ISSN: 2690- 909X

Research Article

Advances in Neurology and Neuroscience

Neurological Disorders and Covid-19 At the University Hospital of Lome

Vinyo Kodzo Kumako[1], Léhleng Agba[1], Kossivi Apetse[2], Damelan Kombate[3], Komi Assogba[2], Mofou Belo[4] and Ayelo-la Balogou[2]

[1]*Department of Neurology of Kara University Hospital, BP.18, Kara – Togo*

[2]*Department of Neurology, CHU Campus, BP 30284, Lomé-Togo*

[3]*Department of Neurology of the CHR of Kara, BP.18, Kara – Togo*

[4]*Neurological Clinic, CHU OLYMPIO, BP 57 Lomé-Togo*

***Corresponding author**

Vinyo Kodzo Kumako, Department of Neurology of Kara University Hospital, BP.18, Kara – Togo

Submitted: 31 Oct 2022; **Accepted**: 07 Nov 2022: **Published**: 11 Nov 2022

Citation: *Vinyo Kodzo Kumako, Léhleng Agba, Kossivi Apetse, Damelan Kombate and Komi Assogba, et al. (2022). Neurological Disorders and Covid 19 At the University Hospital of Lome. Adv Neur Neur Sci. 5(4),170-174.*

Summary

Introduction: *In sub-Saharan Africa, data on the association between COVID-19 and neurological conditions are non-existent. We conducted a hospital study whose objective is to describe the possible peculiarities of neurological disorders with recent COVID-19.*

Method: *The study was carried out in the Neurology Department of the CHU Campus de Lomé FROM JANUARY 1 TO December 31, 2021. Patients hospitalized for a neurological condition with a positive COVID-19 PCR test were included.*

Results: *A total of 135 COVID-19 PCR tests were performed. Twenty-seven COVID-19-positive patients were enrolled with an average age of 59 years and a sex ratio of 1. The main antecedents were high blood pressure (69%, n=18), type 2 diabetes (31%, n=8) and stroke (15%, n=4). Reasons for admission were dominated by focused motor deficit (46%, n=12), altered consciousness (27%, n=7), seizures (12%, n=3). The suspicious symptoms of COVID-19 that led to the completion of COVID-19 testing were dominated by asthenia and fever. On extra neurological physical examination, 54% of patients (n=14) had pulmonary condensation syndrome. The most common neurological conditions were stroke. The death rate was 45%.*

Conclusion: *COVID-19 is life-threatening for patients hospitalized for neurological conditions. The issue of long COVID-19 justifies the continuation of studies that characterize Neuro COVID-19.*

Keywords: Neurological Disorders, Covid-19, Africa, Togo

Introduction

The current global epidemiological context is marked by the Covid-19 pandemic (Coronavirus Disease 2019), an infection due to the severe acute respiratory syndrome coronavirus 2 (SARS-Cov 2) that appeared in the People's Republic of China in December 2019 [1, 2]. This emerging disease, little known around the world, has been declared a Public Health Emergency of International Concern by the World Health Organization (WHO) [3]. Less well-known neurological manifestations than pulmonary ones have been reported in COVID-19-positive patients ranging from mild disorders such as smell disorders to severe conditions such as stroke [4- 6]. In sub-Saharan Africa, data on the association between COVID-19 and neurological conditions are non-existent. Togo is located in an intertropical zone of West Africa, between the meridians 0°20 and 1°50 East and the parallels 6° and 11°10 North. Its geographical location gives it warm climates with temperatures that vary between 19.1°C and 33°C. The epidemic affected Togo mainly Lomé, the capital in March 2020 [7] and three epidemic peaks occurred respectively in March-April 2021, August-September 2021, and January 2022 [8]. We conducted a hospital study whose objective is to describe the possible peculiarities of neurological conditions with recent COVID-19.

Methods

The study was carried out in the neurology department of the Centre Hospitalier et Universitaire Campus (CHU-Campus) of Lomé located in the extreme south of Togo, which is the national reference center for neurological disorders. It has 37 beds for

an average of 850 hospitalizations per year. In the context of the pandemic, patients with symptoms of COVID-19 (Table 1) at admission or during hospitalization are isolated and tested. When the COVID-19 test is positive, the patient is transferred if he /she requires intensive care and depending on the availability of beds in the center dedicated to the care of COVID-19-positive patients. Patients hospitalized from January 1 to December 31, 2021, in the Neurology department with positive COVID-19 results were included.

All patients were examined by a neurologist who guided the choice of additional examinations whose burden was on the patient. The accessible brain imaging was the brain scan. Data related to COVID-19 (presence and evolution of suspected symptoms) were investigated by a pre-trained nurse epidemiologist. Each patient received a sample of Oropharyngeal or rarely nasopharyngeal

swabs taken by laboratory technicians previously trained as part of the national COVID-19 response. The samples were analyzed at the national reference center with the cobas® SARS-CoV- 2 test, a real-time Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) test for COVID-
19. Test results were available within 4-6 hours after sampling. After explaining the issue of the study to the patient or their companions, all patients hospitalized during the study gave their agreement for the sample.

