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Epidemiological and Clinical Aspects of Heart Failure (HF) at Mother-Child Hospital "Le Luxembourg" (MCHL)

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Citation

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Abstract

Objectives: Published data on HF are rare in sub-saharan Africa and Mali made no exception. That why we performed this study to provide epidemiological data on HF in Bamako. Methodology: the study was performed prospectively on all patients (outpatients and those hospitalized) with a diagnosis of HF established clinically and echocardiographically. Socio-demographic, clinical and labor tests data were recorded in an Access database, checked with Excel and analyzed with SPSS. We performed a descriptive and then an analytic study dividing patients in those with and without known HF. Results: HF prevalence was 2.21% among outpatients and %18.64 in hospitalized patients. The male patients represented 55,9% of the sample and 38,7% of the patients were aged over 60 years. From the socio-demographic characteristics only age showed a significant difference, $42,05\pm 19,606$ for patients with known HF and 54,84±20,101 for those without known HF (p =0,003).Referred patients represented 37.6% of the patients and 54.4% of these patients were without previous known HF record. Decompensation was found in 87.1% of cases. Dyspnea, cough and legs edema were found respectively in 75.3, 60.2 and 52.7% of cases. Dietary (16,1%) and medication nonadherence (16,1%) were the main causes. Ischemic heart disease, valvular heart disease and hypertensive heart disease predominated over other HF cases as they were seen in 28.0, 28.0 and 17.2% of patients respectively. Loop diuretics, Angiotensin Converting Enzyme Inhibitor and antiplatelet agents were the most prescribed drugs in 91.3 respectively 82.61 and 69.57% of cases. Conclusion: The dominant etiology in our study was ischemic heart disease. Medical consultation in advanced stage of disease and medication non-compliance for various reasons were the main situations promoting cardiac decompensation.



1. Introduction

HF is a public health problem because of its prevalence and implications in terms of management cost. HF prevalence tends to grow due to the aging of the population [1-3].

Heart failure affects both the developed and developing countries. It affects almost 5.1 millions people in the US [4] and its prevalence was 1.99% in 2007 in Sweden [5].

In Sub-Saharan Africa HF is mainly caused by Hypertension (HTA), cardiomyopathies and valvular heart disease [6-10]. This same observation was made by Diallo et al. in 2004 with 46.7 and 20% resp. for hypertension and valvular heart disease [11].

Published data on HF are rare in Mali. That why we designed this study which aims to describe the epidemiological and clinical aspects of the HF in a sample of patients in the MCHL.

2. Methodology

The study was designed as a prospective, descriptive study and performed in MCHL in cardiology department from august to december 2014.

2.1. Sampling Procedure

Included were all outpatients or those hospitalized with the diagnose of HF. This diagnose was established on the basis of clinical, electrocardiographic and echocardiographic data.

It was a consecutive serie of patients seen during the study time.

2.2. Collection and Processing of Data

A designed formulary including socio-demographic, clinical and labor tests data was the basis for the database building using Microsoft Access 2007.

Then all data were inserted in this database and checked using Microsoft Excel 2007 before analysis with SPSS Version 12.

We first perform a descriptive study and then an analytic dividing patients in two groups those with known HF and those without.

Participation in the study was free and obtained after informed consent, so that we could include all patients with HF record in the study.

3. Results

During the study time 4190 patients were seen in our outpatient clinic and 499 of those hospitalized giving an HF outpatient prevalence of 2.21% and 18.64% in hospitalization.

As indicated in Table I, the male sex (55.9%), the age group over 60 years (38,7%), patients who are unschooled (58,1%) were the main socio-demographic characteristics of the sample. Other characteristics from Table 1 were without an insurance (68,8%) and lived in a family with 6 or more members (75,1%).

Age groups showed a significant difference as indicated in Table I.

