

Epidemiological Aspects of Stroke in Young People at the Friendship University Hospital Center in Bangui in the Central African Republic

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Abstract

Introduction: Stroke is a major public health problem even more dramatic in young people. **Goal of the study:** To make our contribution to the knowledge of strokes of the young subject. **Methodology:** It was a retrospective study conducted over a period of 02 years (January 2017 to December 2018) including the files of patients aged 18 to 49 years hospitalized for any suspected case of stroke in the Department of Neurology of C between Hospitalier A Sino-Central African Friendship University (CHUSCA) from Bangui. **Results:** During the study, 225 cases of stroke were recorded, including 26 cases in young subjects, representing a hospital frequency of 11.5%. The average age was 42.5 years with extremes ranging from 24 to 49 years. The most represented age group was 45 and 49 with a sex ratio (M/F) of 1.36. The average age for men was 41.93 years compared to 39.27 years for women. Civil servants were in the majority in 50% of the cases. Alcohol was the main FDR (80.8%) followed by hypertension (61.5%) and tobacco (50%). The majority of patients (57.70%) were admitted to neurology after the first 24 hours. Ischemic stroke represented 73.08% compared to 26.92% of AVCH. The lethality was 20.08%. The sequelae were found in 69.20% of cases. Cardiac exploration had found 57.10% of LVH. **Conclusion:** This study confirms a high frequency of stroke in the young subject. The predominance of modifiable FRCVs requires the implementation of a specific strategy based on awareness, early detection and effective and adequate PEC.

Keywords

Stroke, Young Subject, Bangui Central African Republic

1. Introduction

Stroke is a real public health problem. Each year, around fifteen million people suffer from it worldwide, of which five million die and another five million suffer from permanent disabilities [1] [2]. In developing countries (PVD), they represent the second leading cause of death, behind cardiovascular diseases, ahead of infectious diseases, in particular pulmonary or diarrheal infections, tuberculosis, AIDS or malaria and more than 80% of the deaths caused by these affections concern these countries. It is also the leading cause of physical disability [3]. In sub-Saharan Africa, the incidence is between 26 and 30 per 100,000 inhabitants. The prevalence is around 58 to 243 per 100,000 inhabitants [4]. In the Central African Republic (CAR), strokes represented 8.8% of patients hospitalized in the Bangui neurology department in 2004 with a one-month mortality rate of 33% [5]. Stroke is still the disease of the elderly. Although the overall incidence of stroke is decreasing and the rates observed in young adults are increasing, which suggests a need for strategies to improve the situation through prevention [6]. However, in the Central African Republic no specific study has been carried out on the stroke of the young subject. For this, it seemed appropriate to carry out this work, the general objective of which is to contribute to the knowledge of this pathology in young people.

2. Methodology

It was a retrospective study with a descriptive and analytical aim which took place over a period of two years from January 2017 to December 2018. We included all patients aged 18 to 49 years, of two sexes hospitalized in the department of neurology of the CHU of the Sino-Central African Friendship of Bangui for cerebrovascular accident whose files were exploitable. Do not part, any subject with stroke aged under 18 or over 49 with incomplete and unusable files. The data were collected from the patient's paper files on pre-established survey sheets and containing socio-demographic data (sex, marital status, profession, origin), History (HTA; diabetes; sickle cell anemia; HIV/AIDS; contraception oral; tobacco), Clinical signs (general condition of the patients; data from the clinical neurological examination; data from the cardiovascular clinical examination), paraclinical signs (renal assessment; lipid assessments, morphological examinations in cardiology) and evolution. The data were entered with Word and Excel software and analyzed with the epi info 3.5.2 software. The chi-square test was used to compare the proportions with a significance level of 5%.

3. Results

During this study, 225 cases of stroke were hospitalized, including 26 young subjects, representing a hospital frequency of 11.5%. The average age was 42.5 years with extremes ranging from 24 to 49 years. The most represented age group was that of 45 to 49 years with a sex ratio of 1.36 (H/F) (see **Table 1**). The

study population was dominated by civil servants (50%) followed by traders 19.20%. Unmarried re showed 61.50% followed seen fs and married (15.40%).

