

Epidemioclinical and Progressive Aspects of the Adult Hemorrhagic Stroke in Bangui

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Abstract

Introduction: Hemorrhagic strokes in the elderly constitute a diagnostic and therapeutic emergency and, by their frequency and severity, determine a public health problem. **Goal of the Study:** To elucidate knowledge and make our contribution to the study of this pathology (describe the epidemioclinical and evolutionary aspects of hemorrhagic cerebrovascular accidents in adults in Bangui). **Methodology:** It was a retrospective study with descriptive and analytical aims covering a period of two years (2) from January 2017 to December 2018, conducted in the Neurology department of the Sino-Central African Friendship University Hospital. **Results:** During the study, 255 patients were hospitalized for stroke, including 20 cases of AVCH, representing a hospital frequency of 7.8%. The average age was 60.05 years with extremes ranging from 50 to 78 years. The most represented age group was that of 50 to 60 years with a sex-ratio (M/F) of 1.2. Civil servants were more represented (35%) followed by housewives (25%). Alcohol was the main risk factor (95%) followed by hypertension (80%) and tobacco (40%). Most of the patients (75%) were admitted to the care facilities before 6 am (75%). Lethality was 35%. There was a significant statistical link between the Glasgow score and death ($p = 0.007$). In this series, 75% of the cases had sequelae dominated by hemiparesis (75%) and aphasia (25%). **Conclusion:** First study in the Central African Republic, with a high frequency, shows that the AVCH of the elderly poses a public health problem. Requires great mass awareness in order to reduce its mortality rate.

Keywords

Epidemiology, AVCH, Elderly, Central African Republic

1. Introduction

Cerebrovascular accident (stroke) is defined as the rapid development of localized or global clinical signs of brain dysfunction with no apparent cause other than a vascular origin that can lead to death. It therefore constitutes a diagnostic and therapeutic emergency and represents a public health problem [1] [2]. According to the literature, stroke is the second leading cause of death in the world and in developing countries (developing countries), behind cardiovascular diseases, ahead of infectious diseases, in particular pulmonary or diarrheal infections, tuberculosis, the Syndrome acquired immunodeficiency (AIDS) or malaria [3].

Hemorrhagic forms constitute 15% of strokes. They represent the rupture of a blood vessel within the cerebral parenchyma, the ventricles or the spaces under arachnoid. Arterial hypertension (hypertension) is the most important risk factor and cohort studies show that one in two strokes is seen in a hypertensive patient [4] [5]. Stroke affects all age groups with a predilection for the elderly [6]. Considering the aging of the world population by 2050 with a tripling of the number of people aged over 60 and a fourth of those aged 80, there is almost a strong increase in the prevalence of stroke during of the century [7]. There are many epidemioclinical factors for hemorrhagic stroke that influences the prognosis in the elderly and few studies have highlighted the prognostic factors specific to the elderly after stroke. A study was carried out in Bangui at the University Hospital Center of the Sino-Central African Friendship (CHUASC) on epidemiological aspects in 2004 [8]. However, we do not have data on hemorrhagic stroke in the elderly in the Central African Republic. To do this, it seemed appropriate to us to carry out this work in order to elucidate knowledge and also to make our contribution to the study of this pathology.

2. Methodology

It was a retrospective study with descriptive and analytical aims. Our study took place over a period of two years (2) from January 2017 to December 2018. It consisted of all the patients hospitalized in the neurology department of the CHU of the Sino-Central African Friendship of Bangui for Hemorrhagic Stroke who met the inclusion criteria during the study period. Subjects of both sexes, over the age of 50, with suspected signs of hemorrhagic stroke and having complete records were included. All patients under the age of 50 with incomplete and unusable records were not included in the study.

The data were collected from the patient's paper files on pre-established survey cards and included the socio-demographic characteristics (sex, marital status, profession, Provenance); History (hypertension, diabetes, sickle cell anemia, HIV/AIDS, oral contraception, tobacco); Clinical signs (general condition of patients, data from the neurological clinical examination, data from the cardiovascular clinical examination); paraclinical signs (blood filth assessments, morphological examinations in cardiology) and progress under treatment. The data were

entered by Word, Excel and analyzed with Epi info 6. The chi-square test was used to compare proportions with significance at 5%.

