



# Stroke in the Emergency Department of Kara University Hospital

Djalogue L<sup>1</sup>, Mossi KE<sup>2</sup>, Tchamdja T<sup>1</sup>, Djagadou KA<sup>2</sup>, Balaka A<sup>2</sup> and Djibril MA<sup>2</sup>

<sup>1</sup>Department of Internal Medicine, University of Kara, Kara, Togo

<sup>2</sup>Department of Internal Medicine, University of Lomé, Lomé, Togo

## Abstract

The aim of this study was to describe the epidemiological, clinical, paraclinical profile and Cardiovascular Risk Factors (CVRFs) of patients admitted for stroke to the emergency department of Kara University Hospital. This was a descriptive cross-sectional study conducted from August 2022 to March 2023 in the emergency department of Kara University Hospital. All patients in whom the diagnosis of stroke was clinically suspected and confirmed or not by cerebral CT scan were included in this study. The study population consisted of 16 (53.3%) men and 14 women (46.7%). The most common age group was 55 to 65 years. Clinically, the majority of the patients had motor deficit, facial paralysis and language disorders in 76.7%, 60% and 46.7% of cases respectively. The risk factors found were mainly high blood pressure in 86.67% of cases, followed by a sedentary lifestyle and dyslipidemia in 76.67% and 70% of cases respectively. Diabetes was found in 5th position in 23.33% of cases after obesity (36.67%). Of the 30 patients, 63.3% were able to perform cerebral CT scanning. The results concluded that there was a preponderance of ischemic strokes in 63.2% of cases. The immediate outcome in the emergency department was death in 13.3% of cases. As the rate of deaths in emergency department is high and the fact that a stroke is a medical emergency, it is very important to know the symptoms and the risk factors in order to improve management.

**Keywords:** Stroke; Emergencies; Kara University Hospital

## Introduction

Stroke is defined by the World Health Organization (WHO) as “the rapid development of localized or global clinical signs of cerebral dysfunction with symptoms lasting more than twenty-four hours which may lead to death, without other apparent cause than vascular origin” [1]. Stroke is a major public health problem due to its frequency, socioeconomic consequences, complications and the disability it causes [2].

Every year, 16 million new cases of stroke occur worldwide, responsible for approximately 5.7 million deaths [3]. Cerebrovascular Accidents (CVA) are the second leading cause of death in the world, especially in developing countries, which account for 80% of stroke deaths [4]. In Africa, strokes accounted for 30% to 37% of neurology hospitalizations and were responsible for a third of deaths [5].

In Togo, data on strokes comes from the medical records of patients admitted to hospital. A study in Togo reported a stroke frequency of 49.4% [6]. In Kara, studies had already been carried out in the neurology department of Kara University Hospital [7,8].

Stroke accidents represent a medical-surgical emergency. This present work aims to describe the epidemiological, clinical, paraclinical profiles and Cardiovascular Risk Factors (CVRFs) of patients admitted for stroke in the emergency department of Kara University Hospital.

## Method

The study was carried out in the emergency department of Kara University Hospital; the Kara University Hospital which is the reference center for the northern region of Togo.

This was a descriptive cross-sectional study carried out from August 2022 to March 2023. All patients in whom the diagnosis of stroke had been suspected clinically and confirmed or not by brain CT scan were included in this study.

The variables studied were sociodemographic data: Age, sex, socioeconomic level, marital

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### \*Correspondence:

Djalogue Lihanimpo, Department of Internal Medicine, University of Kara, Kara, Togo

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status; clinical data: History, habits and lifestyle, cardiovascular risk factors, functional and physical signs, the time between the onset of symptoms and admission; paraclinical data: Cerebral tomography, biology (blood count, blood sugar, blood ionogram, renal function, and lipid profile).

The clinical diagnosis was based on one or more of the following signs, namely motor deficits, disturbances of consciousness, facial paralysis, language disorders, unusual headaches and convulsive seizures. CT scan allowed us not only to confirm the diagnosis of stroke but above all to distinguish hemorrhagic stroke from ischemic stroke for better management.

