Epidemiological Aspects of Cardiac Decompensation Factors Renaissance Hospital N'Djamena Chad

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Abstract

Introduction: Cardiac decompensation factors are numerous. Their identification allows better management of patients and limits the rate of rehospitalization. The aim of this work was to identify cardiac decompensation factors and improve their management at the renaissance hospital in N'Djamena, Chad.

Patients and Methods: This was a cross-sectional retrospective study conducted in the cardiology department at N'Djamena Renaissance Hospital, over a period of one year, from 01 January 2018 to 01 January 2019. All patients hospitalized for cardiac decompensation during this period and consented, were included.

Results: During the period of our study, 52 patients were included. The sex ratio was 1.9. The mean age was 48±9 years old. The predominant cardiovascular risk factors were arterial hypertension (37%, n = 19) and diabetes (27%, n = 14). The monthly income of our patients was in the majority of cases less than 200,000 FCFA (44%, n = 23). The main factors of cardiac decompensation were respectively, infections (18%, n = 9), supraventricular arrhythmias (16%, n = 8), changes in temperature (11%, n = 6), therapeutic nonobservance (11%, n = 6), dietary gap (10%, n = 5), and hypertensive relapses (10%, n = 5). The main etiologies of heart failure were ischemic cardiomyopathies (31%, n = 16), dilated cardiomyopathies (25%, n = 13), hypertensive cardiomyopathies (17%, n = 9), and rheumatic valvulopathies (15%). %, n = 8).

Conclusion: Rehospitalizations for cardiac decompensation are common after the first episode of hospitalization. The identification of the risk factors for this decompensation and their management make it possible to avoid these readmissions.

Keywords: Cardiac decompensation factors; Heart failure; Renaissance hospital N'Djamena Chad

Abbreviations: HF: Heart Failure; FFCA: Franc of the Financial Community in Africa; AFA: Atrial Fibrillation Arrhythmia; LV: Left Ventricle

Introduction

Heart failure (HF) is defined as a clinical syndrome characterized by chronic symptoms (dyspnea, fatigue) that may be accompanied by physical signs (crepitus, peripheral edema) caused by a structural cardiac abnormality and / or functional, resulting in decreased cardiac output [1]. It is a major public health problem because of its frequency and consequences in terms of morbidity and mortality and its economic impact on the health care system. Its prevalence is increasing because of the aging of the population but also because of the improvement of the management of many heart diseases including ischemic heart disease. It is one of the leading causes of hospitalization, morbidity and mortality, especially among the elderly [2]. Its evolution is clinically marked by periods of remission and exacerbation leading to recurrent hospitalizations. The number of readmissions for IC remains significant despite the therapeutic progress of recent years. The identification of decompensation factors and the optimization of their management could prevent these readmissions, particularly after hospitalization. The objective of this study was to identify cardiac decompensation factors and improve their management at the renal hospital in N'Djamena, Chad.

Patients and Methods

This was a cross-sectional retrospective study conducted in the cardiology department at N'Djamena Renaissance Hospital, over a period of one year, from 01 January 2018 to 01 January 2019. Were included all patients readmitted for cardiac decompensation during the study period and who gave their consent.

The parameters studied

Epidemiological characteristics: age, sex, cardiovascular risk factors (arterial hypertension, diabetes, chronic renal dysfunction with glomerular filtration rate <60ml/min / 1.73m2, obesity, dyslipidemia, alcohol, smoking), monthly cost of treatment in FFCA (1 US dollar = 593,720 FFCA). Clinical features: cardiac decompensatory factors (difference in diet, unsuitable exercise, temperature, alcohol, AFA, other rhythm disorders, hypertensive pressure, ischemic episode, anemia, bronchopulmonary infection, other infection, renal failure, poor compliance drug, hyperthyroidism, untreated sleep apnea syndrome), etiologies of HF. Electrocardiographic characteristics: arrhythmias (atrial or ventricular extrasystoles, atrial fibrillation or flutter, atrial tachycardia, ventricular tachycardia), repolarization abnormalities, sinoatrial or atrioventricular blocks. Echocardiographic features: dilated cardiac cavities, wall hypertrophy, diastolic dysfunction of the left ventricle (LV); abnormalities of left ventricular kinetics (hyperkinesia, hypokinesia, akinesia), LV systolic dysfunction (systolic ejection fraction <45%), valvular abnormality, congenital anomaly, pulmonary arterial hypertension.