3. Results

During this study, we collected 255 files of patients of any age suspected of having a stroke, including 20 cases of AVCH in subjects over 50 years of age, representing a hospital frequency of 7.8%. The most represented age group was that of 50 to 60 years. The average age was 60.05 years with extremes ranging from 50 to 78 years with a ratio (M/F) of 1.2 (see **Table 1**). Public servants (35%) were most affected followed by housewives 25%, and the majority of the study population was single (80%). In this series, 80% of cases had consulted the emergency room before being hospitalized, while 75% had consulted in the first six hours of the accident.

In terms of history, alcoholism was the most common risk factor (FDR) (95%), followed by hypertension (80%) and smoking (40%), while familial ATCD was dominated by l' HTA and diabetes (25%).

Clinically, the main reasons for hospitalizations were motor and sensory deficits (100%) followed by headache (95%), language impairment (90%), and 80.0% of the cases had an impaired general condition. In this study, the majority of patients (100%) had elevated hypertension, followed by temporo-spatial disorientation (95%) and hemiplegia (95%) (see **Table 2**), while 55% of the cases had a Glasgow score lower than or equal to 7.

Paraclinically, 57.1% of the cases had left ventricular enlargement and 80% of our patients had a hypertensive etiology followed by the toxic etiology (15%).

Evolutionarily, 60% of our patients had a hospital stay of less than a month. Out of 13 patients discharged from the hospital, 84.6% of cases had hemiparesis-like sequelae. In our series, Lethality was 35%, and occurred within three weeks of hospitalization, especially in subjects with a disturbed state of alertness ($p = 0.007$) (see **Table 3**).

Table 1. Distribution of patients by sex and age.

Age	Sex	
	Male	Female
24 - 29	0	2
30 - 34	1	1
35 - 39	3	2
40 - 44	7	1
45 - 49	4	5
Total	15	11

Table 2. Distribution of patients according to the main neurological physical signs.

Main physical neurological signs	Number	(%)
Cranial nerve abnormalities	6	23.1
Hemiplegia/hemiparesis	26	100
dysarthria	2	7.7
Aphasia	7	26.9
Cerebellar syndrome	3	11.5
Pyramidal syndrome	26	100
Time-space disorientation	1	3.8
Altered consciousness	5	19.2

Table 3. Analysis of physical neurological signs predicting the type of stroke.

Determinants	AVCI	AVCH	RC et IC	p
Cranial nerve abnormality				0.35
Yes	4	2	0.68 [0.09 - 6.67]	
No	15	5	1	
Hemiplegia				0.05
Yes	6	5	0.20 [0.02 - 1.31]	
No	13	2	1	
Hemiparesis				0.05
Yes	13	2	5.04 [0.76 - 46.89]	
No	6	5	1	
Aphasia				0.16
Yes	4	3	0.37 [0.05 - 2.72]	
No	15	4	1	
Pyramidal Syndrome				0.09
Yes	14	7	undetermined	
No	5	0		
Cerebellar Syndrome				0.19
Yes	3	0	undetermined	
No	16	7		
Impairment of consciousness				0.01
Yes	3	5	0.09 [0.01 - 0.64]	
No	16	2	1	

4. Discussion

During our study, the hospital frequency was 7.8%. This result can be superimposed on that found in Morocco [9], and lower than those found in Dakar and Madagascar [10] [11]. This difference could be related to the size of our sample and the absence of cerebral imagery which would have allowed us to make a good differential diagnosis with ischemic strokes.

The average age was 60.05 +/- 9.08 years with extremes ranging from 50 to 78 years. Our result is identical to that found in Baltimore [12] with an average age of 60.09 years and superimposable on that found in Dakar [13]. However, several authors agree that the average age is different in different countries and, in general, hemorrhagic stroke affects patients around the age of 50 [10] [11] [14].

Men and women were equally affected with a sex ratio (M/F) of 1.2. According to literature data, AVCH usually affects male patients [15]. However, some authors report a female predominance [11] [16]. Civil servants (35%), housewives (25%), and retirees (20%) were the most affected. This result is similar to that found in a study carried out in 2008 in Madagascar [11], where the unemployed were the most affected (44.10%). This type of population was made up of retired patients, housewives and people who exercise fewer activities is a factor favoring the onset of AVCH [17]. Men and women were equally affected with sex. ratio (M/F) of 1.2. According to literature data, AVCH usually affects male patients [15]. However, some authors report a female predominance [11] [16].