### Results

A total of 30 patients were included in this study. The sample was divided into 16 (53.33%) men and 14 women (46.67%). The average age was 55.96 years ± 11.99 with extremes of 25 to 82 years. The most represented age group was 55 to 65 followed by 45 to 55 in 40% and 23.33% of cases. The patients had a secondary level of education in 40% of cases, a primary level in 23.33% of cases, a higher level in 16.67% and 20% were not educated. Civil servants represented 23.33% of cases, followed by artisans 16.70% and housewives 16.70%. Married people represented 80% of cases, single people 13.33% of cases and widowed people 6.67% of cases. Known hypertensive patients represented 86.67% of cases, 23.33% of patients were diabetic, 10% had congestive heart failure, 16.67% had a family history of hypertension and 10% had a family history of diabetes.

In our study the mode of onset was sudden in 24 (80%) patients, gradual in 2 (6.67%) patients and rapidly progressive in 04 patients (13.33%).

The temperature was normal in 73.33% cases and elevated in 26.67% cases. The mean SBP was 162.90 ± 36.69 with ranges from 100 mmHg to 260 mmHg, and that of DBP was 98.17 ± 24.90 with ranges from 54 mmHg to 148 mmHg.

The results of the clinical examination were varied. Motor deficits were present in 76.7% of cases (Table 1). The deep tendon reflexes were abolished in 09 (30%) patients and sharp in 06 (20%) patients. As for the cutaneous-plantar reflex, there was a unilateral and bilateral Babinski sign in 12 patients and the reflex was abolished in 5 patients.

CT scanning was systematically requested urgently. Of the 30 patients, 63.33% were able to perform it. The results noted an ischemic stroke in 63.16% of cases and hemorrhagic in 36.84%.

**Table 1:** Results of the clinical examination.

	Yes		No	
	Number	(%)	Number	(%)
Motor deficit	23	76.67	7	23.33
Facial paralysis	18	60	12	40
Abnormal CPRs	17	56.67	13	43.33
Abnormal ROTs	14	46.67	16	53.33
Language disorder	14	46.67	16	53.33
Consciousness disorders	10	33.33	20	66.67
Unusual headaches	9	30	21	70
Sensory deficit	9	30	21	70
Dizziness	9	30	21	70
Convulsive seizures	2	6.67	28	93.33

**Table 2:** Cardiovascular risk factors.

	Number	%
High blood pressure	26	86.67
Sedentary lifestyle	23	76.67
Dyslipidemia	21	70
Obesity	11	36.67
Diabetes	7	23.33
Alcohol	7	23.33
Family history of hypertension	5	16.67
Family history of diabetes	3	10
Heart disease	3	10
Tobacco	1	3.33

The risk factors were dominated by arterial hypertension (86.67%), sedentary lifestyle (76.67%), dyslipidemia (70%), obesity (36.67%) and diabetes (23.33 %) Table 2.

**Immediate evolution:** Patients who had a hemorrhagic stroke were transferred to an intensive care unit or to a cabin, and ischemic strokes were hospitalized either in the cardiology department (20%) or in the neurology department (66.67%). The evolution in the emergency room was marked by death in 13.33% of cases.

### Discussion

Strokes constitute a medical emergency which requires that the patient be brought within the first hours, more precisely within the first 4 h from the appearance of the first symptoms. In our study we were unable to evaluate the time between the onset of symptoms and the time of admission to the emergency room. But note that in most cases patients come from far away and from health structures in the periphery from which they are often evacuated. So, they often arrive late at the emergency department of Kara University Hospital.

This descriptive cross-sectional study carried out in the emergency department at the Kara University Hospital allowed us to note an average age of 55.96 years. Our result is close to those of N’Goran et al. in Ivory Coast [9] and Coulibaly et al. [10] in Mali who reported an average age of 60 years and 62.2 years respectively.

The most represented age group was 55 to 65 years. Tchala et al. in Togo [11] found that the age group of 50 to 60 represented 55% of cases; Coulibaly et al. [10] reported an age range of 60 to 75 years in 40% of cases. The fragility of the vessels increases with age, associated with certain risk factors which can explain the increase in strokes after age 55. Indeed, age is the most powerful non-modifiable risk factor for stroke, so after age 55, the risk of stroke doubles with each decade [12].

We noted a male predominance in 53.33% of cases, our results are similar to those of certain authors [11,13-16], however others had reported a female predominance [9,17-20]. Indeed, this sex variability has already been described in African literature. However, the incidence of stroke is higher in men than in women. However, due to the higher life expectancy in women, the absolute number of strokes is higher in women than in men [1].

