



ISSN: 2230-9926

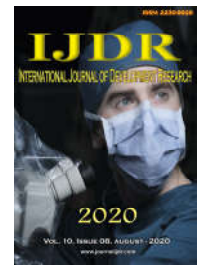
Available online at <http://www.journalijdr.com>

IJDR

International Journal of Development Research

Vol. 10, Issue, 08, pp. 39302-39306, August, 2020

<https://doi.org/10.37118/ijdr.19511.08.2020>



RESEARCH ARTICLE

OPEN ACCESS

PROFILE OF PATIENTS WITH STROKE ADMITTED IN MILITARY TEACHING HOSPITAL IN GABON

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ARTICLE INFO

Article History:

Received 10th May 2020

Received in revised form

21st June 2020

Accepted 08th July 2020

Published online 30th August 2020

Key Words:

Vascular Emergencies, Stroke,
Epidemiology, HTA, NVU.

ABSTRACT

Introduction: Stroke is the second leading cause of death in the world and in developing countries. It is a pathology causing many disability situations and is a medical emergency because of its potential severity; the short-term vital prognosis may be engaged. The objective of our study is to evaluate the epidemiological aspects of this condition in the the Army Teaching Hospital OMAR BONGO ONDIMBA (HIA OBO) **Patients and method:** Prospective and descriptive study from 1st August 2017 to 28th February 2018 at HIAOBO. Patients were included in Resuscitation and UAA services, hospitalized for stroke confirmed by brain imaging. **Results:** We estimated a hospital stroke frequency at UAA of 7.3%. Average age 58 years with extremes ranging from 18 to 95 years. Sex ratio of 1.39. The most concerned age group was 50-60 years old. The most common risk factor was hypertension in 63.24% of cases, most of which resulted in ischemic stroke. There is poor monitoring of hypertension when it is known (66.21% of patients not followed). The most frequent reason for consultation was motor deficit, followed by disturbances of consciousness. Patient admission time ranged from 30 minutes to 14 days with an average delay of approximately 29 hours. Within this period, 47.82% of patients consulted before 4:30 minutes of which 26.08% with a DALY, potentially eligible for thrombolysis. The time required to perform a cerebral CT scan ranged from 1 to 14 days, with an average delay of 37 hours. The most common type of stroke was DALY in 60.86% of the study population. We recorded a total of 12 deaths including 8 in the UAA. **Conclusion:** Stroke is pathology of increasing incidence of which the main risk factor, the HTA is controllable. Our study shows that the conditions could be met to improve the management by setting up UNVs.

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Citation: Jazmin Figari de la Cueva and Araceli Cristina de S. Ferreira. 2020. "Profile of patients with stroke admitted in military teaching hospital in gabon", *International Journal of Development Research*, 10, (08), 39302-39306

INTRODUCTION

The World Health Organization defines stroke as a "rapid" neurological deficit, lasting more than 24 hours, related to focal or global cerebral dysfunction, which can be fatal, whose apparent cause is vascular [Hatanos, 1976]. Stroke is the second leading cause of death in the world and in developing countries, behind other cardiovascular diseases, infectious diseases, including pulmonary or diarrheal infections,

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tuberculosis, AIDS and malaria. It is a pathology causing many disability situations and is a medical emergency because of its potential severity, the short-term vital prognosis may be engaged. It is a public health problem whose consequences are medico-social as well as economic [Sagui, 2007]. In 2005, World Health organization reported a rapid increase in the incidence of cardiovascular disease in Africa [WHO, 2018]. This would be linked to an epidemiological transition related to the aging of the population and the resurgence of modifiable risk factors. In Gabon, a previous study in 2007 showed a hospital stroke rate of 42.9% [Kouna Ndongong, 2007]. Ten years later, another study conducted in 2017 shows a sharp increase in the incidence of stroke of 61.3% among

cardiovascular diseases seen in UAA [Mandoukou]. The recrudescence of the strokes being formally noted, we proposed to describe the epidemiological aspects of this affection in the patients consulting to the HIAOBO

