.

Ethical aspects:

Clear explanations of the subject and objectives of the study were given to the hospital authorities for their approval, and to the respondents for their informed consent. Data relating to the private lives of individuals were kept confidential. The need to do nothing harmful to patients and their autonomy of decision were respected. Professional secrecy was observed and maintained.

Data entry and processing were carried out using Epi-info software version 3.5.1. Microsoft Office Excel was used to present the results in graph form, and Microsoft Office world 2007 was used for data entry and formatting.

The parameters studied in this study were the proportion of re-hospitalisations for heart failure, the factors linked to these iterative cardiac decompensations and the underlying cardiopathies for which their management is limited in our countries.

Limitations and difficulties of the study:

The main difficulty of our study was linked to the absence of a cardiac rehabilitation centre and the lack of BNP and pro BNP tests, and unfortunately statistical tests were not performed.

3. Results

This single-centre study, carried out between April and November 2021, included 126 cases of rehospitalisation for heart failure out of 437 patients hospitalised during this period, *i.e.* a proportion of 28.83%, as shown in **Figure 1**.

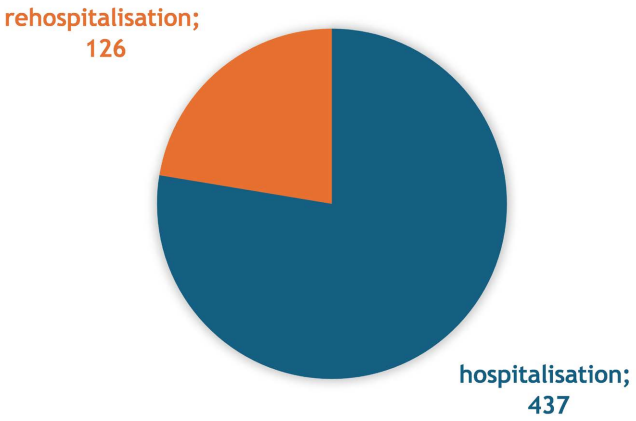

Figure 1. Frequency of rehospitalisation for heart failure.

The characteristics of our population are shown in Table 1. The mean age of our patients was 46.32 ± 18.98 years, with extremes ranging from 15 to 84 years. The age group most affected was between 35 and 44 years in 24 cases, *i.e.* a frequency of 19%; the predominance was female in 64 cases, *i.e.* a frequency of 50.8% against 62 cases, *i.e.* a frequency of 49.2% with a sex ratio (M/F) equal to 0.96. Almost all the patients (98 cases or 77.8%) were mutualists who felt they needed support from their family and friends.

Table 1. Characteristics of our population.

Medical cover	**Workforce**	**%**
Insured	28	22.22
Mutualist	98	77.8
Where do our patients come from?	**Workforce**	**%**
Urban municipality	86	68.25
Rural commune	40	31.75
Age	**Workforce**	**%**
<25	17	13.5
25 - 34	14	11.1
35 - 44	**24**	**19**
45 - 54	23	**18.3**
55 - 64	22	17.5
65 - 74	17	13.5
75 and over	9	7.1
Type	**Workforce**	**%**
Male	64	50.8
Female	62	49.2
Total	**126**	**100**

Mean age = 46.32 ± 18.98 years Standard deviation = 18.98; Extreme age = 15 and 84 years.

The diagnosis of rehospitalisation for heart failure was essentially represented by valvulopathy in 52 cases, followed by hypertensive cardiopathy in 37 cases with respective frequencies of 41.27% and 29.37% (see Table 2). None of our valvular patients benefited from valve surgery due to the lack of technical facilities and the high cost of evacuation. The majority of our patients were rehospitalized 1 - 3 times after a first episode of heart attack in 117 cases (92.9%), as shown in Table 3. Irregularity in monitoring and therapeutic failure were the most common factors in decompensation, with frequencies of 75.8% and 74.2% respectively (Table 4 & Table 5).

Table 2. Breakdown of patients according to underlying heart disease.

Underlying heart disease	Workforce	%
Cardiomyopathies	22	17.46
Endocarditis	4	3.17
Hypertensive heart disease	37	29.37
Valvulopathy	52	41.27
CIV	2	1.59
Pulmonary heart	6	4.76
Pulmonary embolism	1	0.79
Ischaemic heart disease	2	1.59
Total	**126**	**100**

Table 3. Breakdown of patients by number of rehospitalisations.

Number of re-admissions	Workforce	%
1-3	**117**	**92.9**
4-6	9	7.1
Total	**126**	**100**

Table 4. Distribution of patients according to heart failure decompensation factors.

