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Epidemiology of Cardiovascular Emergencies at the Cardiology Department of the Ignace Deen University of Conakry

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ABSTRACT

Introduction: *Cardiovascular emergencies are pathologies, whether coronary, haemodynamic, rhythmic or of any other origin, occurring in an emergency context and constituting an immediate and constant vital threat. Our objective in this study was to determine the epidemiological aspects of cardiovascular emergencies in the cardiology department of the Ignace Deen National Hospital.*

Methods: *This was a longitudinal descriptive study conducted from 1 January to 30 June 2024 in the cardiology department of the Ignace Deen National Hospital, including all patients admitted in a cardiovascular emergency and who consented to participate in the study..*

Results: *Out of 349 patients admitted to the department during this period, we recorded 127 cases of cardiovascular emergency, representing a frequency of 36.4%. The age group most affected was between 65 and 74, with an average age of 57 and extremes of 19 and 91. 43.3% of patients required more than six days for treatment, 22% between four and six days, 21.3% between two and four days, and only 2.4% arrived within twelve hours of the onset of symptoms. The most common cardiovascular emergencies were acute heart failure (30.7%), hypertensive emergencies (15%), acute ST+ coronary syndromes (15%), stroke (8.6%), cardiogenic shock (7%), acute ST- coronary syndromes (7%) and pulmonary embolism (8.6%). The first emergency therapeutic measures were oxygen therapy (61%), fluid depletion (53%), administration of vasoactive amines (16%), external electric shock (11%), parenteral anti-hypertensive treatment (8.6%), thrombolysis (3.9%) and coronary angioplasty (1.6%). The outcome was favourable in 76% of patients and unfavourable in 24%.*

Conclusion: *Cardiovascular emergencies are a real public health problem because of their high frequency and the complexity of their clinical presentations. Heart failure and hypertensive emergencies are on the increase in developing countries because of the multiplicity of cardiovascular risk factors.*

Keywords

Emergency, Cardiovascular, Epidemiology , Ignace DEEN.

Introduction

Long considered to be a disease of developed countries, cardiovascular disease has become a genuine public health problem in developing countries, due to its prevalence and morbidity and mortality. This epidemiological transition involves a shift from infectious diseases to non-communicable diseases, the most important of which are hypertension, diabetes, dyslipidaemia, coronary heart disease and cancer [1]. The emergence of these diseases is linked to the westernisation of lifestyles, improved

socio-economic conditions and an ageing population [2].

Cardiovascular emergencies are pathologies, whether coronary, haemodynamic, rhythmic or of any other origin, occurring in an emergency context and constituting an immediate and constant vital threat. Unfortunately, in underdeveloped countries, the emergence of these conditions contrasts with an enormous lack of interventional cardiology technical facilities, which are essential for efficient patient management [3]. An estimated 17.7 million deaths are attributable to cardiovascular disease, representing 31% of global mortality. More than three-quarters of cardiovascular disease-related deaths occur in low- and middle-income countries [4]. In developed countries, cardiovascular disease accounts for 34% of all disease. It is estimated that 15-20% of EMS calls concern cardiovascular disease [4]. In sub-Saharan Africa, the prevalence of cardiovascular emergencies generally varies between 24.7% and 46%; it was 27.9% in Guinea in 2017 [5], 24.7% in Mali, 46% in Senegal, 18% in Togo [6] and 32.52% in the DRC [3]. In Guinea, the prevalence of cardiovascular emergencies remains largely underestimated due to the scarcity of studies describing the reality of their management in our context. We conducted this study to determine the hospital frequency of cardiovascular emergencies and to describe their management in the cardiology department of the Ignace Deen National Hospital.

Method

This was a longitudinal descriptive study conducted from 1 January to 30 June 2024 in the cardiology department of the Ignace Deen National Hospital, including all patients seen in a cardiovascular emergency and who consented to participate in the study. Our variables were epidemiological, clinical, paraclinical and evolutionary. We used seven groups of cardiovascular emergencies according to STEG Gabriel et al. : coronary, rhythmic, haemodynamic, pericardial, valvular, vascular and myocardial emergencies [7]. The data were collected using Kobo Toolbox software, entered and analysed using EPI - info version 6.04. And EXCEL software respectively. The results are presented in the form of tables, figures and graphs.