As indicated in Table II, only age was significant different, 42,05 for patients with known HF and 54,84 years for patients without known HF. All other anthropometric characteristics showed no significant difference

Variables		Total	HF record N (%)		р
variables		N (%)	Yes	No	
Age groups (years)	<15	07 (07.5)	03 (42.9)	04 (57.1)	0.09
	15-29	13 (14.0)	11 (84.6)	02 (15.4)	
	30-44	18 (19.4)	10 (55.6)	08 (44.4)	
	45-59	19 (20.4)	08 (42.1)	11 (57.9)	
	≥ 60	36 (38.7)	10 (27.8)	26 (72.2)	
Sex	Female	41 (44.1)	18 (43.9)	23 (56.1)	0.829
	Male	52 (55.9)	24 (46.2)	28 (53.8)	
Education level	Unschooled	54 (58.1)	21 (38.9)	33 (61.1)	0.506
	Secondary	18 (19.4)	10 (55.6)	08 (44.4)	
	Primary	15 (16.1)	08 (53.3)	07 (46.7)	
	University	05 (05.4)	02 (40.0)	03 (60.0)	
	Post primary	01 (01.1)	01 (100)	00 (0.0)	
Insurance	None	64 (68.8)	28 (43.8)	36 (56.2)	0.153
	Canam*	19 (20.4)	07 (36.8)	12 (63.2)	
	Anam**	09 (09.7)	07 (77.8)	02 (22.2)	
	Private	01 (01.1)	00 (0.0)	01 (100)	
Environnement	Family***	69 (74.2)	30 (43.5)	39 (56.5)	0.640
	Couple	20 (21.5)	09 (45.0)	11 (55.0)	
	Others	03 (03.3)	02 (66.7)	01 (33.3)	
	Alone	01 (01.1)	01 (100)	00 (0.0)	

Table I. Socio-demographic characteristics of 93 patients with HF.

* Caisse Nationale d'Assurance Maladie (National Health Insurance Fund) ** Agence Nationale d'Assurance Maladie (National Health Insurance Agency) ***More than 6 members

Variables	Total sample	HF record N (%)	HF record N (%)		
	Mean ± SD	Yes	No	р	— р
Age	49.06 ± 20.782	42.05± 19.606	54.84±20.101	0.003	
SBP	121.27 ±29.890	117.52±28.885	124.36±30.629	0.275	
DBP	73.42 ± 18.023	72.76±18.295	73.96±17.960	0.752	
Mean BP	88.85 ± 20.986	86.53±21.826	90.76±20.284	0.336	
Pulsed Pressure	48.64 ± 22.509	46.49±22.137	50.40±22.878	0.408	
HR (/min)	96.10 ± 30.497	91.31±17.837	100.04±37.620	0.171	
Weight (Kg)	64.97 ± 20.042	64.57±17.469	65.29±22.104	0.864	
Height (cm)	168.38 ± 15.180	167.90±17.213	168.76±13.443	0.787	
BMI (Kg/m ²)	23.5628 ± 13.270	24.859±18.332	22.49±06.770	0.395	
WC (cm)	82.59 ±18.655	79.50±19.156	85.14±18.023	0.148	





Figure 1. Clinical presentation of 93 cases of heart failure.

A high proportion (62,4%) of patients arose directly in cardiology without being checked by general practioner and 54.4% were without known HF record.

Clinical presentation was a decompensation in 87.1% of cases (Figure 1).

Dyspnea, cough and leg edema were observed respectively in 75.3, 60.2 and 52.7% of all cases (Table III).

Most patients were in decompensated state at the admission (87,10%)

Table III. Symptoms found in 93 patients with HF.

Symptoms	Ν	(%)
Dyspnea	70	75.3
Cough	56	60.2
Leg edema	49	52.7
Tiredness	15	16.1
Chest Pain	18	19.4
Expectorations	13	14.0
Palpitations	10	10.8
Liver pain	09	09.7

Medication non-adherence (error/arrest) and dietary failure were the predisposing circumstances in each 32.2% of cases followed by rhythm disorders with 8.6% (Table IV). In 51.6% of cases, no special circumstance was found.

Table IV. Background of the occurrence of HF.

Context	Ν	(%)
Unknown	48	51.6
Dietary failure	15	16.1
Medication failure	15	16.1
Rythm disorders	08	08.6
Hypertension crisis	06	06.5
Infection	03	03.2
Dysthyroidism	03	03.2
Acute coronary syndrom	03	03.2
Anemia	01	01.1
Renal dysfonction	01	01.1

Ischemic heart disease and valvular heart disease observed in each 28,0% followed by hypertensive heart disease with 17.2%. (Table V).