In our series, almost half (46.2%) of the patients came from their home, 42.3% from the CSU/Clinic, 11.5% from the neurological consultations while 53.8% arrived in a care structure in the first three hours. The majority of patients (57.7%) were admitted to the neurology department after 24 hours following the appearance of the first signs. The main risk factor was alcohol (80.8%) followed by hypertension (61.5%) and tobacco (50%) (**Table 2**). The main functional signs were motor deficit (80.8%), headache (65.4%) and language impairment (34.6%). these signs appeared in 38.46% of cases upon waking. The physical signs were dominated by hemiplegia/hemiparesis (100%) followed by aphasia (26.9%) and impairment of consciousness (30.8%). On the map paraclinical we recorded 73.08% of DALYs for 57.7% of LVH, a hype rglycémie in 35.3% of cases, 29.4% of anemia and a syndrome biological inflammatory in 25% of cases. On the evolutionary level, the lethality was 20.08% of the cases, 69.20% of the after-effects mainly a hemiparesis and 92.3% of the patients who spent less than 20 days of hospitalization. During this study, we found that an alertness disorder ($p < 0.01$) or even coma ($p < 0.01$) significantly oriented towards AVCH and patients admitted to hospital beyond 6 hours and those with a high initial BP had a higher risk of death (**Table 3**).

Table 1. Distribution of patients and age according to sex and age.

Age group	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 the number of patients according to cardiovascular risk factors.

Antecedents	Effective	(%)
HTA	16	61.5%
Diabetes	4	15.4%
Heart disease	4	15.4%
AVC	3	11.5%
Alcohol	21	80.8%
Tobacco	13	50.0%
Estrogen plus progestin	3	11.5%

Table 3. Analysis of predictive functional signs of stroke type.

Determinants	DALY	AVCH	Ratio	RC and IC	p
Motor deficit					0.09
yes	14	7	80.8%	undetermined	
No.	5	0		1	
Cephalalgia					0.11
yes	11	6	65.4%	0.24 [0.01 - 2.08]	
No.	8	1		1	
Language disorder					0.31
yes	6	3	34.6%	0.24 [0.10 - 4.32]	
No.	13	4		1	
Consciousness disorder					** , 0.01
yes	3	5	30.8%	0.09 [0.01 to 0.64]	
No.	16	2		1	
Vomiting					0.06
yes	2	3	19.2%	0.17 [0.02 to 1.50]	
No.	17	4		1	
Behavior disorder					0.26
yes	3	2	19.2%	0.48 [0.06 to 5.05]	
No.	16	5		1	

4. Discussion

The prevalence of stroke in the subject during our study was 11.5%. This result is similar to that reported by Lomé in Togo [7]. However, our result is lower than that reported in Douala, Cameroon (15.26%) in a prospective study conducted over a period of 05 years in subjects aged 15 to 45 years [8]. Likewise Brett *et al.* were found in a study conducted in Kentucky (eastern USA), the proportion of stroke was increased from 12.9% in 1993/1994 to 18.6% in 2005 in subjects from 20 to 54 years [9]. This difference could be explained by better detection of stroke thanks to the generalization of MRI in the USA, and the contribution of CT in the diagnosis of stroke in Cameroon; whereas in our context, given the inadequacy of the technical platform, certain cases of stroke would be taken for other pathologies. Furthermore, this discrepancy is also linked to the fact that racial and ethnic composition is a widely recognized component in the variability of the incidence of stroke, especially in the young population [10]. In the Central African Republic, we do not have previous data on the prevalence of stroke in young people in order to describe the progression of this pathology. Although the prevalence found during our study is low compared to the data in the literature. We can evoke the epidemiological transition in which the cerebral attack is no longer the prerogative of old age. This corroborates the data of Béjot *et al.* who have shown that the incidence of stroke in the young population in-

creases over time [11].

In this study, the average age was 42.5 years with extremes ranging from 24 to 49 years. This result can be superimposed on the data of certain authors in Africa [7] [8] [12], on the other hand lower than that reported in Tunisia [13]. This difference is related to the difference in population size and to the fact that their studies focused only on DALYs. The most represented age group was 45 to 49 years old. Our finding is in line with what he reported by Balogou *et al.* in Lomé, Togo and These various results corroborate the data in the literature which affirm that although the average age of strokes is gradually getting younger, the frequency of strokes continues to increase with age [14]. A male predominance with an M/F sex ratio of 1.36 was found during this study. Our finding is comparable with the various data in the literature [8] [11] [15], but contrary to it found in Tunisia [12]. This discrepancy could arise from the fact that women, in our context, seem to be subject to almost the same risk factors as men. This corroborates certain data from the literature which affirm that the stroke no longer remains the prerogative of the male subject due to the adoption of lifestyle for 30 years by women of the same risky behaviors as men [16] [17]. Beyond the unfavorable development of their lifestyle, women also experience exposure to hormonal factors throughout their lives [18]. Officials were majority 50%, followed by traders 19.20%. Similar result to that reported in Douala, Cameroon [8]. This strong representation of officials would be linked to the fact that they consult more easily structure scare because of their level of education and income.