Statistical Analysis

In this study, a descriptive statistical analysis was applied using Microsoft Excel, quantitative variables were presented by their mean and standard deviation and qualitative variables were by percentages.

Ethics

This work was done by obtaining the approval of the hospital management and the consent of the patients.

Results

During the period of our study, 52 patients were included. Men predominated with 65% of cases (n = 34). The sex ratio was 1.9. The average age was 48±9 years old with a minimum age of 22 years and a maximum age of 79 years. Patients were educated only in 38% of cases (n = 20). The predominant cardiovascular risk factors were hypertension (19%), diabetes (14%), dyslipidemia (11%), and 19%. The monthly income of our patients was in the majority of cases less than 200,000 FCFA. The rates were, respectively, between CFAF 100,000 and 200,000 in 44% of cases (n =23) and less than CFAF 100,000 in 33% of cases (n = 17). Only 12 patients (23%) had an income above 200,000 FCFA. The health insurance rate was observed in 13% of cases (n=7). (Table 1) shows the characteristics of the patients. The main factors of cardiac decompensation are shown in Table 2. The most frequent were respectively, infections in 18% of cases (n = 9), including 4 cases of bronchopulmonary infections (8%), supraventricular rhythm disorders in 16% of cases (n=8) including 5 cases of AFA (10%), changes in temperature especially heat with 6 cases (11%), poor therapeutic compliance 6 cases (11%), the difference diet in 10% of cases (n = 5), and hypertensive outbreaks in 10% of cases (n=5). The most common etiologies of IC (Table 3) were ischemic cardiomyopathies in 31% of cases (n=16), of which 4 patients (8%) had benefited from myocardial revascularization, dilated cardiomyopathies in 25% (n=16). = 13), hypertensive cardiomyopathies in 17% of cases (n =9) and rheumatic valvulopathies in 15% (n=8). Other etiologies were less frequent in this series such as post-embolic pulmonary heart in 6% of cases (n=3), congenital heart disease in 4% (n=2) and pericardial affections in 2% of cases (n= 1).

Table 1: Patient Characteristics.

Settings	Number (n)	Percentage (%)
Sex		
Women	18	35
Man	34	65
Age (year)		
Way	48 ± 9	-
<30	3	6
30 - 39	8	15
40 - 49	14	27
50 - 59	18	35
≥ 60	9	17
Instruction		
Yes	20	38
No	32	62
Risk factors		
Obesity	7	13
Hypertension	19	37
Diabetes	14	27

dyslipidemia	11	21
Alcohol	5	10
Smoking	7	13
Renal dysfunction	10	19
Monthly income (FFCA)		
<100,000	17	33
100,000 - 200,000	23	44
> 200,000	12	23
Health Insurance		
Yes	7	13
No	45	87

Table 2: Cardiac Decompensation Factors.

Settings	Number (n)	Percentage (%)
Plan gap	5	10
Unsuitable physical exercise	2	4
Temperature (heat)	6	11
Alcohol	2	4
AFA	5	10
Other rhythm disorders	3	6
Hypertensive thrust	5	10
Ischemic episode	2	4
Anemia	4	8
Bronchopulmonary infection	4	8
Other infection	5	10
Renal failure	3	6
Therapeutic non-compliance	6	11

Table 3: Etiologies of HF.

Etiologies	Number (n)	Percentage (%)
Rheumatic Valvulopathy	8	15
Congenital heart disease	2	4
Dilated cardiomyopathy	13	25
Ischemic cardiomyopathy	16	31
Hypertensive cardiomyopathy	9	17
Postembolic pulmonary heart	3	6
Affections of the pericardium	1	2