Table 1: Suspicious Symptoms of Covid-19 Justifying Screening for Covid-19 In 26 Patients Hospitalized in The Neurology Department of The Chu Campus De Lomé (2021)

Fever (≥38°C) or history of fever
Sore throat
Runny nose
Cough
Shortness of breath
Vomiting
Nausea
Diarrhoea
Headache
General weaknesses
Irritability/mental confusion
Muscle pain
Abdominal pain
Joint pain
Chest pain
Focal syndrome deficiency
Seizures
Coma
Meningeal syndrome
Peripheral neurogenic limb syndrome
Myogenic syndrome
Cranial pair involvement

Results

A total of 135 COVID-19 PCR tests were performed. Twenty-seven COVID-19-positive patients (0.2%) were included, Sample included patients with a mean age of 59 years (range: 16 and 86 years) and a sex ratio of 1. None of the patients were vaccinated against COVID-19. The main antecedents were high blood pressure (69%, n=18), type 2 diabetes (31%, n=8) and stroke (15%, n=4). Reasons for admission were dominated by focused motor deficit (46%, n=12), altered consciousness (27%, n=7), seizures (12%, n=3). The symptoms of COVID-19 that led to the completion of COVID-19 screening were dominated by fever (Table 2). On physical examination, 54% of patients (n=14) had pulmonary condensation syndrome (Table 2). The main biological abnormalities were biological inflammatory syndrome, renal failure, and dyslipidemia. The most common neurological conditions were stroke (at least 62%) (Table 2). The course of hospitalization was known in 22 patients, the other four were sent home by their guardians when they were informed of the positive COCOVID-19esult. Of the 22 patients, 10 (45%) had died, including 4 at the COVID-19 Centre. The profile of deceased patients is summarized in (Table 3).

Table 2: Clinical and paraclinical characteristics of 26 patients with a neurological condition with COVID-19 in the Department of Neurology of the CHU Campus de Lomé (2021)

	Actual	Proportion
Suspicious signs of COVID 19		
Fever (temperature >380 C)	12	46 %
Cough	03	12 %
Breathlessness	12	46 %
Vomit	01	4 %
Diarrhoea	01	4 %
Headache	03	12 %
General weakness (asthenia)	17	65 %
Irritability/mental confusion	02	8 %
Muscle pain	02	8 %
Joint pain	01	4 %
Signs of physical examination		
Focal syndrome deficiency	19	73 %
Meningeal syndrome	02	8 %
Altered consciousness (Glasgow score <13)	12	46 %
Pulmonary condensation syndrome	14	51 TO
Conditions		
Cerebral infarction	14	51 TO
Hemorrhagic stroke	02	08 %
Probable stroke	04	10 to
Vascular epilepsy	01	01 TO
Unlabeled meningoencephalitis	01	01 TO
Cerebral toxoplasmosis	03	12 %
Somatic anxiety disorder	01	01 TO
Severe lung disease	04	10 to
Biological disturbances		
Anaemia	06	23 %
Hyperleukocytosis predominantly polynuclear neutrophil	06	23 %
Lymphocytosis	01	01 TO
Lymphopenia	04	10 to
Hyperplatettosis	02	08 %
Thrombocytopenia	03	12 %
C Reactive Protein High	03	12 %
High serum creatinine	02	08 %
High transaminases	08	31 %
Hypercholesterolemia	06	23 %

Table 3: Profile of 10 patients hospitalized for neurological conditions with COVID 19 deaths at the CHU Campus of Lomé (2021)

Age (years)	Sex	History/comorbidity	Signs of COVID 19	Neurological condition	Mode of aggravation	Deadline- admission-death (days)
55	M	HTA	Pneumonia	Severe hemorrhagic stroke	Coma, respiratory distress	9
61	M	hypertension, stroke	Pneumonia	Vascular epilepsy	Respiratory distress	3
54	F	HTA	Pneumonia	Brain gap	Respiratory distress	2
74	M	HTA	Pneumonia	Brain gap	Respiratory distress	2
68	F	HTA	Pneumonia	Extensive sylvian infarction	Respiratory distress	7
70	M	HTA	Fever	Limited silvian infarction	Respiratory distress	4
65	F	hypertension, type 2 diabetes	Pneumonia	Probable stroke	Respiratory distress	1
81	F	Type 2 diabetes	Pneumonia	Probable stroke	Coma	2
71	F	HTA	Pneumonia	Cerebral infarction	Respiratory distress	1
59	F	HTA	Fever	Severe hemorrhagic stroke	Respiratory distress	2
M = male; F = feminine; hypertension = high blood pressure; Stroke = stroke						

