

Clinical, Therapeutic and Evolutionary Profiles of Hypertensive Emergencies in the Cardiology Department of the Ignace Deen National Hospital (Conakry)

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Abstract

Introduction: Hypertensive emergencies are a reality in the cardiology department of the Ignace Deen National Hospital. The aim of this study was to determine the clinical, therapeutic and evolutionary profile of hypertensive emergencies in the cardiology department of the Ignace Deen National Hospital. **Methods:** This was a longitudinal descriptive study of patients admitted to the cardiology department of the Ignace Deen National Hospital for hypertensive emergencies, over a period of six (6) months from 1 October 2020 to 31 March 2021. **Results:** Among the 638 patients admitted to the cardiology department during the study period, 102 cases of hypertensive emergencies were identified, representing a frequency of 15.99%. The mean age of the patients was 56.65 ± 13.33 years, with extremes of 23 and 90 years, and the sex ratio was 1.91 in favour of men. The associated cardiovascular risk factors were: age (76.47%), smoking (41.18%), sedentary lifestyle (31.37%), obesity (16.67%), dyslipidaemia (12.75%), diabetes (11.76%) and excessive alcohol consumption (11.76%). The various clinical pictures found were: acute pulmonary oedema 39 cases (38.23%), acute coronary syndrome 31 cases (30.39%), stroke 17 cases (16.67%), hypertensive encephalopathy 11 cases (10.78%), acute renal failure 3 cases (2.94%) and aortic dissection 1 case (0.98%). The drugs used on admission were calcium antagonists (Nicardipine 10mg) in 58 cases (56.86%), diuretics (Furosemide 20mg) in 44 cases (43.13%), nitrates (Risordan 20mg) in 39 cases (38.23%) and beta-blockers in 31 cases (30.39%). In terms of outcome, 88 (86.27%) patients had improved. However, 12 (11.76%) deaths were recorded. **Conclusion:** Hypertensive

emergencies are a worrying condition with a high prevalence in the cardiology department of the Ignace Deen National Hospital.

Keywords

Emergency, Hypertension, Prevalence, National Hospital Ignace Deen

1. Introduction

According to the World Health Organization (WHO), hypertension is defined as systolic blood pressure greater than or equal to 140 mmHg and/or diastolic blood pressure greater than or equal to 90 mmHg [1]. Hypertension is a major public health problem. Its cardiac, renal and cerebral complications make it a key cardiovascular risk factor [2]. It impairs the patient's quality of life and reduces life expectancy if effective treatment is not started early [3].

A hypertensive emergency is hypertension which has an immediate impact on the body and which, if left untreated, presents a major risk of rapid complications [4].

It is manifested by certain signs of severity: either neurological (headaches, dizziness, a motor, sensory or language neurological deficit or a comitial attack or confusional syndrome), or cardiac (acute pulmonary oedema, attacks of rapid atrial fibrillation, angina attack or acute coronary syndrome), or vascular (aortic dissection or aneurysm rupture), or renal (more or less acute renal failure), or ocular (reduced visual acuity) [5].

In France, Guiga H *et al.* in 2015 estimated the prevalence of hypertensive emergency at 44%, with a hospital mortality rate of 7% [6].

In Côte D'Ivoire, the study carried out by N'Guetta R *et al.* [7] in 2011 at the Abidjan Heart Institute (ICA) on the prevalence and characteristics of hypertensive emergencies showed a prevalence of 10.04% with a hospital mortality of 13.4%.

In Guinea, SYLLA I.S. *et al.* [8] in 2019 reported a prevalence of 21.8% in a study of cardiological emergencies.

The hypertensive emergency is a serious disease, and failure to manage it can lead to a fatal outcome. The search for target organ damage is essential in cases of (emergency) hypertension [9].

The absence of reliable hospital statistics and the need to know the extent of the condition in the hospital setting motivated the choice of this topic, the aim of which is to determine the hospital frequency of hypertensive emergencies in the cardiology department of the Ignace Deen National Hospital.

2. Method

The study setting was the cardiology department of the Ignace Deen National Hospital in Conakry. This was a 6-month (October 1, 2020 to March 31, 2021)

longitudinal observational study of patients admitted for hypertensive emergencies to the cardiology department of HNID during the study period.

Included in this study were adult patients, of any sex, from any origin and admitted for a hypertensive emergency with a (BP \geq 180mmHg PAS and/or \geq 110 mmHg PAD), accompanied by clinical signs of visceral distress during the study period.

Epidemiological data (age, sex), duration of hypertension, associated cardiovascular risk factors (age, smoking, sedentary lifestyle, obesity, dyslipidemia, diabetes, excessive alcohol consumption), clinical and paraclinical data were collected.

The variables were defined according to the specific objectives.

1) Socio-demographic data:

- Age: our patients were divided into age groups, expressed in years to find a predominance.

- Sex: gender (male and female) seeking predominance.

- Profession: (civil servants, housewives, traders, farmers, dressed bodies, workers, drivers, imams, pastors, artists) in search of predominance.

- Origin: this variable indicated the place of residence of each patient.

2) Cardiovascular risk factor:

- Obesity: defined by BMI > 30.