Discussion

The post-hospitalization period is conducive to re-hospitalization, but long-term chronic HF patient follow-up is important because the morbidity and mortality rate remains high in this group of patients, even though many treatments have been shown to be effective. The follow-up of these patients makes it possible to optimize the therapeutics, the monitoring and to detect early the signs of decompensation. Cardiac rehabilitation plays an important role in the management of HF and should be part of the modern strategy for the management of patients with stable heart failure. This includes not only physical training, but also rehabilitation of drug treatments, control of risk factors, psychological management and finally, patient education [3]. The search for this factor that shifts a situation of balance during a decompensation is fundamental because its treatment can be very profitable. Several standards for HF support highlight the need to look for a triggering factor [4]. We studied the importance of triggers for cardiac decompensation in a population of readmitted patients who were followed for chronic HF. The main triggering factors identified were, in order of frequency, infections, atrial fibrillation, therapeutic nonobservance, temperature variations, mainly heat, uncontrolled hypertension, diet deviation, anemia, myocardial ischemia. These factors are globally found in the literature data. In this study, the first triggering factor found was the existence of an infection (18%) with bronchopulmonary infections (8%) at their head. They are promoted by decreasing the effectiveness

of coughing, bronchiolar elasticity, efficiency of the mucociliary system and swallowing disorders.

The mechanisms involved in cardiac decompensation are multiple. Several studies have highlighted the important role of infections, particularly bronchopulmonary infections, in cardiac decompensation, especially in elderly patients [5-8]. The second triggering factor was a supraventricular rhythm disorder (16%), especially ACFA (10%). Suppression of atrial systole results in increased LV filling pressures and promotes the onset of HF thrust. AFA is common in HF and its prevalence increases with the severity of CI [9-13]. Cardiac decompensation was attributed to non-compliance in 8% of the cases in this study, but adherence remains difficult to assess. This non-compliance was favored by several factors in our patients; the high number of drugs with their adverse effects, given the high rate of comorbidities observed (diabetes, high blood pressure, kidney failure), the economic level which was low in almost 50% of patients and the absence of health insurance, the level of education and the influence that might have on the understanding of the disease. The therapeutic nonobservance in the HF varies in the literature from 10 to 99% according to the evaluation method used [14]. Compliance is responsible for an increase in the number of hospitalizations and a worsening of clinical signs [15]. A multidisciplinary intervention has shown its effectiveness on adherence to 30-day treatment [16] and an educational intervention has improved compliance and decreased re-hospitalization rates [17]. Anemia was found in 4 patients in our series.

This result is weak compared to data from the literature because, according to several authors, anemia is frequent during IC and is a poor prognostic factor in chronic HF [18,19], increased clinical signs, aggravation of functional status [20]. However, there is little data on the involvement of acute anemia in cardiac decompensation. In addition, the management of the etiology of HF remains essential to prevent complications and readmissions and to improve the prognosis. In our study we found that in coronary patients (31%) only 8% had benefited from myocardial revascularization, valvular patients (15%) and those with congenital heart disease (4%) had not received reparations. surgical procedures that were necessary. In our context, the identification of the decompensation factors must be of paramount importance for the clinician and should allow the improvement of the management of the pathology in particular at the preventive level. Hence the importance of educating the patient and those around him. The establishment of appropriate structures and care networks for heart failure in all regions of Chad will allow better monitoring of patients with rapid access to the specialist physician.

The limits of our work

Our study presents several methodological limitations. First, it is a retrospective study with information gathered from the reports that sometimes did not contain all the necessary data. The size of our sample is small, we will have to lead other more representative studies in the future. And many patients have not received etiologic treatment of HF.

Conclusion

Rehospitalizations for cardiac decompensation are common after the first episode of hospitalization. The identification of the risk factors for this decompensation and their management make it possible to avoid these readmissions. Hence the importance of emphasizing access to care with appropriate therapeutic means, regular monitoring and therapeutic education.

References

1. Ponikowski P, Voors AA, Anker SD, Bueno H, Cleland JGF, et al. (2016) ESC Guidelines for the Diagnosis and Treatment of Acute and Chronic Heart Failure: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure of the European Society of Cardiology (ESC). Developed with the Special Contribution of the Heart Failure Association (HFA) of the ESC. European Heart Journal 37(27): 2129-2200.

2. Roger VL (2013) Epidemiology of Heart Failure. Circulation Research 113: 646-659.

3. MC Iliou (2001) Place de la réadaptation dans le traitement de l'insuffisance cardiaque chronique. Ann Cardiol Ang6io 50: 65-73.

4. Komajda M, Forette F, Aupetit JF, Bénétos A, Berrut G, et al. (2004) Recommendations for the diagnosis and management of cardiac failure in the elderly subject. Arch Mal Coeur Vaiss 97: 803-822.