Discussion

We describe through this series of cases, the clinical, paraclinical, and progressive profiles of patients hospitalized for neurological conditions with the discovery of recent COVID-19. The main limitation of this study is the limited size of the sample, and the inadequacy of the technical platform limiting the etiological investigation. However, to our knowledge, this is the first study describing the association of neurological conditions and COVID-19 in sub-Saharan Africa characterized by a limited technical platform and a less virulent nature of the epidemic. As all patients have been tested for suspected signs of COVID-19, these symptoms should be routinely tested for all patients upon admission. This would limit the risk of delayed diagnosis and the spread

of the disease. The association of COVID-19-neurological condition seems rare in our context. The socio-demographic characteristics of patients are comparable to those prior to the epidemic. The same is true for the profile of conditions whose strokes remain the most common [9]. The outbreak does not appear to have changed the clinical profile of patients. The absence of brain magnetic resonance imaging (MRI), the study of cerebrospinal fluid, and CSF angioscanners do not allow this study to identify the attributability of these conditions to SARS Cov2. Current evidence suggests that neurological manifestations of COVID-19 are attributed to direct neuroinvasiveness, as well as para-infectious and post-infectious mechanisms in NeuroCOVID-19 [10-12]. In addition, the mortality rate of 45% among patients is much higher than those observed outside the context of the epidemic [13]. COVID-19 is clouding the life-threatening prognosis of patients hospitalized for neurological conditions, most often by respiratory distress.

Conclusion

The association of COVID-19 neurological disease seems rare in Togo. COVID-19 is life- threatening for patients hospitalized with neurological conditions. The issue of long COVID-19 justifies the continuation of studies that characterize the Neuro COVID-19.

References

1. Zhu, N., Zhang, D., Wang, W., Li, X., Yang, B., Song, J., ... & Tan, W. (2020). A novel coronavirus from patients with pneumonia in China, 2019. New England journal of medicine.
2. Wu, Y., Ho, W., Huang, Y., Jin, D. Y., Li, S., Liu, S. L., ... & Zheng, Z. M. (2020). SARS-CoV-2 is an appropriate name for the new coronavirus. The Lancet, 395(10228), 949-950.
3. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19; 2020Mar 11 [Internet]. Available from: https://www.who.int/dg/speeches/detail/who-directorgeneral-s-opening-remarks-at-the- media-briefing-on-covid-19-- 11-march-2020. Accessed September 20, 2021.
4. Mao, L., Jin, H., Wang, M., Hu, Y., Chen, S., He, Q., ... & Hu, B. (2020). Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. JAMA neurology, 77(6), 683-690.
5. Wang, D., Hu, B., Hu, C., Zhu, F., Liu, X., Zhang, J., ... & Peng, Z. (2020). Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus–infected pneumonia in Wuhan, China. Jama, 323(11), 1061-1069.
6. Wu, W., Wang, A., & Liu, M. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet, 395(10223), 497-506.
7. WHO. First confirmed case of Coronavirus disease in Togo on March 6, 2020. Available on: https://www.afro.who.int/fr/news/epidemie-coronavirus-covid-19-le-togodeclare-un-premier- cas-confirme; Accessed October 19, 2021.
8. https://covid19.gouv.tg/situation-au-togo. Accessed February 15, 2022.
9. Balogou A., Grunitzky K., Tossa K., Belo M., Kowu A. Cost price of hospitalization in the neurology department of the CHU-Campus Lomé in Togo. Cahiers Santé 2004; 14 (2): 109- 14.
10. von Weyhern, C. H., Kaufmann, I., Neff, F., & Kremer, M. (2020). Early evidence of pronounced brain involvement in fatal COVID-19 outcomes. The Lancet, 395(10241), e109.

11. Solomon, I. H., Normandin, E., Bhattacharyya, S., Mukerji, S. S., Keller, K., Ali, A. S., ... & Sabeti, P. (2020). Neuropathological features of Covid-19. New England Journal of Medicine, 383(10), 989-992.
12. Reichard, R. R., Kashani, K. B., Boire, N. A., Constantopoulos, E., Guo, Y., & Lucchinetti, C. F. (2020). Neuropathology of COVID-19: a spectrum of vascular and acute disseminated encephalomyelitis (ADEM)-like pathology. Acta neuropathologica, 140(1), 1-6.
13. Assogba, K., Mofou, B., Ekue, A. F., Apetsè, K. M., Kombaté, D., & Ekouévi, K. D. (2015). Epidemiology, risk factor, type and outcome of stroke in health care facilities of Lome, Togo: A prospective study. The Southern Journal of Philosophy, 3(1), 25-30.