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Hemorrhagic Stroke of a Young Congolese Woman in Pointe-Noire (CONGO): Epidemiological, Diagnostic and Therapeutic Aspects

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Abstract

Introduction: Stroke in women is a major public health issue, with a steady increase in the number of hospitalizations. The aim of this study was to study the epidemiological, diagnostic, and therapeutic aspects of hemorrhagic stroke in young Congolese women in Pointe-Noire. **Patients and Methods:** This was a descriptive study with retrospective data collection over a period of 18 months. All patients under 55 years of age, hospitalized for a stroke in the neurology department of the Loandjili General Hospital in Pointe-Noire were included. Statistical analyses were performed using Excel 2019 and SPSS version 27 software. **Results:** The hospitalization rate was 42.4% with a mean patient age of 46.5 ± 5.9 years, 56.6% of whom were working. Hypertension was discovered incidentally in 31.8% of cases, and 63.3% had hypertension but were not monitored; 51.1% consumed alcohol. Strokes were profound in 75.6%. The mean hospital stay was 7 ± 2.6 days. The mortality rate was 8.9%. **Conclusion:** Hemorrhagic strokes in young Congolese women remain frequent, with a poor functional prognosis that has a huge impact on their socio-professional life.

Keywords

Young Woman, Hemorrhagic Stroke, Pointe-Noire

1. Introduction

Hemorrhagic strokes (HCS) are characterized by extravasation of blood within the brain parenchyma [1]. They represent between 10% and 20% of all strokes, with an incidence of 10 to 20 cases per 100,000 inhabitants [2], and are often associated with a poor prognosis [3][4]. In the Republic of Congo, the frequency of hemorrhagic stroke is 35% with a mortality rate of 25%, 40% of which are women [5].

Stroke in women is a major public health issue, with a steady increase in the number of hospitalizations. In addition, with the epidemiological transition, there has been a growing increase in non-communicable diseases, including strokes. This condition increasingly affects young people, at the expense of the elderly. In Congo, studies on hemorrhagic stroke in young women remain rare. It is in this context that the present study was conducted, with the objective of describing the epidemiological, clinical and therapeutic profile of hemorrhagic strokes in young women in the city of Pointe-Noire, Republic of Congo.

2. Patients and Methods

This was a descriptive study with retrospective data collection, carried out from January 1, 2024 to June 30, 2025, a period of 18 months, in the neurology department of the Loandjili General Hospital. This is the largest center for the treatment of neurological conditions in the department of Pointe-Noire located in district no. 4, Loandjili. The study included patients aged 18 to 55 years, admitted for a hemorrhagic stroke confirmed by brain imaging either by brain computed tomography or by brain magnetic resonance imaging. Meningeal hemorrhages and post-traumatic hematomas were excluded from the study. Data were extracted from the stroke hospitalization registry in the Neurology Department, which included biographical data, history, clinical and CT scan findings, treatment received, length of hospitalization, and course of events.

We considered the young woman to be any patient aged 18 to 55.

Data processing was performed using Excel 2019 software, while statistical analyses were performed using SPSS version 27.

The study was conducted with confidentiality, anonymity, and respect for the privacy of the participants. Patient data were entered using a survey form.

3. Results

A total of 549 cases of stroke were recorded during the study period. Hemorrhagic strokes in young subjects represented 19.3% (n = 106) of the cases. Forty-five cases of hemorrhagic strokes in young women were recorded, representing 8.2% of all strokes and 42.4% of hemorrhagic strokes in young subjects. The mean age of the patients was 46.5 ± 5.9 years. The frequency of hemorrhagic strokes was 4.4% in those under 30 years of age and reached a peak of 46.7% between 50 and 55 years of age (**Figure 1**). Fifteen patients (33.3%) were unemployed and 56.6% worked

in the informal sector. All patients were right-sided. The consultation time was 3.3 ± 2.0 days and sudden onset of motor deficit (77.8% of cases) was the most frequent reason for consultation, often associated with a language disorder in 33.3% (n = 15) of cases. The motor deficit mainly concerned the right side (62.9%). The other reasons for consultation were: headaches (22.2%) and disorders of consciousness (11.1%) (Figure 2).

