

RESEARCH ARTICLE



CLINICAL PRESENTATIONS AND OUTCOME OF CARDIOVASCULAR DISORDERS SEEN IN THE EMERGENCY DEPARTMENT OF A PRIVATE CARDIAC CENTER IN PORT HARCOURT, SOUTH-SOUTH NIGERIA

Chibuikwe Eze Nwafor¹, Jovita Agbamoro²

¹Cardiology Unit, Department of Medicine, University of Port Harcourt and University of Port Harcourt Teaching Hospital, NIGERIA

²GoodHeart Medical Consultants, NIGERIA

Corresponding Author: Chibuikwe Eze Nwafor, Cardiology Unit, Department of Medicine, University of Port Harcourt and University of Port Harcourt Teaching Hospital, NIGERIA, **Email:** eze.nwafor@uniport.edu.ng

ABSTRACT

Background: Cardiovascular emergencies are sudden and require immediate action, posing a significant public health challenge, especially in low-income settings. To effectively control cardiovascular disease (CVD) and reduce deaths from cardiovascular emergencies, data-driven decision-making is necessary. Hence, this study aims to describe the pattern of clinical presentations and outcomes of cardiovascular disorders seen in a private cardiac center in Port Harcourt.

Method: This retrospective cross-sectional study examines the Clinical Presentations and Outcome of Cardiovascular disorders at the emergency department of Goodheart Medical Consultants Hospital, South-South Nigeria, spanning three years (2019-2021). Emergency case records were retrieved, extracting pertinent data on patient socio-demographics, diagnoses, and treatment outcomes.

Results: A total of 1644 patients were admitted, averaging 54.75 ± 18.53 years old, with ages ranging from 3 to 92 years. Among them, 607 (36.9%) were admitted for cardiovascular emergencies. Notably, cardiovascular diseases were more prevalent among females, constituting 314 (51.7%) compared to males, 293 (48.3%). The largest proportion of patients (41.2%) fell within the 61-80 age group. Heart failure accounted for the most common cardiovascular disease (41.9%), while heart block was the least frequent (0.5%). Of the admitted patients with cardiovascular diseases, 95.7% were discharged home, 2.6% died, and 1.6% were referred elsewhere.

Conclusions: The most common CVD was heart failure (41.9%), and was most prevalent between the ages of 41 and 80 thus, indicating that the risk of CVD increases with age. Heart failure also accounted for most occurrences of mortality, discharge and referral. Early detection and prompt management of CVD emergencies should be practiced.

KEYWORDS: Cardiovascular Diseases, Emergency Department, Goodheart Medical Consultants Hospital, South-South, Port Harcourt, Nigeria.

INTRODUCTION

Opioids Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality world-wide(1–4) affecting both developed and developing countries (5), with the lifetime risk exceeding 60%. (6) Cardiac emergencies are sudden and require immediate action(7),

posing a significant public health challenge, especially in low-income settings. These emergencies are the most common manifestation of CVD and contribute to the high mortality rate (8–10). It is estimated that 17.3 million

people die from CVD each year globally, and this number is projected to increase to 23.6 million by 2030 (4,11,12).

In developed countries, although there has been an increase in the overall burden of cardiovascular disease (CVD), the death rates for most CVD cases have decreased due to effective prevention and treatment methods. (13)

Increasing urbanization and westernization has led to increase in non-communicable diseases(NCDs) in Sub-Saharan Africa(4). Additionally, the lack of access to modern medical interventions also contributes to the increase in CVD burden in developing countries(14).

According to the World Health Organization, cardiovascular diseases have caused the deaths of nearly 1.2 million people in Africa, surpassing the combined deaths from malaria and tuberculosis in 2015 (15). This high burden of cardiovascular diseases is linked to the presence of common risk factors (16–18). The occurrence of cardiovascular emergencies serves as an indicator of a lack of awareness and inadequate treatment (8, 17). These emergencies account for 12% to 46% of all medical emergencies and have an early mortality rate of up to 21%(20,21). The pattern of cardiovascular emergencies vary between different settings, with stroke being more prevalent in sub-Saharan Africa and acute coronary syndrome being more common in high-income areas(11). In sub-Saharan Africa, including Nigeria, most cardiovascular deaths result from hypertensive heart disease and heart failure (6).