PATIENTS AND METHODS

The survey was conducted in the HIAOBO Emergency Department. This service is a medical-surgical emergency service with a capacity of 20 beds. This is a prospective and descriptive study over a period of 6 months ranging from August 1, 2017 to February 28, 2018. The study population included all patients hospitalized during the period of study at SAU-HIAOBO then in resuscitation of said structure. The inclusion criterion was a stroke confirmed by brain imaging during the study period. Patients admitted for neurological impairment of etiology other than a formed stroke were not included, and patients with documented stroke who refused to sign informed consent. The studied parameters, collected during the interrogation of the patients and / or the entourage and recorded on a survey card included:

- Sociodemographic data: age in years, sex, lifestyle.
- Medical history: Hypertension (hypertension), pre-existing heart disease, renal insufficiency and diabetes,
- Cardiological follow-up: Patients who consulted their cardiologist and / or general practitioner following their HTA at least twice a year were considered as being followed
- The delays of assumption of responsibility: The delays of assumption of responsibility were computed on the base of the beginning of the symptomatology, collected by the interrogation of the patient and / or his family, and the time of registration at the reception at the SAU HIAOBO
- The time required to perform brain imaging: The time to perform brain imaging was calculated based on the beginning of the symptomatology collected by the interview of the patient and / or his family, and the time of completion of cerebral computed tomography making the diagnosis of certainty
- Clinical and paraclinical data
- The future of patients. (transfer, death within 7 days of diagnosis)

An informed consent form was to be signed by the communicating patients included in the study. For non-communicating patients, parental consent was taken. The word processor and tables were produced on the Microsoft Office Word and Excel 2010 software. The data was entered and analyzed on Epi Info7 software.

RESULTS

During the study period, 7308 patients consulted at SAU-HIAOBO. 5733 were treated as outpatients, and of the 1575 hospitalizations, 115 patients, or 7.3% of hospitalized patients, were included in the study as shown in Figure 1. We included 115 patients including 67 men (58.30%) and 48 women (41.70%) with a sex ratio of 1.39. The average age was 58.88 years, ± 14.36 years, with a median age of 58 and extremes of 18 and 95 years. Among the 115 patients, several had comorbidity factors in their antecedents (ATCD). 74 (63.24%) patients with known hypertension were found. Of these patients, 66.21% did not have a correct follow-up of their

pathology. In our study, the majority of our patients (48) or 64.86% with ATCD as HTA had ischemic stroke, and 26 or 35.14% had haemorrhagic stroke. Diabetes was found in 11 patients, and stroke ATCD in 11.30% of patients in the study. In our series, people with an enolic addiction were 31.30% (36), and a smoking impregnation found in 7.80% of patients in the study. The majority of our patients 87% went to the hospital by their own means (vehicles, taxi ...). Only 13% of the study population benefited from medical transport. The treatment period ranged from 30 minutes to 14 days with a median time of 28.6 hours +/- 55.16 hours. Seven patients included in the study came from the interior of the country with a time of care ranging from 4 to 14 days. It should be noted that 55 patients (47.82%) consulted a maximum of 4h30 after the onset of symptoms (Table 1).