Results

During the study period, 349 patients were admitted to the cardiology department of the Hôpital national Ignace Deen, of whom we recorded 127 cases of cardiovascular emergencies, representing a hospital frequency of 36.4%. The age group most affected was 65 to 74 years, followed by 55 to 64 years, with an average age of 57 years and extremes of 19 and 91 years (Figure 1). Taxis were the most commonly used means of transport (61%), 32% of patients came by private car and only three patients arrived by ambulance, of which only one was medically assisted. In addition, 5 patients came by motorbike or carried on their backs (Table 1). 43.3% of patients needed more than six days to receive treatment, and 22% needed between four and six days (Figure 2). Over 42% of patients came from local private clinics, while 20.5% came directly from their homes and 34.6% from hospitals or community health centres (Table 2). ST+ acute coronary syndrome was present in 15% of patients (Table 3). The outcome was favourable in 76% of patients and unfavourable, leading to death in 24% (Table 4).

The main therapeutic procedures were oxygen therapy in 61% of patients, fluid depletion in 53% of patients, administration of amines in 16% of patients, electric shock in 11% of patients, parenteral antihypertensive drugs in 8.6% of patients, pericardial puncture in 5% of patients, thrombolysis in 3.9% of patients and angioplasty in 1.6% of patients (Table 5).

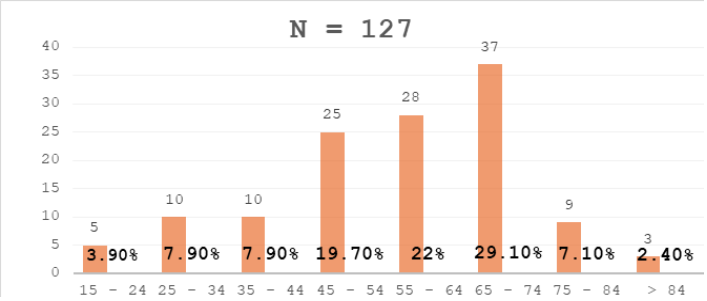

Figure 1: Presentation of patients by age group.

Table 1: Means of transport used.

Means of transport	Number	Percentage
Taxi	78	61.4
Personal vehicle	41	32.3
Non-medical ambulance	2	1.6
Medical ambulance	1	0.8
By motorcycle or worn on the back	5	3.9

Table 2: Patient origin.

Provenance	Number	Percentage
Private clinic	54	42,5
Hospital	31	24,4
Home	26	20,5
Community medical centres	13	10,2
Other	3	2,4
Total	127	100

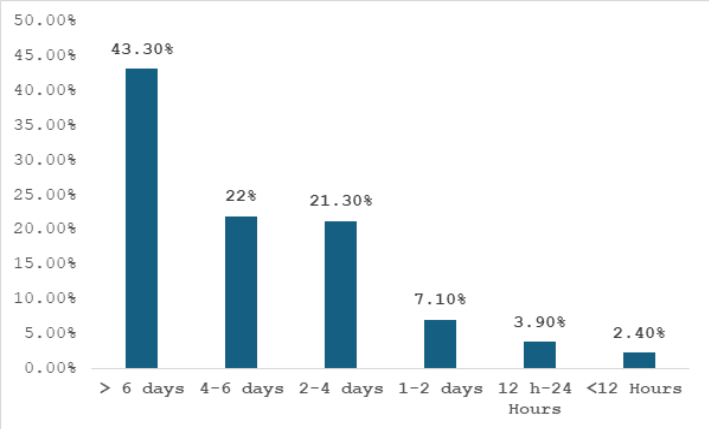

Figure 2: Admission deadline.

Table 3: Diagnosis.

Final Diagnosis	Number	Percentage
Acute heart failure	39	30.7
High blood pressure emergency	19	15
Cardiogenic shock	9	7.1
ST+ acute coronary syndrome	19	15
Cerebrovascular accident	11	8.6
Pulmonary embolism	8	6.4
Acute coronary syndrome ST-	9	7.1
Symptomatic conduction disorder	3	2.4
Tamponade	4	3,1
Malignant ventricular rhythm disorder	3	2.4
Aortic dissection	2	1.5
Valvular prosthesis dysfunction	1	0.8
Infectious endocarditis	2	1.5

Table 4: l'évolution en fonction du diagostic.