During this series, 80% of the cases came from the emergency departments of the CHU. This result is identical to that found in Madagascar [11]. This would be logical, since our study was carried out in Bangui, capital of the Central African Republic (CAR) and many of our patients use non-medical means of transport that can worsen the patient's condition. The main reasons for hospitalization were sensory-motor disorders (100%), headache (95%) followed by language impairment (90%). Our result corroborates the data of certain authors [9] [10].

Regarding the history, 95% of our patients were ethyl, 80% of known hypertensives and 40% of smokers. These data corroborate the data in the literature, which confirms on the one hand hypertension as the main risk factor for AVCH, and on the other hand tobacco and alcohol as toxic substances which favor the appearance of AVCH [18] [19].

Physically, 95% of our patients had hypertension (100%), hemiparesis (95%) followed by temporospatial disorientation (95%). These results agree with data from different authors [20] [21] [22]. The majority of our patients (55%) had a Glasgow score of less than 7. This result can be superimposed on that reported in Madagascar [11] which was 47.03%.

On the paraclinical level, On 7 cases which carried out the electrocardiogram (ECG) one found an HVG (57.1%); HVD (14.3%); HAG (14.3%) and normal in 14.3% of cases. These main disorders found were the same observed in Dakar in Senegal [23].

Etiologically, chronic hypertension was the main etiological factor (85%). This result corroborates the data in the literature [16] [23]. In our study we did not find etiologies of malformation, tumor origins because the etiological diagnosis of this condition is made by imagery that we do not yet have in our country in this 21st century.

In our series, 75% of cases consulted within the first six hours. Our result can be superimposed on that found in Madagascar [11]. Management within 6 hours of the accident improves the patient's prognosis according to the literature [24]. Lethality was 35% of cases. This result can be superimposed on those of certain African countries [10] [25] [26]. Whereas studies done in Europe [27] [28] show the mortality rate between 1.5 and 8%. This mortality rate, higher in African series than European, reflects the flaws in treatment, in particular the late consultation period, the difficult management of co-morbidities (impaired consciousness, renal failure, etc.), the absence of public channels for medical transfer to specialized services and the absence of early and adequate care in our countries.

Most of the patients died with a hospital stay between 0 - 20 days and an admission time between 0 - 6 h, but this lethality was not related to the hospital stay ($p = 0.44$), nor with the admission deadline ($p = 0.78$). Thus, the data in the literature have shown that treatment within 6 hours of the accident improves the patient's prognosis [24]. In our series, 6 patients died on chronic hypertension ($p = 0.64$). High blood pressure was not statistically significant at the origin of the death. This result is similar to the results reported by some authors in Africa [11] [24].

In this study, 6 patients died with a Glasgow score of 8 - 13. We found that this mortality was significantly correlated with the disturbance of the state of consciousness ($p = 0.007$). Our result is similar to the studies carried out in Dakar [13] [29] which confirmed that in general comatose strokes and in particular AVCH have a poor prognosis (82.9%). The main sequelae were hemiparesis (75%) and aphasia (25%), respectively. Our data are superior to that found in Madagascar [11], where only 32.35% of patients have left intensive care with neurological sequelae (hemiplegia, dysarthria, memory loss, etc.). This could be explained by a lack of human and material resources in the field of functionality and rehabilitation in our country. However, as our work is not a follow-up study, we have not noticed any cases of dementia. Because it has been described in the literature that the recurrence of stroke is very often accompanied by sequelae of the type of dementia [30].

5. Conclusions

Hemorrhagic stroke in the elderly has proven to be a public health problem in Bangui. Its early mortality remains very significant but it also exposes to high neuropsychic sequelae in the short and medium term. The lack of a scanner has been very detrimental in our work because the diagnosis of certainty in this 21st century is based only on brain imagery which does not yet exist in the country.

The mortality associated with this condition remains higher and reflects the flaws in the precise diagnosis and adequate management. Hence the importance of optimizing support through training for all actors involved in the circuit from the central level (CHU) including those at the front line (health centers) through the implementation of protocols standardized care, better control of referral circuits in a specialized environment and above all awareness of the populations on vascular risk factors and their consequences, as well as on the warning signs of a stroke.

Conflicts of Interest

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

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