

# Profile and Prognostic Factors of Stroke in Age Subjects in Bangui

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**How to cite this paper:** Yangatimbi, E., Grenaba, D.L., Kinima, J.P., Kpengougna, L., Tchebemou, J. and Mbelesso, P. (2023) Profile and Prognostic Factors of Stroke in Age Subjects in Bangui. *Neuroscience & Medicine*, 14, 76-82.

<https://doi.org/10.4236/nm.2023.144006>

**Received:** March 18, 2023

**Accepted:** December 26, 2023

**Published:** December 29, 2023

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## Abstract

**Introduction:** The stroke is a real public health problem due to its frequency, its severity, its residual physical and cognitive handicap and its financial cost for society. **Goal of the Study:** To contribute to the knowledge of these conditions in neurological practice in the Central African Republic. **Methodology:** Analytical cross-sectional study which took place over a period of 4 months from June 1 to September 30, 2020, in subjects aged 55 and over hospitalized in the Neurology department of the Friendship Sino University Hospital. Central African woman for a stroke with a complete file. **Results:** During the study, 118 patients were hospitalized in the department, including 24 cases of stroke, for a hospital frequency of 20.33%. The average age was 67.1 years old and the male/female sex ratio was 1.6. Motor deficit and language disorder were the main reasons for consultation (100%). Hypertension was the main risk factor (91.7%). Stroke was the most predominant type of stroke (54.8%). Most of our patients (58.3%) were admitted to healthcare facilities before 6 a.m. The lethality was 25%. There was a statistically significant association between the severity of hypertension and the type of stroke as well as the patient's condition at discharge. The NIHSS score and the KARNOFSKY score were significantly related to the patient's condition at discharge. All the discharged patients presented with sequelae such as hemiparesis (75%) and dysarthria (45.8%). **Conclusion:** Stroke is a serious, disabling pathology that is increasingly common with the aging of the population. The creation of a neurovascular unit and a rehabilitation unit could improve the prognosis and course of stroke in our elderly patients.

## Keywords

Profile, Prognosis, Stroke, Elderly, Central African Republic

## 1. Introduction

A cerebrovascular accident (CVA) is defined as the rapid development of localized or global clinical signs of cerebral dysfunction with no apparent cause other than a vascular origin that can lead to death [1] [2]. Strokes represent a major public health problem. They are the second cause of death in the world and in developing countries (DC), behind cardiovascular diseases, ahead of infectious diseases, in particular pulmonary or diarrheal infections, tuberculosis, AIDS or malaria [2] [3]. In Europe, specifically in France, stroke accounts for 130,000 cases each year, causes severe disability in 30,000 patients and is the cause of 40,000 deaths [4]. In Africa, the work done on stroke gives disparate figures. Thus, it has been reported that strokes represent 30% of neurological pathologies in Dakar [5], 60% in Ouagadougou [6] and 8.8% in Bangui [7]. These strokes affect all people of all ages of life, but are more common in the elderly. Studies devoted solely to strokes in the elderly are rare in Africa and are particularly lacking in the Central African Republic. This is why the authors carried out this study, the objective of which is to contribute to the knowledge of this pathology in this category of person.

## 2. Methodology

This was a descriptive and analytical cross-sectional study, conducted in the neurology department of the Sino-Central African Friendship University Hospital in Bangui. The study covers a period of 4 months from June 1 to September 30, 2020. The study population consisted of patients hospitalized in the neurology department for stroke. Were included all patients without distinction of sex aged 55 years and over hospitalized for a stroke on the basis of anamnestic and clinical arguments. The data was collected on pre-established survey sheets, and included socio-demographic variables, socio-economic level, history, clinical and paraclinical elements, treatment received and evolution. The NIHSS scale was used to assess the prognosis of patients. The Rankin score assessed the functional prognosis of patients at discharge. The Karnosky index was used to assess patient autonomy. The data collected was entered and analyzed using EPI INFO 7 and Excel software. The Fisher test was used to compare proportions with a significance level of 5%.

## 3. Results

During the study period, 118 patients were hospitalized in the department for all neurological pathologies combined, including 24 cases of stroke, which represents a hospital frequency of 20.33%. The age group of 61 to 71 years was the most affected, with extremes ranging from 55 to 82 years. The mean age of the patients was 67.41 years (**Table 1**). The M/F sex ratio was 1.6. Farmers (33.3%) and retirees (29.2%) were the most affected. The study population was dominated by single people (33.33%), and 79.2% of cases had been consulted in the emergency room before being hospitalized in the Neurology department. Approximately

58.3% of cases had consulted within the first six hours of occurrence of the accident, 91.7% were known hypertensives. A family history of hypertension and stroke was found in 62.5%. The main reasons for hospitalization were motor deficit (100%), language disorders (100%) and headaches (58.3%) (Table 2). Two out of three patients (66.6%) were unable to work but able to live at home and meet most of their needs. More than six out of ten patients (62.5%) had severe hypertension. The clinical signs were dominated by facial paralysis (91.66%) followed by hemiparesis (58.33%). Moderate stroke was the most represented clinical picture (58.4%), and hemorrhagic stroke represented 54.2% ECG lesions were dominated by HAG and LVH More than half of the patients had a stay of less than 21 days Chronic hypertension (50%) was the main etiology Pressure sores (41.6%) and BPNP (25.0%) were the most common decubitus complications. In-hospital lethality was 25%. The majority of patients (61.1%) had moderately severe disability at hospital discharge. At discharge, 75.0% of the patients retained hemiparesis-type sequelae (Table 3).