*CE	Favourable	Deaths	Effective
HF	37 (38.6%)	2 (6.4%)	39 (30.7%)
High blood pressure emergency	16 (16.8%)	3 (9.8%)	19 (15%)
Cardiogenic shock	3 (3.1%)	6 (19.4%)	9 (7%)
ST+ acute coronary syndrome	11 (11.4%)	8 (25.8%)	19 (15%)
Cerebrovascular accident	11 (11.5%)	0 (-)	11 (8.6%)
Pulmonary embolism	3 (3.1%)	5 (16.2%	8 (6.3%)
Acute coronary syndrome ST-	9 (9.4%)	0 (-)	9 (7%)
Symptomatic conduction disorder	2 (2.1%)	0 (-)	2 (1.6%)
Tamponade	1 (1%)	2 (6.4%)	3 (2.4%)
Malignant ventricular rhythm disorder	1 (1%)	2 (6.4%)	3 (2.4%)
Aortic dissection	0 (-)	2 (6.4%)	2 (1.6%)
Valvular prosthesis dysfunction	1 (1%)	0 (-)	1 (0.8%)
Infectious endocarditis	1 (1%)	1 (3.2%)	2 (1.6%)
TOTAL	96 (76%)	31 (24%)	127

Table 5: Therapeutic gesture.

Therapeutic gestures	Number	Percentage
Scope	118	92.9
Oxygen therapy	78	61.4
Anticoagulation	77	60.6
Hydrosodium depletion	68	53.5
Anti-ischemic treatment	46	36.2
Injectable anti-hypertensive	11	8.6
Administration of amines	20	15.7
External cardiac massage	17	13.4
External electric shock	7	5.5
Pericardial puncture	5	39
Thrombolysis	5	3.9
Primary angioplasty	2	1.6
Medication Cardioversion	1	0.8

Discussion

The most affected age group was 65 to 74, followed by 55 to 64, with an average age of 57 and extremes of 19 and 91. Similar findings were made by Damorou et al. in Togo [8] and DIOP et al. in Mali [9], who found mean ages of 56.9 and 57 respectively. In developing countries, the population most affected is predominantly young, in contrast to developed countries where cardiovascular emergencies are more frequently described in the elderly [8]. Cabs were the most commonly used means of transport, with only three patients arriving by ambulance, of whom only one was medically assisted. The same observation was made by DIOP et al. in Mali [9], who recorded 71% of patients arriving by city cab, and SYLLA IS et al. in Guinea [5], who found that 66% of patients were transported by cab. However, the study by SECK et al. in Dakar [10] recorded 19% of patients arriving by ambulance. In Black Africa, pre-hospital management of emergencies remains exceptional. On average, only 6% of African patients admitted in an emergency reach hospital by ambulance. The rest come as best they can, by bus, cab, car, motorcycle or even on foot [10]. The time between onset of symptoms and arrival at hospital was more than six days for 43.3% of patients, four to six days for 22%, two to four days for 21.3%, with only 2.4% of patients arriving within twelve hours of the onset of symptoms. The average consultation time was 5.7 days in the study by SYLLA IS et al. [5], and 6.8 days in the study by Bertrand et al. [3]. However, the management of cardiovascular emergencies, as in the case of acute coronary syndromes, should be a race against time to get the patient to hospital as soon as possible after the onset of symptoms. In Tunisia, in a survey of 232 patients in the Sousse region, the average hospital stay was 14 h 21 min [11]. This delay in our context can be explained by the lack of information and health education among our populations. Acute heart failure was the most frequent diagnosis. It was present in 30.7% of patients, and in 27.5% of patients in Bertrand et al. [3]. Mortality was lower in our study than in DAMOROU et al. [8], at 7.9%. However, it was 22.4% in Bertrand et al. [3]. This could be explained by the urgent initiation of appropriate therapies for acute heart failure, such as nitrate derivatives and diuretics, and appropriate etiological management. Hypertensive emergencies occurred in 15% of patients, and were responsible for 3 deaths. This result is higher than that of DAMOROU et al. who found a frequency of 9.8% with a mortality of 2.2%, but lower than that of SACKO et al. [6] who found 38% of cases.