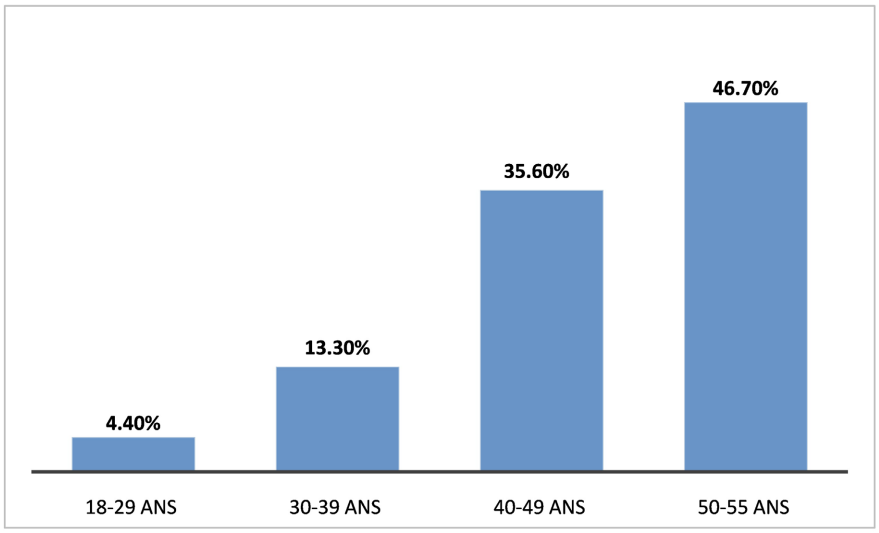

Figure 1. Distribution of patients according to age groups.

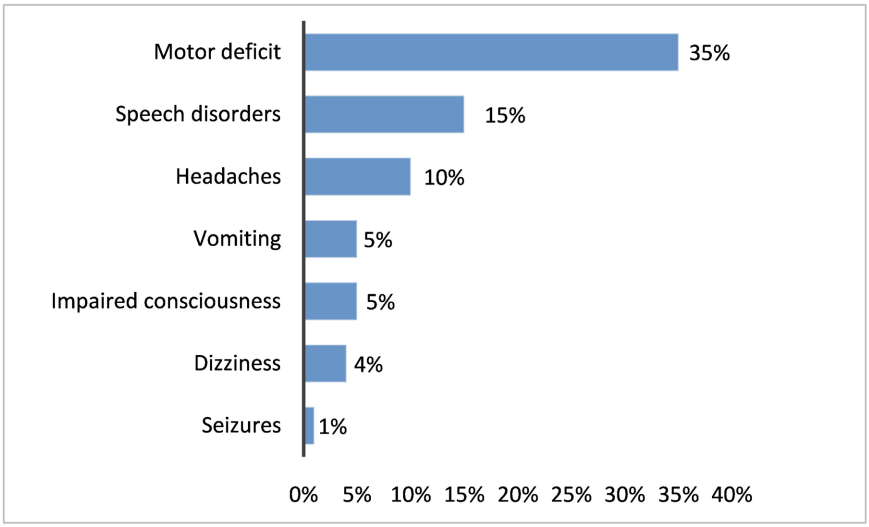

Figure 2. Distribution of patients according to the reason for consultation.

The main neurovascular risk factor (FR) was high blood pressure (HBP) in 97.8% of cases. The discovery of HBP was incidental in 14 patients (31.8%), while 30 patients (68.2%) were known to have chronic hypertension for at least 1 year. However, 63.3% of known hypertensive patients were not followed up. Other FRs were alcoholism (51.1%), history of stroke (20%), dyslipidemia (11.1%), and oral contraceptive use (2.2%) (Table 1).

Table 1. Distribution of patients according to risk factors.

	Effective	Percentage
HTA	44	97.8%
Alcohol	23	51.1%
stroke	9	20.0%
Dyslipidemia	5	11.1%
Oral contraceptives	1	2.2%
Tobacco	1	2.2%
Others*	2	4.4%

*Chronic headache, HIV infection.