- Excessive alcohol consumption: determines patients who have consumed alcohol 20 - 30 g/day (*i.e.* 3 - 5 glasses).

- Smoking: former or current was expressed in number of packs, *i.e.* one pack per day.

- Age > 50 years for men and 60 for women.

- Diabetes: Defined as a blood glucose level greater than 1.26 g/l (7.0 mmol/l) after an 8-hour fast and checked twice.

- Dyslipidemia: Hypercholesterolemia with increased LDL levels.

- Family history of hypertension: the existence of the notion of hypertension in a direct ancestor.

3) Clinical data:

- Symptoms on admission: headache, dizziness, language disorders, psychomotor agitation, vomiting, drowsiness, mental confusion, neurological deficit (hemiplegia, hemiparesis, hemi-paresthesia), chest pain, visual blur.

4) Evolution: It will be assessed according to the clinical state of the patients, which will be distinguished into three (3) groups.

- Favorable: defined by clinical improvement.

- Unfavorable: defined by the death of the patient.

- Discharge against medical advice: Defined by the discharge of the patient without the agreement of the medical profession.

Free and informed consent was obtained from participants. The information was used solely for the purposes of this study, and was aggregated to ensure that the participant's data were not identifiable. Data had been checked for duplicates

or outliers, and entered using Word, Excel and Power point software from the Office 2013 pack. Analysis was performed using Epi Info 3.5.2 software.

3. Results

During the study period, 638 patients consulted the cardiology department of the Hôpital National Ignace Deen, among whom we recorded 102 cases of hypertensive emergencies, a frequency of 15.99%. The mean age was 56.65 ± 13.33 years, with extremes of 23 and 90 years, and the sex ratio was 1.91 in favor of men (Table 1). The associated cardiovascular risk factors were: age (76.47%), smoking (41.18%), sedentary lifestyle (31.37%), obesity (16.67%), dyslipidemia (12.75%), diabetes (11.76%) and excessive alcohol consumption (11.76%) (Table 2).

The various clinical pictures found were: acute pulmonary edema 39 cases (38.23%), acute coronary syndrome 31 cases (30.39%), stroke 17 cases (16.67%), hypertensive encephalopathy 11 cases (10.78%), acute renal failure 3 cases (2.94%) and aortic dissection 1 case (0.98%) (Table 3). Molecules used on admission were calcium antagonists (Nicardipine 10 mg) in 58 cases (56.86%), diuretics (Furosemide 20 mg) in 44 cases (43.13%), nitrates (Risordan 20 mg) in 39 cases (38.23%), and beta-blockers in 31 cases (30.39%).

Table 1. Sociodemographic data.

Variables	Number N = 102	Percentage
Age		
53 - 62	32	31.37
63 - 72	25	24.51
Mean age 56.65 ± 13.33	Extreme 23 et 90 years	
Sex		
Male	67	65.68
Female	35	34.32

Table 2. Associated cardiovascular risk factors.

Cardiovascular risk factor	Frequency	Proportion (%)
Age	78	76.47
Sex	78	76.47
Smoking	42	41.18
Obesity	17	16.67
Diabetes	12	11.76
Dyslipidemia	13	12.75
Ethylism	12	11.76

Table 3. Breakdown by type of hypertensive emergency encountered.

Hypertensive emergency	Frequency (N)	Proportion (%)
APO*	39	38.23
ASC*	31	30.39
Troke	17	16.67
Hypertensive encephalopathy	11	10.78
Renal failure	03	2.94
Aortic Dissection	01	0.98
Total	102	100

*APO: acute pulmonary oedema; *ASC: acute coronary syndrome

Table 4. Breakdown of cases by outcome.

Variables	Number	Percentage
Evolution		
Favourable	88	86.27
Unfavourable	12	11.76
Discharged against medical advice	2	1.97
Cause of death		
ASC	05	41.66
CKD*	03	25.00
STROKE*	03	25.00
Encephalopathie hypertensive	01	8.33

*CKD: Chroniq kidney faillure. *ASC: acute coronary syndrome.

In terms of outcome, 88 (86.27%) patients had improved. However, 12 (11.76%) deaths were recorded. These deaths were caused by stroke (3 cases), hypertensive encephalopathy (1 case), ST+ acute coronary syndrome (6 cases) and acute pulmonary oedema (APO) in chronic renal failure (2 cases). (**Table 4**).

4. Discussion

This study took place in the cardiology department of the Ignace Deen National Hospital. It was a longitudinal descriptive study conducted over a period of six months. The main difficulties were the lack of a patient management kit and the failure to perform certain additional tests, such as fundus examinations and brain scans.

During the study period, 638 patients consulted the cardiology department of the Ignace Deen National Hospital, among whom we recorded 102 cases of hypertensive emergencies, representing a prevalence of 15.99%. N'guetta R *et al.*

[7] in Ivory Coast in 2011 reported a frequency of 28% of hypertensive emergencies. This could be explained by a misperception of chronic disease, which only becomes a concern at the complication stage, poor compliance with treatment by patients and, above all, the HNID cardiology department is a referral department for cardiovascular pathologies.