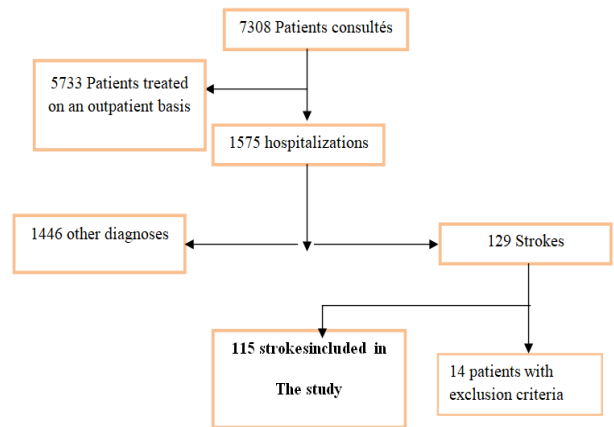


Figure 1. Flow diagram of the study

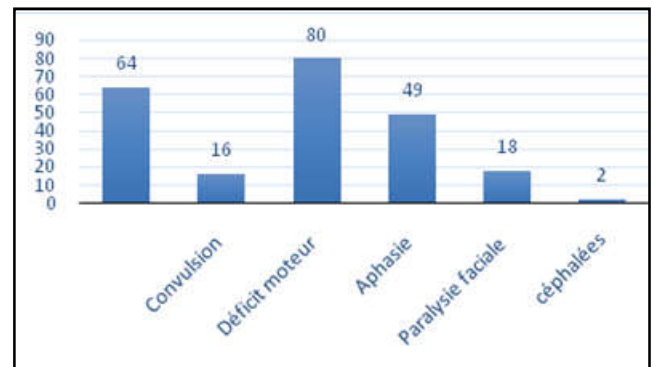


Figure 2. Distribution of patients by reason of consultation

Table 1. Patient Distribution by Admission Times and Types of Stroke

Hours	Stroke		TOTAL
	Hemorrhagic	Ischemic	
≤4h30	25	30	55
>4h30	20	40	60
TOTAL	45	70	115

Table 2: Distribution of patients according to the time of realization of the cerebral CT

Hours	Stroke		TOTAL
	Hemorrhagic	Ischemic	
≤4h30	10	15	25
>4h30	35	55	90
TOTAL	45	70	115

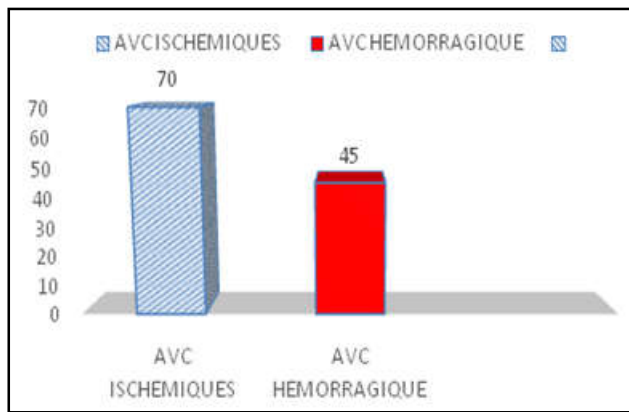


Figure 3. Distribution of Patients by Type of Stroke



Photo 1. Malignant ischemic stroke (HIA-OBO slide, Our study)

- 30 or 26.08% with ischemic stroke
25 or 21.73% with haemorrhagic stroke

The most frequent reason for consultation was motor deficit in 80 patients, consciousness disorders in 64 patients, aphasia in 49 patients (Figure 2). From a clinical point of view, patients with a GCS between 13-15 were the most found (66.08%). We found 12 patients who had reached coma with $GCS \leq 8$. In our study, 37 patients, 32.17%, had a systolic blood pressure greater than 200 mmHg. The time to perform a cerebral CT varied between 1h and 14 days, with an average time of 36.69h \pm 55.03h. Within this period: 25 patients performed their cerebral CT before 4:30 or 21.73% of patients in the study. Fifteen patients, 13.04% of the patients who had ischemic stroke achieved their cerebral CT before 4.30 min (Table 2). The most common type of stroke was Ischemic Stroke in 70 patients, or 60.86% as shown in Figure 3. With respect to haemorrhagic stroke, of the 45 patients with this type of stroke, 21 had a simple mass effect and 12 had ventricular flood. Ten others had a beginning of commitment. For ischemic stroke, of the 70 patients with this type of stroke, 2 had a mass effect, and 4 had ischemic stroke.