Although there are effective preventive measures for cardiovascular disease (CVD) worldwide, it remains the leading cause of premature death (22). To effectively control CVD and reduce deaths from cardiovascular emergencies, data-driven decision-making is necessary (11). Hence, this study aims to describe the pattern of clinical presentations and outcomes of cardiovascular emergencies seen in a private cardiac center

MATERIALS AND METHOD

This is a retrospective cross-sectional study of the Clinical Presentations and Outcome of Cardiovascular disorders seen at the emergency department of the Goodheart Medical Consultants Hospital, in Port Harcourt, South-South Nigeria over a 3years period between January 2019 and December 2021 The case notes of patients seen in the

emergency department during the period under study were retrieved, relevant data extracted including the gender, age, level of education, occupation, diagnosis and treatment outcome. In this study, the outcome was defined as follows: Discharged deceased and referred.

RESULTS

During the review period, a total of 1644 patients were admitted, with an average age of 54.75 ± 18.53 years and an age range of 3-92 years. Out of these patients, 607 (36.9%) were admitted for cardiovascular emergencies. It was observed that cardiovascular diseases were more prevalent among females, with 314 (51.7%) female patients compared to 293 (48.3%) male patients. The majority of the patients (41.2%) fell into the age group of 61-80 years. Additionally, most of the patients were married (64.7%), entrepreneurs (24.5%), and had attained tertiary education (62.4%). These findings are summarized in Table 1.

Palpitation 47.6% was the predominant symptoms of CVD, hypertension and diabetes were the observable risk factors. Table 2

The pattern of cardiovascular diseases seen in the study area were Heart Failure 249(41.0%), hypertensive emergency 120(19.8%), hypertensive heart diseases 95(15.7%), cardiac arrhythmia 79(13.0%), ischemic heart disease 17(2.8%), transient ischemic attack 11(1.8%), (valvular heart disease and cardiomyopathy accounted for 8(1.3%) respectively. Ischemic stroke 7(1.2%) (pulmonary embolism and acute myocardial infarction 5(0.8%) respectively and heart block 3(0.5%). Table 3

Cardiovascular emergency such as hypertensive emergency, cardiac arrhythmia, ischemic heart diseases, pulmonary embolism and heart block were predominant in female while congestive heart failure, incipient heart failure, hypertensive heart diseases, transient ischemic attack and ischemic stroke were more prevalent in males. Middle and elderly age group (41 and 80) shows a higher value of diagnosis as compared to other age group. Table 4

The majority 581(95.7%) of admitted patient with cardiovascular diseases were discharged home alive, 16(2.6%) died while 10(1.6%) referral were recorded. Table 5

TABLE 1- Socio-Demographic Characteristics of The Study Participant

Variable	Category	Frequency (n=) (607)	Percent (%) (100)
Gender	Male	293	48.3
	Female	314	51.7
Age(years)			
	<18	65	10.7
	18-40	50	8.2
	41-60	201	33.1
	61-80	250	41.2
	>80	41	6.8
Mean Age	54.75±18.53		
Marital Status	DIVORCED	22	3.6
	MARRIED	393	64.7
	SINGLE	20	3.3
	UNSPECIFIED	80	13.2
	WIDOWED	92	15.2
Education	BASIC	4	0.7
	SECONDARY	19	3.1
	TERTIARY	379	62.4
	UNSPECIFIED	205	33.8
Occupation			
	ARTISAN	40	6.6
	BUSINESS	7	1.2
	ENTREPRENEUR	149	24.5
	PROFESSIONAL	109	18.0
	RETIRED	94	15.4
	STUDENT	8	1.3
	UNSPECIFIED	179	29.5
	VOCATIONAL	21	3.5

TABLE 2- Symptoms, Cardiovascular Risk Factors and Co-morbidities of the Study Participant

Variables	Frequency(n=607)	Percentage (%)
Symptoms of admission		
Vertigo	16	2.6
Dyspnea	35	5.8
Chest pain	196	32.3
Palpitation	289	47.6
Abdominal Pain	18	3.0
Anaemic	11	1.8
Weakness	16	2.6
Others	26	4.3
Cardiovascular risk factors		