Factors in IC decompensation	Workforce	%
Anemia	60	47.61
AVC	10	7.94
Respiratory infection	50	39.68
Irregularity in the inspection	**105**	**83.33**
Break in therapy	**95**	**75.40**
Hypertensive flare-up	24	19.05
Ischaemic attack	2	1.59
Low-salt diet	1	0.79
Heart rhythm disorder	38	30.16

Table 5. Treatment compliance (girerd questions) and compliance with dietary and hygiene measures.

Compliance with treatment	Workforce	%
Good	0	0
Average good	12	9.52
Bad	114	90.48
Hygienic and dietary measures	**Workforce**	**%**
Compliants	1	0.79
Non-Compliant	125	**99.21**
Total	126	**100**

4. Discussion

During the period of our study, 347 patients were hospitalised on the ICU ward, including 126 cases of rehospitalisation for ICU, a frequency of 28.83%.

In the study by Ellenga Mbolla, B F *et al.*, on the causes of rehospitalisation for heart failure in the cardiology department of the Brazzaville University Hospital (Republic of Congo) in April 2015, the frequency of rehospitalisation for heart failure was 19% [7]. This high frequency of rehospitalisation for heart failure in our study could be explained by therapeutic failure linked to the lack of therapeutic education of our patients and the high cost of drugs.

The mean age of our patients was 46.32 ± 18.98 years, ranging from 15 to 84 years. The age group most affected was between 35 and 44 in 24 cases, *i.e.* a frequency of 19%. Our result is lower than that of K. Yayehd *et al.* who found a mean age of 54 ± 36 years with extremes of 25 to 89 years [8]. The onset of heart failure at a young age in our study may be explained by the fact that almost all our patients had decompensated heart valve disease [8].

In our series, we observed a female predominance of 64 cases, *i.e.* a frequency of 50.8%, against 62 cases, *i.e.* a frequency of 49.2%, with a sex ratio (M/F)/= 0.96. Our results are identical to those of K. Yayehd *et al.* in their study of adherence to treatment for C.I. in Lomé in 2012, who found a female predominance of 57.3% compared with 42.7%, *i.e.* a sex ratio (M/F) of 0.74 [8].

If heart failure is characterised by a very high rate of re-hospitalisation, and consequently by a very high induced cost, 84 cases of our patients, *i.e.* a frequency of 66.67%, were mutualists who felt they had the necessary support from their family and friends, and only 28 cases, *i.e.* 22.22%, had health insurance.

In our sample, the diagnosis of rehospitalisation for heart failure was essentially represented by valvulopathy in 52 cases followed by hypertensive cardiopathy in 37 cases with frequencies of 41.27% and 29.37% respectively. Our results are contrary to those reported by Ellenga Mbolla, B F *et al.* who found a high frequency of hypertensive heart disease in 40 cases (43.9%), dilated cardiomyopathy in 28 cases (30.8%) and valvulopathy in 9 cases (10%) [7]. This high frequency of valvulopathy in our series could be explained by the prevalence of rheumatic fever in

non-industrialised countries where living conditions are precarious and promiscuous.

The majority of our patients were readmitted to hospital 1 - 3 times after a first episode of heart failure in 117 cases, *i.e.* 92.9%; this high rate of readmission can be explained by the difficulties of curative treatment of most of the underlying heart diseases, the rarity and high cost of certain drugs such as the class of sodium/glucose-2 cotransporter (SGLT2) inhibitors, sacubitril/valsartan and the lack of therapeutic education.

Irregularity in control and therapeutic breakdown were the main factors in decompensation with frequencies of 83.33% and 75.40 respectively. Our results are contrary to those found by Ellenga Mbolla, B F *et al.* in 2014 who reported that the main decompensation factors found were deviations from the low-salt diet 64 cases (70.3%), poor compliance with treatment 56 cases (61.5%) [7]. This high frequency in our study could be explained by ignorance and lack of economic resources.

In terms of compliance with treatment, almost all of our patients were poorly compliant with treatment, and none were well compliant. There is little African literature on this subject. Data in the world literature are mixed. In Europe, where medical coverage is universal, Van der Wal *et al.* [9] reported 90% good compliance with pharmacological treatment; this demonstrates the difficulties of access to medicines in our country, where the cost of care is borne exclusively by patients.

In terms of compliance with dietary hygiene measures, the vast majority of our patients were not compliant with dietary hygiene measures, *i.e.* 125 cases with a frequency of 99.21%.

This could be explained by patients not adhering to their treatment and by the lack of cardiovascular rehabilitation centres.

5. Conclusion

This work shows that rehospitalisation for heart failure is frequent, due to irregular monitoring and the lack of therapeutic education for our patients. We therefore recommend setting up cardiac rehabilitation and therapeutic education centres, as well as improving the technical platform by creating a cardiac surgery centre.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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