For management, only 6 patients with ischemic stroke had curative anticoagulation as their treatment and 67 patients had platelet antiaggregants. No thrombolysis or surgical treatment in our . Of the 35 patients proposed for resuscitation transfer, only 9 were admitted. We recorded a total of 12 deaths representing 10.43% of the study population, including 8 in the emergency reception service

DISCUSSION

In our study, the mean age was 58.88 years, \pm 14.36 years, with extremes ranging from 18 to 95 years. The 30-50 age group accounted for 24.34% and the 50-60 age group for 30.43%. These results show that in our African context, stroke is increasingly affecting young adults. These results are consistent with those of other authors such as KOUNA NDOUONGO *et al.* in Gabon, which has an average age of 57.6 years [Kouna Ndongong, 2007]. KEITA AD *et al.* in Mali and SENEDIOUF F *et al.* in Senegal, they found respectively an average age of 44.5 to 61 years [Keita, 2005; Senediouf, 2006]. Contrary to the data of the African literature, the cardiovascular pathologies of which the strokes are the exclusive preserve, are no longer the exclusivity of the elderly as in the developed countries [10]. These results could be explained by the habits and lifestyles of these patients, and the lengthening of life expectancy. The HTA, a frequent risk factor found in our study, and yet modifiable, persist in our countries for lack of medical control.

Increasing life expectancy remains an important, unmodifiable risk factor to consider in increasing stroke incidence: Adult stroke risk is estimated to double each decade after age 55 [Hacke, 1996; Ruigrok, 2005; Rothwell, 2005]. Let us note in our series the presence of ischemic stroke in a homozygous sickle cell patient SS aged 18 years. The ischemic manifestations are the great peculiarity of sickle cell symptomatology: in an endemic zone like ours, one must know how to evoke a possible stroke in front of any disorder of consciousness in the young sickle cell patient. We find in our study a male predominance. This male predominance is traditional, and is observed by other authors, particularly in Côte d'Ivoire [Cowppli-bony, 2007]. It could be explained by the frequency of some risk factors less rooted in the mores of African women (alcohol and tobacco). However, some authors find a female predominance [Kouna Ndongong, 2007; Yves, 2015]. Indeed, even in the African literature there is variability in prevalence by sex. The most common risk factor in our series was hypertension (63.24% of cases). This HTA is often poorly followed, or simply ignored. This is the case in 66.21% of hypertensive patients known to our study. HTA is the most important modifiable risk factor for stroke in both sexes and at any age [Nicolot, 2003]. Alcohol is the second most common cardiovascular risk factor in our study. The concept of risky use was observed in our patients in 31.30% of cases: NYANGUI MAPAGA in 2014 and DASSI in 2012 found in their theses respectively 22.7% and 48% of harmful consumption of alcohol [Dassi, 2012; Nyangui Mapaga, 2014]. In our series, we found an average admission time of 28.6h \pm 55.16h with extremes ranging from 30 minutes to 14 days. A similar delay of around 22.7 hours was found in 2017 by MANDOUKOU GASSAMA [Mandoukou Gassama, 2017]. Other authors find longer average delays of about 62 hours [Yonmadji Ndigue]. In the series of Diouf [Sène Diouf], the use of a medical structure was in most cases late, only one patient was received before the 6th hour.

In our context, this average is biased by the late consultation of patients coming from the interior of the country (6, 08% of the cases), where the health structures do not have the tomodesitometry allowing the diagnosis of certainty. A diagnostic wandering, sometimes coupled with means of transport to the capital sometimes slow, explain these enormous delays. Populations living in Libreville, have a delay of admission to the UAA generally less than 24 hours. However, even in Libreville, a delay of sometimes serious consultation can still be seen and could be linked to a lack of awareness on the disease and a lack of awareness of the warning signs. Note that in our cohort, more than 80% of patients are returned to the emergency reception service by non-medical means. This contrasts with the rise of the emergency mobile service and resuscitation (EMSR) in our country, including the "social" emergency mobile help service (EMHS), ensuring a complete free medical transport, health costs are generally the first brake on the solicitation of populations. This reflects the lack of information and awareness about life, *let alone* the importance of medical aid. Also an information and awareness campaign on the usefulness of UAS would ensure better pre-hospital care of patients. The most frequent reason for consultation was motor deficit (34.9% of cases), followed by disorders of consciousness (27.9%) and aphasia (21.3%). These reasons for consultation have already been described in the Gabonese literature:

