



Research Article

Postpartum Stroke: Epidemiological, Clinical, Etiological and Progressive Aspects of Nine (9) Cases in the Neurology Department of CHU

Ignace Dean from Conakry

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Citation: Barry SD, Touré ML, Doré M, Diallo MT, Bognon V, et al. (2023) Postpartum Stroke: Epidemiological, Clinical, Etiological and Progressive Aspects of Nine (9) Cases in the Neurology Department of CHU Ignace Deen from Conakry. Int J Cerebrovasc Dis Stroke 6: 169. DOI: <https://doi.org/10.29011/2688-8734.100169>

Received Date: 06 December, 2023; **Accepted Date:** 15 December, 2023; **Published Date:** 18 December, 2023

Abstract

Introduction: Postpartum is the period following childbirth and during which the maternal body undergoes many physiological changes, sometimes exposing the mother to the risk of stroke. The aim of our work was to evaluate the clinical, etiological and progressive aspect of postpartum strokes. **Material and Methods:** This was a retrospective study of the descriptive type lasting 2 years from January 2020 to December 31, 2022, focusing on stroke. Postpartum in the neurology department of Ignace Deen University Hospital. The variables used were epidemiological, clinical, etiological and evolutionary. **Results:** Of 14 women admitted for stroke associated with pregnancy, 9 cases occurred in postpartum 64.3%. The average age was 22 ± 10.9 years with a mean time to admission of postpartum vascular event was 13.5 ± 5.2 days. In this study we noted chronic hypertension in 55.6% of cases. The reasons for consultation were dominated by motor deficit (100%); seizures (61.9%) and headaches (66.7%). The stroke type was dominated by cerebral infarction in 33.3% and cerebral venous thrombosis in 44.4%. **Conclusion:** Postpartum stroke, although rare, is potentially serious and often associated with significant maternal morbidity and mortality. However, a positive impact on risk factors could significantly reduce the mortality rate.

Keywords: Stroke; Postpartum; Ignace Deen

Introduction

Pregnancy-associated stroke is a rare event. However, the incidence may increase, especially during the postpartum period [1]. 50% of readmissions for postpartum stroke occurring within 8 days of delivery [2]. Risk factors identified for maternal stroke include older age; African American race; hypertensive disorders

of pregnancy including gestational hypertension, pre-eclampsia and eclampsia; pre-existing chronic hypertension; pre-existing valvular, congenital or ischemic heart disease; sickle cell anemia; cesarean section; infections; migraine; and prothrombotic states [3]. Mortality and morbidity associated with pregnancy-related stroke are significant, 15% of affected women die and most survivors suffer long-term weakness and cognitive dysfunction [4]. The objective was to describe the clinical, etiological and

progressive aspects of postpartum stroke in the neurology department of Conakry University Hospital.

Material and Methods:

This was a retrospective, descriptive study lasting 12 months from December 1, 2021 to December 1, 2022, covering all the medical records of patients who had a stroke at the Ignace Deen University Hospital Center (CHU) in Conakry. The present study included all postpartum women who presented with a sudden onset neurological deficit. And having performed the brain scan and/or brain MRI. The diagnosis was based on clinical findings confirmed by brain imaging and the etiologies of the strokes were sought in all patients. The variables were epidemiological, clinical, etiological and evolutionary. Statistical analysis was performed with the SPSS software package, and the mean, median, and standard deviation were calculated.

Results

During the study period, 240 stroke patients were registered. Among them there were 14 women with a stroke associated with pregnancy including 9 Postpartum women had suffered a stroke, with a frequency of 64.3%. The mean age of the patients was 22 ± 10.9 years. The medical history was dominated by hypertension in 55.6%. The main reasons for consultation were motor deficit of the limbs (100%); disturbance of consciousness (77.8%) and headaches (66.7%) (Table 1-4). The average duration of hospitalization was 5.8 ± 5.2 days with a favorable evolution marked by the discharge of patients without sequelae in 22.2% (Figure 1,2).