5. Chirinos JA, Segers P (2010) Noninvasive evaluation of left ventricular afterload: part 2: arterial pressureflow and pressure-volume relations in humans. Hypertension 56(4): 563-570.

6. Corrales Medina VF, Suh KN, Rose G, Chirinos JA, Doucette S, et al. (2011) Cardiac Complications in Patients with Community-Acquired Pneumonia: A Systematic Review and MetaAnalysis of Observational Studies. PLoS Med 8(6): 159-169.

7. Abe S, Ishihara K, Adachi M, Okuda K (2006) Oral hygiene evaluation for effective oral care in preventing pneumonia in dentate elderly. Arch Gerontol Geriatr 43(1): 53-64.

8. Terpenning M (2005) Geriatric oral health and pneumonia risk. Clin Infect Dis 40(12): 1807-1810.

9. Doval HC, Nul DR, Grancelli HO, Perrone SV, Bortman GR, et al. (1994) Randomised trial of low-dose amiodarone in severe congestive heart failure. Grupo de Estudio de la Sobrevida en la Insuficiencia Cardiaca en Argentina (GESICA). Lancet 344(8921): 493-498.

10. Dries DL, Exner DV, Gersh BJ, Domanski MJ, Waclawiw MA, et al. (1998) Atrial fibrillation is associated with an increased risk for mortality and heart failure progression in patients with asymptomatic and symptomatic left ventricular systolic dysfunction: a retrospective analysis of the SOLVD trials. J Am Coll Cardiol 32(3): 695-703.

11. SOLVD Investigators, Yusuf S, Pitt B, Davis CE, Hood WB, et al. (1992) Effect of enalapril on mortality and the development of heart failure in asymptomatic patients with reduced left ventricular ejection fractions. N Engl J Med 327(10): 685-691.

12. Torp Pedersen C, Moller M, Bloch Thomsen PE, Kober L, Sandoe E, et al. (1999) Dofetilide in patients with congestive heart failure and left ventricular dysfunction. Danish Investigations of Arrhythmia and Mortality on Dofetilide Study Group. N Engl J 341(12): 857-865.

13. CONSENSUS Trial Study Group (1987) Effects of enalapril on mortality in severe congestive heart failure: results of the Cooperative North Scandinavian Enalapril Survival Study (CONSENSUS). N Engl J Med 316(23): 1429-1435.

14. Van der Wal MHL, Jaarsma T (2008) Adherence in heart failure in the elderly: problem and possible solutions. Int J Cardiol 125(2): 203-208.

15. Wal MHL van der, Jaarsma T, Veldhuisen DJ van (2005) Non-compliance in patients with heart failure; how can we manage it? Eur J Heart Fail 7(1): 5-17.

16. Rich MW, Gray DB, Beckham V, Wittenberg C, Luther P (1996) Effect of a multidisciplinary intervention on medication compliance in elderly patients with congestive heart failure. Am J Med 101(3): 270-276.

17. Falces C, López Cabezas C, Andrea R, Arnau A, Ylla M, Sadurní J (2008) An educative intervention to improve treatment compliance and to prevent readmissions of elde rly patients with heart failure. Med Clin (Barc) 131(12): 452–456.

18. Groenveld HF, Januzzi JL, Damman K, Van Wijngaarden J, Hillege HL, et al. (2008) Anemia and mortality in heart failure patients a systematic review and meta-analysis. J Am Coll Cardiol 52(10): 818-827.

19. Ezekowitz JA, McAlister FA, Armstrong PW (2003) Anemia Is Common in Heart Failure and Is Associated With Poor Outcomes Insights from a Cohort of 12 065 Patients with New-Onset Heart Failure. Circulation 107(2): 223-225.

20. Horwich TB, Fonarow GC, Hamilton MA, MacLellan WR, Borenstein J (2002) Anemia is associated with worse symptoms, greater impairment in functional capacity and a significant increase in mortality in patients with advanced heart failure. J Am Coll Cardiol 39(11): 1780-1786.
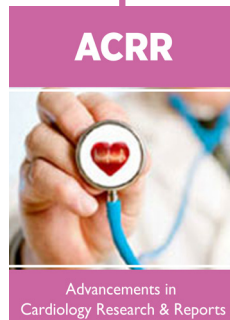
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