In 2007, KOUNA *et al.* found 96.1% of hemiplegia and 32.3% of consciousness disorder in a cohort of 105 patients [Kouna Ndongong, 2007]. The time required to perform cerebral CT is very variable according to the studies. According to the American recommendations published in the National Institute of Neurological Disorders and Stroke (NINDS) in 1997: every patient suspected of having a stroke must have his cerebral CT performed within 25 minutes and this must be interpreted within 45 minutes [Dexter, 1999] In our study, the time to perform a cerebral CT varied between 1h and 14 days, with an average time of 36.69h +/- 55.03h. Within this period, 25 patients performed their cerebral CT before 4:30, which is 21.73% of the study population. In Morocco, YONMADJI NDIGUE in 2016 found a delay of 62h and in France, DUCLUZEAU R *et al.* found a time of achievement of the cerebral CT of 322 minutes outside any alert [DucluzEAU, 1997]. The most common type of stroke was DALY in 70 patients, or 60.86% of the study population. Our data are comparable to those found by APETSE K. *et al.* in Togo in 2013, which has a prevalence of 60.11% of AVCI. For SENE DIOUF F *et al.* in Senegal in 2006, DALYs are present in 64.7% of cases [18]. In Gabon, in 2014, NYANGUI MAPAGA J *et al.* found a prevalence of AVCI of 57.4% of cases. In short, many studies have shown that DALYs are much more common than VCHAs. However, the prevalence of DALYs compared with VCHAs tends to be reduced more and more or even to reverse [Ossou-nguiet; Apetse, 2011; Sène Diouf, 2006; Mboliasa, 2015]. Thanks to the therapeutic advances discovered in the 1990s (fibrinolysis and setting up of neurovascular intensive care units), stroke has become a diagnostic and therapeutic emergency: time is brain ("time is brain") [Lees, 1998]. It should be noted that in our series, 55 patients or 47.82% consulted before 4:30 of the onset of symptoms. Thirty of them, or 26.08% with a DALY. This implies that these patients were therefore eligible for thrombolysis treatment, ideally in a UNV, if it existed within our hospital.

The existence of such a unit could significantly improve the functional and vital prognosis of our patients. This is all the more true as we have a 24-hour computed tomodesitometry as well as a Magnetic Resonance Imaging (MRI) device. MRI is, in European countries, the gold standard, in the diagnosis of stroke. In fact, the latter makes it possible to detect AVCI in the early phase, which cerebral CT can not. However, its cost and low availability in the country, do not yet include it in a possible algorithm for the management of an acute neurological deficit. In addition, thrombolytic drugs remain unaffordable for the average citizen. An effort could be made by the National Fund for Health Insurance and Social Guarantee in the financial support of said drugs. Stroke management in UNV reduces mortality and improves disability. In Congo, the opening of the Intensive Neurovascular Care Unit at Brazzaville University Hospital, with selective admission criteria, has made it possible to reduce mortality due to preventable causes during severe stroke [Ossou-nguiet, 2014]. In our study, only 6 patients with AVCI had curative anticoagulation as their treatment and 67 other antiplatelet agents. This raises the problem of the indication of anticoagulants in the curative management of ischemic cerebral accidents of cardio-embolic origin. These results could be explained by the fear of haemorrhagic conversion of these DALYs.