The clinical examination on arrival allowed the patients' state of consciousness to be assessed. The Glasgow Coma Scale allowed the patients to be classified into 3 groups based on the admission score. Normal consciousness was assessed at 15; between 13 and 14 it was obtundation and a score between 3 and 12 for coma. The neurological examination on admission noted 44.4% of patients with hemiplegia, 35.6% with hemiparesis and 20% with no deficit. The mean systolic blood pressure was 179.3 ± 29.8 mmHg (range 100 - 214 mmHg) and the diastolic at 113.2 ± 18.9 mmHg (range 145 - 80).

Brain imaging was performed in all patients and revealed a deep hematoma in 75.6% of cases, a lobar hematoma in 15.6% and a subtentorial hemorrhage in 8.9% of patients, more precisely at the cerebellar level (n = 3) and the pons (n = 1) (Table 2). The hematoma was located on the left in 56.8% (n = 25).

Table 2. Distribution of cases according to clinical and paraclinical signs presented by patients on admission.

	Workforce (n)	Percentage
	Mean ± Standard deviation	
Glasgow score[a]		
]13 - 15]	33	73.3%
]08 - 12]	09	20.0%
[03 - 08]	03	6.7%
High blood pressure	44	97.8%
NOT[b]	179.3 ± 29.8	
PAD[b]	113.2 ± 18.9	
Motor skills[a]		
Normal	9	20.0%
Hemiparesis	16	35.6%
Hemiplegia	20	44.4%
Topography of hemorrhage[a]		
Deep	34	75.6%
Lobar	07	15.6%
Posterior fossa	04	8.9%

[a]Qualitative variable in numbers; [b]Continuous quantitative variable with mean ± standard deviation.

Treatment was mainly symptomatic. An oral antihypertensive was administered in 91.1%; this was dual therapy in 26.8% of cases, triple therapy in 56.1% and quadruple therapy in 12.2%. Injectable nicardipine was administered urgently in 46.7% of cases with the aim of achieving a SBP <140 mmHg and a DBP <90 mmHg. Mannitol 20% was administered in 48.9% of patients and analgesics in 39 patients (86.7%).

The evolution was marked by the occurrence of an infectious syndrome in 42.2% (n = 19) of cases. Urinary tract infection was found in 57.9% of cases, malaria in 26.3%, pulmonary infection in 10.2% and an etiology not found in one patient. Three patients (6.7%) developed grade I and II buttock pressure ulcers.

The average length of hospitalization was 7 ± 2.6 days. The mortality rate was 8.9%. One patient was transferred to the intensive care unit and 40 patients (88.9%) were discharged to return home; of these, 64.4% had sequelae.

4. Discussion

Very few studies have specifically addressed hemorrhagic strokes in young women; differences in data collection methods and the types of criteria used sometimes make comparisons between surveys difficult. In our study, among the 549 patients hospitalized for a stroke during the study period, 106 cases of hemorrhagic stroke in young adults were recorded, and 45 cases involved young women, representing a hospital frequency of 8.2% with a sex ratio of 1.4. This observation was made by Dieynabou *et al.*, *who* reported a female predominance [5]. Hemorrhagic strokes, although increasing (42.4%) in young women, remain more frequent in men, as corroborated by several studies [6]-[8].

The mean age of our patients was 46.5 ± 5.9 years; while Moussa *et al.* [7] and Sow *et al.* [9] in their studies on spontaneous intracerebral hemorrhages in those under 55 years reported a mean age of 42 years; the difference with our study could be explained by the fact that these studies concerned both sexes. Indeed, male sex being a non-modifiable cardiovascular risk factor associated with hypertension which is the main factor in the occurrence of hemorrhagic strokes, explains the precocity of hemorrhages in men, thus lowering the mean age of their studies. The frequency of hemorrhagic strokes increases with age, reaching 46.7% between 50 and 55 years. These results are similar to those reported in the literature [10] [11].