The patients had a secondary level of education in 40% of cases, a primary level in 23.3% of cases, 20% were uneducated. N’Duwayo et al. in Burundi [17] found a higher primary level in 47.37%, the uneducated in 28.42% and university students in 4.21% of cases.

Clinically, the majority of deficient signs were found. Motor deficit, facial paralysis, language disorder in 76.7%, 60% and 46.67% of cases respectively. These signs are also described prominently in several African series [21,22].

The risk factors were dominated by arterial hypertension (86.67%), sedentary lifestyle (76.67%), dyslipidemia (70%), obesity (36.67%) and diabetes (23.33 %). Note that high blood pressure was the main risk factor for stroke. This result was reported by Coulibaly et al. in Mali [18], Ondze-Kafata et al. in Gabon [23], Damorou et al. in Togo [24], and Desalu et al. in Nigeria [25], who reported the HTA in respectively 59.6%; 52%; 60.4% and 84.2%. Hypertension is the main risk factor for stroke.

Its effect increases the risk of hemorrhagic stroke by a factor of 10 and of ischemic stroke by a factor of 4 [26]. Ischemic strokes in our series were the most dominant type in 63.16% of cases. This result agrees with those of Balogou et al. [6], Sonfo et al. [27], N'Goran et al. [9] and Coulibaly et al. [10] who reported a predominance of ischemic stroke at varying proportions in respectively 64.5%; 55.22%; 84.1% and 78.7%.

The immediate evolution in the emergency room was marked by death in 13.33% of cases. Our result is close to that of N'Goran et al. who noted an immediate evolution in the emergency room marked by death in 17% of cases.

## Conclusion

Strokes are one of the clinical diagnoses encountered in the emergency department of Kara University Hospital. They occur more and more in young adults. The deficit syndrome is the most present. Ischemic strokes are the most commonly observed type of injury. There are several risk factors, hence the interest not only in raising awareness about the screening and treatment of cardiovascular risk factors for stroke but also in planning to raise awareness among the population about the clinical signs of stroke and the urgency of consultation and care.