Finally, when the patient is not eligible for thrombolysis, antithrombotic therapy aims at the early prevention of relapses and is based on the prescription of aspirin (160 to 300 mg / day) associated with a low molecular weight heparin to preventive doses, prescribed to prevent recidivism. The neurosurgeon's call to emergencies [Castel, 1997; Aye, 2001] is systematic in our structure in a number of circumstances, mainly hematomas and massive cerebral ischemia. The only surgical treatment envisaged therefore remains the derivation of Cerebro-Spinal Liquid (LCS) to fight against hydrocephalus. However, in our series no patient has received surgical management. We were able to observe 4 malignant AVCI in our study. The interest of a decompressive craniotomy is discussed in the literature [Crozier, 2007] but never proposed by the neurosurgeon of the structure. Of the 35 patients proposed for resuscitation transfer, only 9 were admitted. These results could be explained by the limited number of places in the HIA-OBO Resuscitation department (7 places), for patients with generally long hospital stays. Then, the low availability of space is still found in the neurology department of our structure. Finally, the existence of a neurovascular intensive care unit that would be more appropriate for the continuation of the care of these patients is sorely lacking to this day. Our study has some limitations, including a small size, and a monocentric character. However, the results are in agreement with the literature, so some conclusions could be retained.

Conclusion

Our study is probably not representative of all strokes in Gabon. However, it allowed us to confirm hypertension as the major risk factor for stroke. In spite of still long periods of consultation, some patients may be eligible for thrombolysis, which opens the possibility of creating UNV in our country to optimize the management of these patients. Specialized management of this pathology would be highly beneficial but would face some socio-economic difficulties hence the importance of the involvement of public authorities in

educating populations on risk factors, clinical signs of disease. Alert evocators and the first actions to be performed among which the call of mobile services emergency and resuscitation