Hypertension remains the main risk factor for stroke; its very high frequency (97.8%) in our study reflects a high prevalence of hypertension in the Congolese population [11] [12]. This result is similar to that of Ossou-Nguiet *et al.* who reported a frequency of 84.6% [6]. A review of the literature in the United States between 1990 and 2008 on cardiovascular risk factors and gender, reported a higher frequency of hypertension in women, and this increased with age and menopause, thus suggesting the role of hormones and genetic factors in the determinism of hypertension in both sexes [13]. In our study, hypertension was poorly monitored in 36.7% of cases while 31.8% of patients were not monitored because they were

unaware of their hypertensive status. In addition, 20% of patients had a history of stroke. Indeed, a history of hypertension, especially if poorly controlled, would be associated with a 4 times higher risk of recurrence in patients who have already had a stroke [14]. Alcoholism was the second most common factor found in 51.1% of cases while smoking was found in 2.2%. In a case-control study carried out in 22 countries, O'Donnell MJ *et al.* [15] identified excessive alcohol consumption as a risk factor for cerebral hemorrhage. Sow *et al.* [9] in a study in Senegal reported 9.4% smoking and 3.8% alcoholism. The difference with our results could be explained by cultural habits and religious beliefs because the Congolese population is predominantly Christian while the Muslim religion predominates in Senegal. One patient (2.2%) was on contraceptives at the time of the study but the type of molecule and dosage were not specified; This low rate reflects the African population, particularly sub-Saharan Africa, where only 2.5% of women of childbearing age in rural areas, compared to 9% in urban areas, use a contraceptive method [16]. Hormonal contraception, whether combined (containing an estrogen molecule associated with a progestin molecule) or progestin alone, poses a risk of ischemic stroke and thromboembolic venous disease, but this risk may be higher depending on the molecules used and their dosage [17] [18].

Sudden onset of motor deficit (78.6% of cases) was the most common reason for consultation; in 44.4% of cases it was complete hemiplegia and in 35.6% hemiparesis. This result is superimposable with that of Sow *et al. who objectified a* hemicorporeal motor deficit in 79.2% of cases; However, coma was found in 30.2% of cases compared to 6.7% in our study. This is justified by the almost systematic orientation of patients presenting with disorders of consciousness in the intensive care unit.

The mean SBP was 179.3 ± 29.8 with extremes of 100 - 214 mmHg and DBP 113.2 ± 18.9 with extremes of 80 - 145 mmHg. Mahoungou-Nguimbi *et al.* [19] found higher pressures at 204 ± 32.7 mmHg (extreme: 150 - 270 mmHg) for SBP, and 119.2 ± 19.0 mmHg (extreme: 80 - 160 mmHg) for DBP. The difference is explained by the fact that this last study was carried out in an intensive care unit which receives the most serious cases of stroke.

The diagnosis of intracerebral hemorrhage was made using brain computed tomography or brain magnetic resonance imaging. In 75.6% the hematoma was deep and in 15.6% of cases lobar. Infratentorial hemorrhages were found in 8.9% of cases. These results are superimposable with those of Sow *et al.* On the other hand, Moussa *et al.* reported a predominance of lobar hematomas at 59.2%. The predominance of deep location of CVH in our study can be explained by the high frequency of hypertension in our series; indeed, as several authors report, hypertension is the primary cause of deep hematomas [20] [21].

The treatment of the patients was symptomatic. Oral antihypertensives were administered in 91.1% of patients; injectable nicardipine was associated with it in 46.7% of cases. Mannitol was administered in 48.9% of patients and analgesics in 39 patients (86.7%). After controlling the blood pressure figures and relieving the

patient, it is then necessary to do everything possible to identify the underlying vasculopathy responsible for the intracerebral hemorrhage because this will determine the short and long-term prognosis [3]. However, in this context, due to the low technical platform and the cost of explorations, this etiological search is not easy, thus explaining an essentially symptomatic management.

Infectious syndrome (42.2%) was the main complication observed. It was a urinary infection in 57.9% of cases, malaria in 26.3% and a pulmonary infection in 10.2%. Mahoungou-Nguimbi *et al.* [19] also reported an evolution punctuated by infectious complications (43%) but with a predominance of nosocomial pneumonias.

The mortality rate found in our study was lower than the results of several authors [3] [19] [22] for several reasons. Indeed, our study mainly concerned young women and did not include patients directly admitted to intensive care.

5. Conclusion

Stroke in young women in the city of Pointe-Noire is common, with hypertension, often ignored or poorly monitored, being the main risk factor. It is a serious condition with a high mortality rate and is responsible for sequelae in 64.4% of cases, thus constituting a real public health problem. Sometime, early and often symptomatic treatment improves the immediate prognosis, but effective etiological research could improve the long-term prognosis of patients.

Conflicts of Interest

The authors declare no conflicts of interest.

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