Alcohol was the main risk factor (80%) followed by hypertension (61.5%) and tobacco (50%). This high prevalence of alcoholism and smoking could be explained by the change in behavior of the population during the various military-political crises and requires the implementation of awareness-raising strategies and assistance with withdrawal. Our result for alcohol is lower than that reported by Onwuchekwa *et al.* (27.8%) in Nigeria [19] and Mapoure *et al.* (38.46%) in Cameroon [8]. This discrepancy could be explained by the size of the sample and the duration of the study. In this respect, our results corroborate the data studies by Shinton *et al.* [20] and a Nigerian series which estimated the proportion of smoking at 50.4% in the northwest of the country [21]. These studies show that smoking increases the risk of having a stroke, probably in the short term, through prothrombotic effects. Low exposures to tobacco are likely to activate platelet aggregation and cause acute and longer-term hemodynamic changes by promoting the development of atherosclerosis [15]. While hypertension remains the major FDR for strokes with more than 80% of cases worldwide [8] [21]. In our series, the majority of our patients (57.70%) arrive at the neurology department after the first 24 hours following the appearance of the first signs. This result is lower than that reported in Togo (70%) [7]. This difference could be explained by ignorance or even ignorance of the pathology resulting from a delay in orientation in a specialized structure.

Hyperglycemia was found in 35.3% of cases. This result is almost superim-

possible on that found in Abidjan [22]. In our series, ischemic stroke represented 73.08% of the cases. This result is identical to the data in the literature [7] [23]; however the prevalence of ischemic strokes compared to hemorrhagic strokes tends to decrease more and more or even to reverse since the advent of imaging by CT Scan in Africa [8] [23].

Lethality was 20.08% of cases. This result is similar to the data reported in Togo [7], superimposed on that reported (23.9%) in Nigeria [21]. On the other hand, it is lower than the data for Cameroun and Nigeria. In addition, in the United States, 30-day mortality is low and estimated at 17% [8]. This difference is linked to the quality of the PEC in the acute phase of the brain attack and to a better organization of the health system unlike in Africa. In our series, 69.20% of patients left with sequelae dominated by hemiparesis (72.20%) followed by a dysarthria-type language disorder in 22.20%. Our result corroborates certain data from the literature which affirm that 30% to 50% of young patients, victims of stroke, cannot resume their professional activity and nearly 10% remain dependent for at least one activity of daily life [24] [25]. This study allowed us to identify a link between the type of stroke and the state of consciousness on admission or physical examination. Patients admitted with a consciousness disorder are more likely to have a stroke than a stroke. Our observation joins the literature which affirms that in the AVCH the disorder of the conscience is precocious [26].

It emerges from this study that the delay in admission to the first structure of care and BP have a positive influence on intra-hospital mortality. This finding partly overlaps with what had been reported in Cameroon [8] that hypertension was among the predictive factors associated with intrahospital death whereas the time for admission was not. Could this discrepancy on the time of admission be linked to the initial PEC or to a difficulty in the patient referral system? Because the management of stroke in the acute phase remains codified, its ignorance could have repercussions on the life prognosis of patients. Thus, the quality of the initial PEC in non-specialized structures would have a negative impact on the evolutionary prognosis of our patients, especially by the fact that in stroke, the increase in BP is physiological and contributes to lengthening the period of penumbra ischemic [27] [28]. Besides the difficulty on the question of referral of patients, some authors in the Central African Republic had reported that the reason for the lengthening of the admission period is also explained by the mentality of our community, which first seeks to link the phenomena of sudden appearance to a supernatural cause. This may testify to the ignorance of the population regarding this condition. This calls into question the need to carry out awareness-raising activities in order to enlighten the population in order to reduce the harmful consequences that may result from it [29].

5. Conclusion

Stroke is a public health problem with dramatic functional and life-threatening consequences. Long considered the disease of the elderly, its incidence is clearly

increasing in the young population in both sexes due to risky behaviors such as the consumption of alcohol and tobacco observed in this group of population. Improving the treatment of stroke for young people in the Central African Republic involves, on the one hand, the participation of health professionals in the quality of adequate and appropriate PEC and of the political and health authorities in raising the technical level of diagnosis, and secondly responsible behavior of patients and their carers.

Conflicts of Interest

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

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