REFERENCES

- Apetse. K, Matelbe. Mr. Assogba. K. *et al.* 2011. Prevalence of dyslipidemia, hyperglycemia and hyperuricemia in stroke patients in Togo African Journal of Neurological Sciences, 30: (1) 1-4
- Aye P. Management of severe stroke in the emergency department. SAMU - SMUR - Urgences -UHCD-Hospital Center, Pau. Higher education of emergency medicine - Congress 2001 layout samu-de-france.com -2001.
- Castel J.P., Loiseau H., Cuny E. Neurosurgical indications at the early stage of cerebrovascular accidents Rean. Emerg. 1997 6 (4b): 552-559
- Chiasseu Mbeumi MT, Mbahe S *et al.* Descriptive study of stroke in Douala, Cameroon. Med Trop 2011; 71: 492-494
- Cowppli-bony P, Sonan-Douayoua T, Akani F, Ahogo C, N'guessan K, Beugre EK. Epidemiology of stroke in the service of Bouake neurology. Medicine of Black Africa. 2007; 54 (4): 199-202. PubMed | Google Scholar
- Crozier S, Woimant, F. Severe cerebral infarction: what management? Elsevier Masson Resuscitation (2007) 16, 441-451
- Damorou F, Togbossi E, Pessinaba S, Klouvi Y, Balogou A, Belo M, Soussou B. Stroke and emboligenic cardiovascular diseases. Mali Med. 2008; 23 (1): 33. PubMed | Google Scholar
- Dassi Tchoupa Revegue M H. Prevalence of risk factors for stroke in a professional setting in Libreville Doctoral Thesis in Medicine U.S.S Libreville year 2012 Thesis n ° p.108
- Dexter L, Morris, Wayne, Rosamond, *et al.* Time delays in accessing stroke care in the emergency department. ACADEMIC EMERGENCY MEDICINE, 1999, 6, No. 3, 218-223.
- Ducluzeau R, Busseuil C, Bedock B, Schir S *et al.* Management of Stroke in Reception and Emergency Services Results of a multicenter survey. REAN URG, 1997, 6, No. 4 bis: 500 - 503.
- Hacke W, Schwab S, Horn *et al.* Malignant "middle cerebral artery territory infarction: clinical race and prognostic signs." Arch Neurol 1996; 53: 309-15.
- HATANOS Experience from a multicentre stroke register: a preliminary report. Bull World Health Organ 1976; 54: 541-53.
- Keita AD, Toure M, Diawara A *et al.* Epidemiological aspects of cerebrovascular accidents in the computed tomography department at the Gà Bamako hospital, Mali. Med Trop 2005; 65: 453-7
- Kouna Ndongong P, Assengone-Zeh Y, Millogo A, *et al.* Epidemiological and evolutionary aspects of vascular accidents at the hospital center of Libreville (Gabon). Ajsn. 2007-Vol 26 (2).
- Lange MC, Braatz VL, Tomiyoshi C, *et al.* Neurological diagnostics in emergency room. Differences between younger and older patients. Arq Neuropsiquiatr 2011; 66 (2-A): 212-216;
- Lees KR. If I had a stroke. Lancet 1998; 352 (suppl. 3): 28-30.
- Mandoukou G M, Essola L. L. Epidemiology of cardiovascular emergencies at Libreville University Hospital Centers
- Mandoukou Gassama M.H. Epidemiology of cardiovascular emergencies at the Libreville University Hospital, Memory for the emergency medicine university diploma EASSML Libreville, 2017, dissertation n ° 29/17
- Mboliassa I, Lepira B, Makulo R, Kintoki F, Lubenga Y. Epidemiological and Clinical Profile of Cardiovascular Emergencies in Intensive Care in Internal Medicine, University Clinics, Kinshasa Ann. Afr. Med., Vol.8, N ° 2, March 2015
- Niclot .P, Crassard. I, Cohen *et al.* Prevention of Stroke Medical and Surgical Encyclopedia, Neurology, 17-046-A-60, 2003, 20 p
- Nyangui Mapaga J. Prognosis of stroke in Libreville Thesis of doctorate in medicine U.S.S of Libreville year 2014 thesis n ° 824
- Ossou-nguiet PM, Matali E, Ellenga-mbolla BF, Otiobanda GF *et al.* 2014. UNV stroke management in Africa: The experience of Congo-Brazzaville. 21st Congress of PAANS - Grand-Bassam - 23-25 April 2014 Page 31
- Rothwell PM, Coull AJ, LE Silver, *et al.* Population-based study of event-rate, incidence, case fatality, and mortality for all acute vascular events in all arterial territories (Oxford vascular study). Lancet 2005; 366: 1773-83.
- Ruigrok Y.M, Rinkel G.J, Wijmenga C Genetics of Intracranial Aneurysms. Lancet Neurol 2005; 4: 179-89
- Sagui E. Stroke in sub-Saharan Africa. Med Trop. 2007; 67 (6): 596-600. PubMed | Google Scholar
- Senediouf F, Lower AM, Ndao AK, Ndiaye M *et al.* Functional prognosis of cerebrovascular accidents in developing countries: Senegal. Ann Readapt Med Phys 2006; 49: 100-4.
- Sène Diouf, A.M. Bass, A.K. Ndao *et al.* Functional Prognosis of Stroke in Developing Countries: Senegal - Annals of Rehabilitation and Physical Medicine 49 (2006) 100-104
- WHO IRIS.[Internet]. Brazzaville: WHO Regional Office for Africa. 22 to 26 August 2005. Accessed 12 January 2018 from: <http://www.who.int/iris/handle.com>
- Yonmadji Ndigue. Management of ischemic stroke in the neurology department of chu Hassan II FES. Doctoral Thesis in Medicine USMBA / FMP FES. Thesis n ° 109/16.
- Yves N'da Kouakou N'goran, Fatou Traore, Micesse Tano, Kouadio Euloge Kramoh. Epidemiological aspects of stroke in emergency departments of the Abidjan Heart Institute (ICA). pamj. 2015. 21. 160. 6852 PubMed | Google Scholar