Table V. Retained diagnoses for 93 cases of HF.

Diagnose	Ν	(%)	
Ischemic HF	26	28.0	
Valvular heart disease	26	28.0	
Hypertensive heart disease	16	17.2	
Cardiomyopathy	08	08.6	
Peri partum cardiomyopathy	07	07.5	
Anemic heart disease	02	02.2	
Rythmic heart disease	02	02.2	
Cardiothyreosis	02	02.2	
Chronic pulmonary heart disease	01	01.1	
Pulmonary Embolism	01	01.1	
Myocarditis	01	01.1	
Pericarditis	01	01.1	

Loop diuretics, Angiotensin Converting Enzyme, antiplatelet agents and aldosterone-antagonists were the most prescribed drugs as indicated in Table VI with usage percentages of resp. 90, 32 respectively 81,72 and 68,82 and 41,94. Others drugs like beta-blockers and angiotensine-receptor-antagonists were less prescribed with resp. 36,56 and 3,23%

Table VI. Prescribed drugs in 93 cases of HF.

Medicaments	Usage frequency	Usage percentage	
Loop Diuretics	84	90.,32	
ACE-Inhibitor	76	81.72	
Antiplatelet agents	64	68.82	
Anti-Aldosterone	39	41.94	
Digitalic	38	40.86	
B-blocker	34	36.56	
Calcium canal inhibitor	10	10.75	
Nitrates	04	04.30	
Thiazid diuretics	04	04.30	
Angiotensine receptor	03	03.23	
Cordarone	01	01.08	

4. Discussion

Our prevalence of 2.21% for outpatients is close to that obtained by Go et al. [4] and falls into the range 2-12% by Roger [14].

As reported in most studies there is a predominance of the male sex and an increased prevalence with age regardless of the criteria used to define HF [1, 3, 12-14]. In a 2004 study Diallo et al [11] found a female prevalence up to 64 years and a reversal beyond, this can be explained by a difference in methodology since only hospitalized HF patients were included in this study. In our study only the age group was significant different in patient with and without known HF.

Pediatric and adult cardiology being practiced in our department, this could explain in part the mean age of the sample.

Other authors have also discussed the relative young age of heart failure patients in Africa, as well explained by the predominance of rheumatic fever, but also by the severity of the involved diseases [15-17]. We think also that a quick disease progression may be in cause. A high proportion of our patients (62.4%) arose directly in cardiology without being seen by a general practioner. This fact could be explained either by the lack of information for the guidance of patients, in some situations as the great facility of access to cardiology services.

The high proportion of patients in a state of decompensation (87.1%) could be explained in part by medical visit in advanced stages of the disease, but also by the severity of the involved disease. This high proportion also highlights the problem of the management of HF (of the 93 patients in the study, 42 patients were diagnosed as having heart failure). Another explanation for this fact could be the low proportion of insured patients (Table I), HF being expensive in its management.

Dyspnea, cough, and edema of the lower extremities were the predominant symptoms reflecting decompensation and are also found in most African studies [11, 15-17].

Among patients known as having HF patients, medication/regimen failures were by far the causes of decompensation (Table IV). We did not find in our reading data on the reasons for decompensation in previous known HF patients, even treatment/regimen failure plausibly are pointed as decompensation causes.

Unlike many African studies which recorded the lowest proportion of ischemic heart disease [18, 19, 20], we found in our study as first etiology ischemic heart disease in the same frequency with valvular heart disease. Hypertensive heart disease is relegated to 3rd place.

Large data study is needed to confirm the growing tendancy of ischemic heart disease in our country.

As shown in Figure 1, essential drugs (ACE inhibitors, diuretics) from the guidelines for the management of HF were prescribed. The low proportion of beta-blockers should be noted, certainly due to their still high cost. Cabral et al. [17] noted the low prescription of ACE inhibitors and beta-blockers.

Our study had some limits such the small size of the sample and the absent local publications on the subject.

5. Conclusion

HF is common in our unit, the socio-demographics do not seem to have changed, unlike the dominant etiology of ischemic heart disease. Late medical visit and low treatment compliance for various reasons are the main situations promoting cardiac decompensation.

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