In this study, men predominated (65.68%). The mean age of our patients was 56.65 ± 13.33 years, with extremes of 23 and 90 years. Our results are in line with those of other African studies [7] [10] where the mean age of onset was less than 60 years and the subjects concerned were relatively young, in contrast to Western series [6] where the mean age of onset was greater than 65 years.

The occurrence of hypertensive emergencies at a relatively young age in developing countries is a constant and could be explained by the high exposure of this group to psychosocial stress and lifestyle habits such as excessive salt consumption, smoking and alcohol.

The other cardiovascular risk factors associated with hypertension were distributed as follows: age (56.14%), diabetes mellitus (22.81%), sedentary lifestyle (19.30%), smoking (14.91%), excess weight (08.77%) and dyslipidaemia (7.89%). In a study carried out in 2010 in the Kingdom of Bahrain, diabetes was considered to be a powerful predictor of hypertensive crisis [11].

According to a Swiss study [12], obesity was a risk factor for hypertensive emergencies because blood pressure control is more difficult to achieve in obese people.

The various clinical pictures in our study were dominated by acute pulmonary oedema (APO) in 39 cases (38.23%) and acute coronary syndrome in 31 cases (30.39%).

Our results differ from those found by N'Guetta R *et al.* [7] who reported a predominance of neurovascular emergencies, especially hypertensive encephalopathy in 45.9% followed by PAO in 19.1%. As in our study, several studies [6] [11] have found stroke to be the most common hypertensive emergency.

In terms of treatment, Nicardipine loxen 10 mg intravenously (n = 58 or 56.86%), diuretics such as Furosemide 20 mg intravenously (n = 44 or 43.13%), nitrate derivatives such as Risordan 20mg (n = 39 or 22.67%), beta blockers (n = 31 or 30.39%).

Our results corroborate those of Guiga H *et al.* [6] in the emergency department of the Timone University Hospital in Marseille, whose therapeutic strategy focused on Nicardipine (29%), diuretics (17%) and Isosorbide Nitrate (14%).

In terms of outcome, 88 patients improved (86.27%) and were able to return home; on the other hand, 12 patients (11.76%) died.

The causes of death in our study were stroke (3 cases), hypertensive encephalopathy (1 case), ACS (6 cases) and OAP in chronic renal failure (2 cases). Hospital mortality was similar to that observed by MOUANODJI *et al.* [13] (15.8%) and N'GUETTA R *et al.* [7] (13.4%) [10]. For these authors, the most lethal symptoms were stroke and renal failure.

This high in-hospital mortality in our study could be explained by the delay in consulting patients in specialized services, poor referral by medical staff in our hospital structures for the management of these pathologies within a short time.

5. Conclusion

At the end of this study, it is worth noting the high frequency of hypertensive emergencies in the cardiology department of the Ignace Deen National Hospital. The high mortality rate of these hypertensive emergencies should lead us to insist on their adequate management in better-equipped facilities. Above all, the emphasis should be on prevention through screening, correct management of hypertension and therapeutic education of patients.

Conflicts of Interest

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

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Survey Form

A. General Information

1. Card no.:
2. Ageyears old
3. Gender: M F
4. Anthropologi Height Weight MMI
5. Profession: Housewife: Civil servant: Farmer:
Worker: Shopkeeper: Other:
6. Origin: Urban urban: Rural:
7. Level of education: No Yes
enrolled: Primary: Secondary Higher:
8. Hospitalization: Yes: No:

B. Clinical Data

1. Circumstances of discovery

- chance discovery: Yes No
- PA level at entry:
- **functional signs:**
Dyspnea/ / Confusion/ / Oligoanuria/ / Vertigo/ /
Neurological deficit/ / Mouth deviation/ / Convulsion/ / Coma/ /
atrioventricular block/ / Headache/ / Chestpain/ /

2-The different forms of hypertensive emergency:

- heart failure/ / acute lung oedema/ / acute coronary syndrome/ /
Stroke/ / Hypertensive encephalopathy / / Aortic dissection / /
Pre-eclampsia/ / Eclampsia/ / Kidney failure / /

3-History

3.1. Personnel/Cardiovascular diseases:

- HTA Followed: Ye No Smoking Sedentary Age
Dyslipidemia Alcoholism: Diabetes Obesity: Stroke Cardiovascular diseases Sex

3.2. Family

- Diabetes/ / sudden death/ / cardiovascular disease/ /
hypertension/ / stroke/ / Other.....

C. Further Tests

- 1) **Blood tests** Blood glucose/...../ Creatinemia/...../ Blood/...../
Total cholesterol/...../mg/l HDL/...../g/l
LDL/...../g/lTriglycerid/...../.....Hematocrit/...../ Hemoglobin/...../g/dl
Urea/...../Clearance of Creatinine
- 2) ECG:.....
- 3) Front telethorax result:.....
- 4) Cardiac Doppler ultrasound:
- 5) Brain scan:

D. Therapeutic Data

Antihypertensive:.....

.....

Other treatments:.....

.....

- **NATURE OF OUTPUTS**

E. Nature Des Sorties

Favourable

Unfavourable

discharged against medical advice