## References

- Béjot Y, Touzé E, Jacquin A, Giroud M, Mas JL. Épidémiologie des accidents vasculaires cérébraux. *Med Sci (Paris)*. 2009;25(8-9):727-32.
- Thierry Armel AT. Epidémiologie et pronostic des accidents vasculaires cérébraux à Parakou au Bénin [Thèse]. Limoges: Université de Limoges; 2021. p. 192.
- Strong K, Mathers C, Bonita R. Preventing stroke: Saving lives around the world. *Lancet Neurol*. 2007;6:182-7.
- Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJL. Global and regional burden of disease and risk factors, 2001: Systematic analysis of population health data. *Lancet*. 2006;367:1747-57.
- Sagui E. Les accidents vasculaires cérébraux en Afrique subsaharienne. *Médecine tropicale*. 2007;67:596-600.
- Balogou AA, Belo M. Epidémiologie récente des accidents vasculaires cérébraux au Togo. *Rev Neurologique*. 2015;171:235-6.
- Kumako VK, N'Timon B, Apetse K, Guinhouya KM, Agba LT, Assogba K, et al. Accidents Vasculaires Cérébraux (AVC) au Centre Hospitalier Universitaire de Kara en zone semi rurale au Togo: Aspects épidémiologiques et évolutifs. *J Rech Sci L'Université Lomé*. 2017;19:291-8.
- Agba L, Tcherou T, Djalogue L, Talabewi A, Anayo N, Dagbe, et al. Stroke at University Teaching Hospital of Kara (Togo) in 2022: Epidemiological, clinical, and evolving aspects. *Clin Neurol Neurosci*. 2023;7(2):38-45.
- N'Goran YNK, Traore F, Tano M, Kramoh KE, Kakou J-BA, Konin C, et al. Aspects épidémiologiques des accidents vasculaires cérébraux (AVC) aux urgences de l'institut de cardiologie d'Abidjan (ICA). *Pan Afr Med J*. 2015;21:160.
- Coulibaly M, Toure MK, Traore AO, Beye SA, Mangane MI, Koita SA, et al. Les accidents vasculaires cérébraux au CHU « Le Luxembourg » de Bamako. *Health Sci. Dis*. 2019;20(2):73-7.
- Tchala A-B, Agballa M-E, Tchalla A, Djagadou KA, Tchamda T, Akara EM, et al. Profil épidémiologique des cas d'AVC Hôpital universitaire Sylvanus Olympio à Lomé, Togo, 2017 – 2018. *Fort Jour of Health Scien*. 2020;3:148-59.
- Rothwell PM, Coull AJ, Silver LE, Fairhead JF, Giles MF, Lovelock CE, 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.
- Balogou AAK, Belo M. Epidémiologie récente des accidents vasculaires cérébraux au Togo. *Elservier*. 2015;171(S1):235-6.
- Basse AM, Diagne NS, Boubacar S, Sow AD, Gams DM, Coumé M, et al. Epidemiology of stroke: A Senegalese study. *Ann Clin Pathol*. 2017;5(5):1122.
- Diagana M, Traore H, Bassima A, Druet-Cabanac M, Preux PM, Dumas M. Apport de la tomodensitométrie dans les accidents vasculaires cérébraux à Nouakchott, Mauritanie. *Med Trop*. 2002;62:145-9.
- Zenebe G, Alemayehu M, Asmera J. Characteristics and outcomes of stroke at Tikur Anbessa Teaching Hospital, Ethiopia. *Ethiop Med J*. 2005;43:251-9.
- Nduwayo D, Barasukana P, Sibomana T, Nyandwi R, Ndirahisha E, Iradukunda D et al. The problem of stroke management in Bujumbura Hospital. *J Neurosurg Neurol Res*. 2021;3(1):1-4.
- Coulibaly S, Diakit S, Diall IB, Menta I, Sacko AK, Diallo B. Accidents vasculaires cérébraux: Facteurs de risque, évolution et pronostic dans le service de cardiologie "B" du CHU du point G, Bamako. *Mali Med*. 2010;25(1):32-6.
- Gnazegbo A, Akani AF, Karidioula HA, Kouamé-Assouan AE, Bony KE, Sylla A, et al. Description des accidents vasculaires cérébraux à l'hôpital universitaire de Bouaké (Côte d'Ivoire). *Med Sante Trop*. 2018;28(3):324-6.
- Kouna Ndouongo P, Millogo A, Siéméfo Amgang FP, Assengone-Zeh Y. Aspects épidémiologiques et évolutifs des accidents vasculaires au centre hospitalier de Libreville (Gabon). *Afr J Neurol Sci*. 2007;26:12-7.
- Ouédraogo PV, Ouédraogo RLA, Diendéré J, Bagbila WPAH, Sagna Y, Millogo A. Aspects épidémiologiques, cliniques et facteurs pronostiques des accidents vasculaires cérébraux ischémiques chez le sujet âgé à Bobo-Dioulasso, Burkina Faso. *Ann Afr Med*. 2022;15(2):4589-95.
- Bitégué L, Essola L, Gnigone P, Ifoudji A, Manga F, Ngomas JF, et al. Aspects épidémiologiques et thérapeutiques des accidents vasculaires cérébraux hémorragiques dans l'unité de réanimation du centre hospitalier universitaire de libreville. *Health Sci Dis*. 2022;23(6):90-4.
- Ondze-Kafata LI, Amounya-Zobo S, Ossou-Nguiet M, Otiobanda GF, Ngolo K, Kimbally-Kaky G, et al. Facteurs de risque cardiovasculaire et données électrocardiographiques à l'admission chez les patients victimes d'accident vasculaire cérébral à Brazzaville: A propos de 50 cas. *Rev Méd Madag*. 2014;4(2):438-43.
- Damorou F, Togbossi E, Pessinaba S, Klouvi Y, Balogou A, Belo M, et al. Accidents Vasculaires Cerebraux (Avc) et affections cardio-vasculaires emboligenes. *Mali Med*. 2008;23:31-3.
- Desalu O, Wahab KW, Fawale B, Olarenwaju TO, Busari OA, Adekoya AO, et al. A review of stroke admissions at a tertiary hospital in rural Southwestern Nigeria. *Ann Afr Med*. 2011;10:80-5.

26. Contegal F, Osseby G-V, Menassa M, Rouaud O, Benatru I. La relation entre hypertension artérielle et accidents vasculaires cérébraux : une équation modifiable. *La lettre du cardiologue*. 2005;(381):26-9.
27. Sonfo B, Sanogo S, Samake D, Coulibaly CA, Sako M, Sidibé L, et al. Accidents Vasculaires Cérébraux dans le Service de Médecine de l'Hôpital Somine Dolo de Mopti, Mali. *Health Sci Dis*. 2020;21(2):86-9.