Hypertension	94	15.5
Diabetes mellitus	72	11.9
Co-morbidities		
Chronic kidney disease	9	1.5
Electrolyte imbalance	26	4.3
Asthma	6	1.0
Anxiety	19	3.1
Gastroenteritis	63	10.7
Peripheral vascular disease (PVD)	3	0.5
Osteoarthritis	9	1.5
Chest infection	76	12.5
Hypertension	94	15.5
Diabetes mellitus	72	12.0
Infectious diseases	17	2.8
Cerebrovascular Disease	23	3.8

TABLE 3- Prevalence of Cardiovascular Disorder

Diagnosis	Frequency	Percent
Heart Failure	249	41.0%
Hypertensive Emergency	120	19.8
Hypertensive heart diseases	95	15.7
Cardiac Arrhythmia	79	13.0
Ischemic Heart Diseases	17	2.8
Transient Ischemic attack	11	1.8
Valvular heart diseases	8	1.3
Cardiomyopathy	8	1.3
Ischemic stroke	7	1.2
Pulmonary embolism	5	0.8
Myocardial Infarction	5	0.8
Complete Heart Block	3	0.5
Total	607	100

TABLE 4- Prevalence of Cardiovascular Emergency Among Age and Gender

Diagnosis	Female	Male		<18	18-40	41-60	61-80	>80
Heart Failure	121	128		32	11	73	114	19
Hypertensive Emergency	70	50		9	16	53	41	1
Hypertensive heart diseases	47	48		12	4	25	41	13
Cardiac Arrhythmia	44	35		8	12	31	24	4
Ischemic Heart Diseases	9	8		0	2	7	7	1
Transient Ischemic attack	2	9		0	0	3	6	2
Valvular heart diseases	4	4		1	0	1	6	0
Cardiomyopathy	4	4		0	2	5	1	0
Ischemic stroke	2	5		1	0	1	4	0
Pulmonary embolism	5	0		0	1	2	2	0

Myocardial Infarction	3	2		0	2	0	3	0
Heart block	3	0		2	0	0	1	0
Grand Total	314	293		65	50	201	250	41

TABLE 5- Treatment Outcomes of The Study Participants

Diagnosis	Deceased	Discharge	Referrals
Heart Failure	4	243	3
Hypertensive Emergency	2	115	3
Hypertensive heart diseases	2	91	1
Cardiac Arrhythmia	4	73	2
Ischemic Heart Diseases	0	17	0
Transient Ischemic attack	1	10	0
Valvular heart diseases	1	6	1
Cardiomyopathy	0	8	0
Ischemic stroke	0	7	0
Pulmonary embolism	0	5	0
Myocardial Infarction	0	5	0
Heart block	2	1	0
Total	16(2.6%)	581(95.7%)	10(1.6%)

DISCUSSION

The retrospective cross-sectional study conducted at the Goodheart Medical Consultants Hospital in Port Harcourt over a 3-year period from January 2019 to December 2021 described the clinical presentations and outcomes of cardiovascular disorders seen in the emergency department. Despite global issues and lockdowns, there were a significant number of patients experiencing cardiovascular emergencies. Approximately 37% of these patients exhibited symptoms of cardiovascular diseases (CVDs), even though there was reluctance to seek medical attention due to common infectious cases. This study highlights the high proportion of patients with cardiovascular problems during the COVID-19 pandemic and also notes that many individuals presented with respiratory symptoms during this critical period, these symptoms align with a study in Asaba where respiratory case was a factor for patients visit during the lockdown(23). The study found that 52% of patients with cardiovascular disorders were females, while 48% were males. The mean age of the study population was 54.75 ± 18.53 , and cardiovascular diseases were most common in the age group between 41 and 80, indicating that CVDs are prevalent in individuals above 40 years old.

The study population had a mean age of 54.75 ± 18.53 years, which is similar to the mean ages reported in other studies(4,7,11). Age is an important risk factor for cardiovascular disease, with higher rates of cardiovascular death in the elderly(4). In our study, the middle and elderly age group (41-80) had a higher prevalence of cardiovascular disease compared to other age groups. This finding is consistent with a study conducted in Nnewi, South east Nigeria(5), which also found that the most common age range for cardiovascular disease was above 50 years. The global elderly population is expected to increase significantly in the next 25 years, particularly in developing countries(13). A study in sub-Saharan Africa has shown that the region is experiencing an unexpected increase in aging, with the elderly population projected to double between 2000 and 2030(24).