ST+ acute coronary syndrome was present in 15% of patients, with a mortality of 25.8%, making it the emergency with the highest mortality. Delayed diagnosis and lack of access to coronary angiography may explain this result. Cardiogenic shock was present in 7.1% of patients, with a mortality of 19.4%, placing it just behind acute coronary syndromes in our study in terms of lethality. This result is lower than that of Koudougou et al. [12], who found a mortality rate of 32.8%, but similar to that of SYLLA et al. [8], who found a mortality rate of 13.4%. This high mortality in our study is due to delayed diagnosis and inadequate technical facilities.

Pulmonary embolism was present in 6.4% of patients, with a mortality of 16.2%, ranking third in terms of lethality in our study. It was also frequent in Koudougou et al., with a mortality of 12.3%. The main therapeutic interventions were oxygen therapy in 61% of patients, hydrosodium depletion in 53%, administration of amines

in 16%, external electric shock in 11%, parenteral antihypertensives in 8.6%, pericardial puncture in 5%, thrombolysis in 3.9% and angioplasty in 1.6%. Most of the time, the outcome was favorable, but 31 patients (24%) suffered complications leading to death.

This result is close to that of MBOLIASA et al. in the DRC [5], who found a mortality rate of 38.3%, but higher than those of SYLLA et al. [8] and DAMOROU et al. [10], who found a mortality rate of 17.1% and 14.3% respectively.

Conclusion

The impact of cardiovascular emergencies remains underestimated, partly due to the lack of health education, which results in delayed diagnosis, and partly due to the lack of investigations required for diagnosis. Heart failure and hypertensive emergencies are on the increase in developing countries. Treatment must be provided as quickly as possible, which is a real problem because of the lack of health insurance and insufficient technical resources. The highest mortality was attributable to coronary syndromes, cardiogenic shock and pulmonary embolism. Good organization of the upstream patient care circuit by medical transport and improved technical facilities in emergency departments would improve the management of cardiovascular emergencies.

References

1. Fourcade L. Epidemiological transition and development: is the rise of non-communicable diseases inevitable?. Méd Trop. 2007 ; 67: 543-544.
2. Thomas A Gaziano. Cardiovascular disease in the developing world and its cost-effective management. Circulation. 2005; 112: 3547-3553.
3. Mboliasa I, Lepira B, Makulo R, et al. Epidemiological and clinical profile of cardiovascular emergencies admitted to the internal medicine intensive care unit of the Cliniques Universitaires de Kinshasa. Anales africaines de médecine. 2015.
4. Melanie Nichols, Nick Townsend, Peter Scarborough, et al. Trends in age-specific coronary heart disease mortality in the European Union over three decades: 1980-2009. Eur Heart J. 2013; 34: 3017-3027.
5. Sylla IS, Samoura A, Samba GA, et al. Epidemiological and clinical profile of cardiovascular emergencies in Conakry. Journal of African Clinical Cases and Reviews. 2019; 3: 85-89.
6. Sako M, Koumare Y, Toure M. Cardiovascular Emergencies in Bamako: Epidemiology, Clinical Presentation, Evolution and Prognosis. Health Sci Dis. 2024 ; 25 : 44-46.
7. Steg G. Les urgences cardiovasculaires. Médecine –Sciences Flammarion 1ère Edition. 1998.
8. Damorou F, Pessinaba S, Lawson B, et al. [Cardiovascular emergencies and their morbimortality at the hospital. Report of 733 cases at the CHU campus in Lome (national reference hospital in Togo)]. Mali Med. 2008; 23: 55-58.
9. Diop TM, Mangané M, Almeimoune A, et al. [Cardiovascular Emergencies In The Emergency Department Of the Chu Gabriel Touré]. Mali Med. 2018; 33: 1-4.
10. Seck M, Diouf I, Acouetey L. Profile of patients admitted for myocardial infarction to the emergency department of Dakar main hospital. Med Trop. 2007; 67: 569-572.
11. Mahdhaoui A, Bouraoui H, Majdoub MA, et al. Delays in the management of acute-phase MI: results of a survey in the Sousse region (Tunisia): After an acute coronary syndrome. Ann Cardiol Angeiol. 2003; 52: 15-19.
12. Koudougou JK, Yaméogo RA, Bamouni J, et al. Cardiovascular mortality at Koudougou Regional Hospital. Health Sciences and Disease. 2022; 23: 34-38.