**Table 1.** Distribution of patients by age and gender.

Age (years)	Sex		Total
	Male	Female	
50 - 60	3 (12.5%)	2 (8.3%)	5 (20.8%)
61 - 70	7 (29.2%)	5 (20.8%)	12 (50.0%)
71 - 80	4 (16.6%)	2 (8.4%)	6 (25.0%)
≥81	1 (4.2%)	0 (0.0%)	1 (4.2%)
<b>TOTAL</b>	<b>15 (62.5%)</b>	<b>9 (37.5%)</b>	<b>24 (100%)</b>

**Table 2.** Breakdown of cases by reason for hospitalization.

grounds for admission	Effective	Fréquency
Motor deficit	24	100
Language disorder	24	100
Headaches	14	58.3
Consciousness disorders	11	45.8
Vomiting	11	45.8
Fever	10	41.7
Sensory deficit	6	25.0
Behavioral problems	6	25.0

**Table 3.** Distribution of patients according to type of sequelae.

Type of sequelae	Effective	Frequency
Hemiparesis	18	75.0
Aphasia	3	12.5
Dysarthria	11	45.8

## 4. Discussion

### Limit of the study

The limits of the study relate to the small size of the sample, the missing data in certain files, and especially the absence of cerebral imagery which can confirm or eliminate the clinical diagnosis of AVC and to specify the type of AVC is obviously the biggest weakness.

This study on strokes in the elderly is the first of its kind in the neurology department. It allowed us to collect 24 cases, *i.e.* a hospital frequency of 20.33%. Our result is lower than that found in Gabon (28.5%) and Burkina Faso which is 29% [8] [9]. This difference could be explained by the sample size and the study period.

The most affected age group was that of 61 to 70 years with extremes ranging from 55 to 82 years. Our result is almost similar to those of Burkina Faso and Gabon [8] [9]. Age is a powerful risk factor, as the risk of stroke is estimated to double every decade after the age of 55 [10].

The average age of patients in our series was 67.41 years. This result is lower than that found in Burkina Faso (71.35 years) [9] and in some European series with an average age of 80.1 and 68 years respectively [11] [12]. This difference could be explained by the higher life expectancy in developed countries and by the ineffectiveness of preventive measures in African countries. Because these are often neglected due to ignorance of their benefits and the impact of cultural considerations in our African societies.

Male predominance is common in stroke in the elderly, which is the case in our series. This result agrees with data from the literature [12] [13]. However, a female predominance has been reported in a German series [14].

Farmers (33%) and retirees (29%) were the most affected. This result is identical to a study carried out in 2008 in Madagascar where the unemployed were the most affected with 44.10% [15]. These professional categories usually benefiting from a low income, carrying out fewer activities would constitute a risk factor favoring stroke.

The majority of our patients come from the emergency room of the CHU in 79% of cases. This result is similar to those of some authors in Africa [8] [16]. This could be explained in our series, by the existence of a single neurology department and by the lack of doctors specializing in Neurology.

The main reasons for hospitalization were motor disorders (100%), language disorders (100%) and headaches (58.33%). This result corroborates the data of some authors in Africa [5] [6] [8].

It appears from this study that (100%) of our patients were hypertensive, of which (80%) known and (20%) incidentally discovered and (37.50%) of the patients were sedentary. Indeed, of all those who have the recognized risk factors for stroke in general, hypertension is the main risk factor. This result corroborates with data from the literature [5] [6]. Moreover, in the world, in 80% of cases, hypertension causes much more, the occurrence of AVCH [16] [17]. In our study, the time between the onset of symptoms and admission to the emergency

room was long (58.66 hours). This result was superior to the studies carried out in Burkina Faso [6] [8] but similar to the study carried out in Morocco in 2009 [18]. This situation is explained on the one hand by the existence of a socio-cultural barrier and on the other hand by a financial difficulty that does not favor the easy travel of elderly patients and their access to health services.

In our series, the emergency admission time was longer than that found in Burkina Faso [6] [9]. This situation is explained by the difficulties of travel for the elderly and access to health services.

Arterial hypertension is the main vascular risk factor encountered during stroke in the elderly [19], due to its high prevalence (62%) in subjects over the age of 65 [20]. Thus, the cause of 30% to 60% of strokes can be attributed to the existence of simple isolated arterial hypertension [21]. More than 91% of the patients in our series had ATCD of hypertension.

In our series, the duration of hospitalization was about 20 days. This result is lower than those observed in Africa [6] [8] [9]. Moreover, shorter than that observed in Europe, varying from 27 days in patients over 80 years old and 23 days in those under 80 years old [22] [23].

As for hospital mortality (25%), it was higher than that found in Burkina Faso [9]. However, less important than that described in the literature [11]. This difference could be explained by the small size of our sample. Age is often indexed as one of the main factors associated with death after stroke [24] [25].

In our study, the sequelae were dominated by hemiparesis (75%) followed by language disorder: dysarthria (11%) and aphasia (3%). Our result is superior to that of Madagascar [15], where only 32.35% of patients left intensive care with neurological sequelae such as hemiparesis, dysarthria and memory impairment. This could be explained by the lack of human and material resources in the field of functionality and rehabilitation in our country. In fact, functional recovery depends on the severity of the stroke and the precocity of rehabilitation [26].

## 5. Conclusion

Stroke in the elderly still remains a public health problem in Bangui. Its early mortality remains very high, but it also exposes it to disabling sequelae in the short and medium term. The usual risk factors are the same. The late availability of the scanner at the end of our work did not allow us to make the etiological and positive diagnosis of the brain lesions. The sequelae and mortality linked to this condition remain high and reflect the shortcomings in precise diagnosis and adequate management.

## Conflicts of Interest

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

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