In our study, cardiovascular diseases are a major health issue, accounting for 36.9% of all admissions. This percentage is comparable to the rates reported in teaching hospitals in Ekiti, South west 32.8% (25) and Port Harcourt, south-South Nigeria 31.6% (4) in Nigeria. However, it is higher than the rates reported in Osogbo, South West 23.1%(6) and Enugu, southeast 20.5% (14) in Nigeria.

The study found that 52% of patients with cardiovascular diseases were females, while 48% were males. This aligns with a study conducted in Enugu, Southeast Nigeria, which also found that cardiovascular diseases were more prevalent among female patients(14). Another study in Port Harcourt, southern Nigeria(26) reported that men tend to avoid seeking medical help until their illness becomes severe, possibly due to cultural beliefs and the perception of illness as a sign of weakness. As a result, men often present at hospitals in advanced stages of their disease, leading to higher mortality rates. This could be attributed to better health seeking behavior among females. However, the study differ from another study in Osun(6), which reported a predominance of males over females. This difference could suggest that men, who are typically the primary earners in their households, are more likely to seek medical attention compared to women (27,28).

Females were more likely to experience cardiovascular emergencies such as hypertensive emergency, cardiac arrhythmia, ischemic heart diseases, pulmonary embolism, and heart block. Males were more likely to experience heart failure, hypertensive heart diseases, transient ischemic attack, and ischemic stroke. This finding is consistent with report in Osogbo (6) were similar finding were also reported.

Heart failure and hypertensive emergency were the most common cardiovascular disease (CVD) cases, while heart block was the least common. Heart failure cases accounted for 41% of cardiovascular admissions, which aligns with other studies showing it as a major cause of medical admissions(4,29–31). In Africa, heart failure accounts for 3-7% of all hospital admissions(32) and is rapidly becoming a global disease with increasing prevalence worldwide (33). This high prevalence can be attributed to the high burden of hypertension and cardiomyopathy diseases in Sub-Saharan Africa, which are significant contributors to heart disease. The lack of awareness of heart failure symptoms, late presentation, and poor hypertension control all contribute to the high disease burden(4).

The majority of patients with cardiovascular diseases showed improvement in their clinical conditions and were discharged home. Out of 607 patients admitted, 581 (95.7%) were discharged, 16 (2.6%) died, and 10 (1.6%) were referred. Heart failure was the most common reason for patient death, discharged and referral. Deaths from

heart failure may be attributable to late presentation for treatment or late referrals. Patients often arrive at the hospital late, possibly due to lack of knowledge, poverty and disinterest of orthodox medical care.

LIMITATION OF THE STUDY

The prevalence of CVD emergency reported might not truly reflect CVD, observations are still underway due to short study period of about three years. It fails to consider patients who did not visit the hospital and those who only sought treatment for respiratory issues at the emergency unit in our region during the pandemic lockdown. Hence, the given number does not account for all relevant cases, including non-hospital visits and respiratory-related emergency visits during the lockdown.

CONCLUSION AND RECOMMENDATION

This study reveals that in private health facilities in South-South Nigeria, cardiovascular diseases were found to be prevalent, particularly among female patients aged 41 to 80 years, indicating that CVDs are prevalent in individuals above 40 years old. The most common cardiovascular diseases were Heart Failure (41.9%) and heart block (0.5%) was the least common. Heart failure was the most common reason for patient death, discharged and referral. Deaths from heart failure may be attributable to late presentation for treatment or late referrals. The majority of the patients were married (64.7%), entrepreneurs (24.5%), and (62.4%) had tertiary education. The main symptom observed was palpitation (47.6%), and hypertension and diabetes were the observable risk factors.

To improve outcomes for cardiovascular diseases, individuals, healthcare personnel, and the government should focus on early detection and prompt management. Preventive measures such as regular check-ups can also reduce complications and the need for hospitalization.

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