Features	Workforce	Proportions (%)
Age		
20-30	6	66.7
30-40	1	11.1
> 40	2	22.2
TOTAL	9	100
Medical background		

Chronic hypertension	5	55.6
Pregnancy hypertension	4	44.4
Diabetes	2	22.2
Sickle cell disease	2	22.2
Pre-eclampsia	3	33.3
Eclampsia	4	44.4

Table 1: Distribution of patients according to sociodemographic data.

Reasons for consultation	Workforce	Proportions (%)
Limb motor deficit	9	100
Consciousness disorders	4	44.4
Language disorders	5	55.6
Convulsive seizures	6	66.7
Headache	7	77.8
Visual disturbances	2	22.2
Stroke type		
Ischemic Stroke	3	33.3
Intraparenchymal hemorrhage	2	22.2
Cerebral venous thrombosis	4	44.4
Etiologies of stroke		
Eclampsia	4	44.4
Infections	3	33.3
Chronic HTA	5	55.6
F.A.	3	33.3

Table 2: Distribution of patients according to clinical data.

Score	Disability	Workforce	Proportions (%)
Modified Rankin			
0	No symptoms	-	-
1	Symptoms	-	-
2	Light	3	33.3
3	Moderate	4	44.4
4	Moderately severe	2	22.2
5	Severe	-	-
Glasgow score			
≤ 8		-	-
9-10		3	33.3
11-12		5	55.6
13-14		1	11.1
NIHSS			
0-5		2	22.2
6-10		4	44.4
11-15		3	33.3
16-20		-	-
> 20		-	-
ICH			
≤ 3		2	22.2
> 3		-	-
NIHSS average: 6 Extremes: 3 and 13; Average SG: 11 Extremes: 9 and 15			

Table 3: Distribution of patients according to degree of disability and level of alertness.

Biological abnormalities	Workforce	Proportions (%)
Microcytic anemia	3	33.3
Polycythemia (Hb: 17.4g/dl)	1	11.1
Hyperplateletosis	2	22.2
Deficiency in C, S and III	3	33.3
Thrombocytopenia	2	22.2
Hypercholesterolemia	7	77.8
TPHA\VDRL(+)	1	11.1
CRP(+)	6	66.7
VS Accelerated	5	55.5

Table 4: Distribution of patients according to biological data.

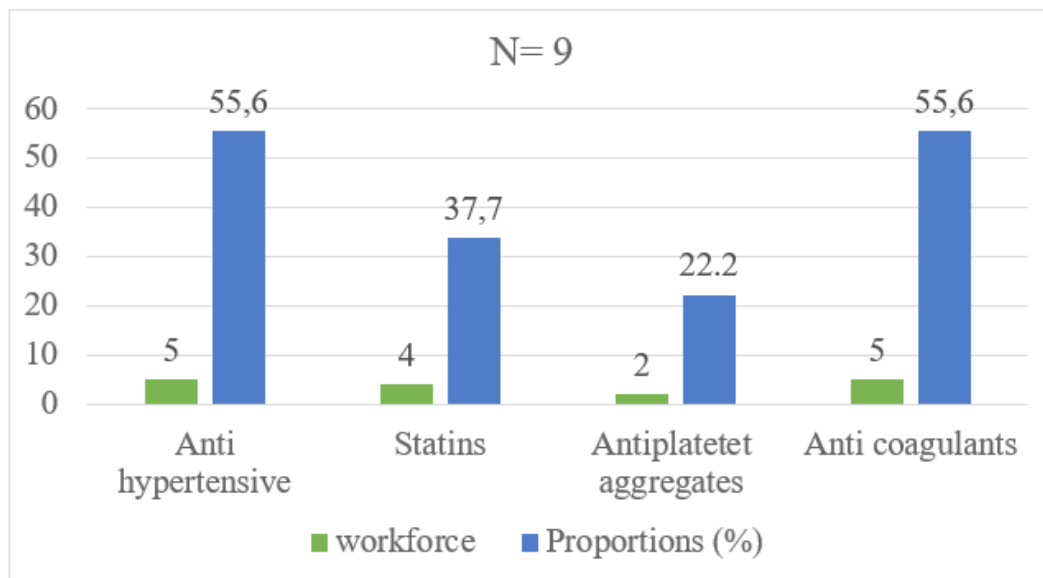


Figure 1: Patient distribution according to treatment received.

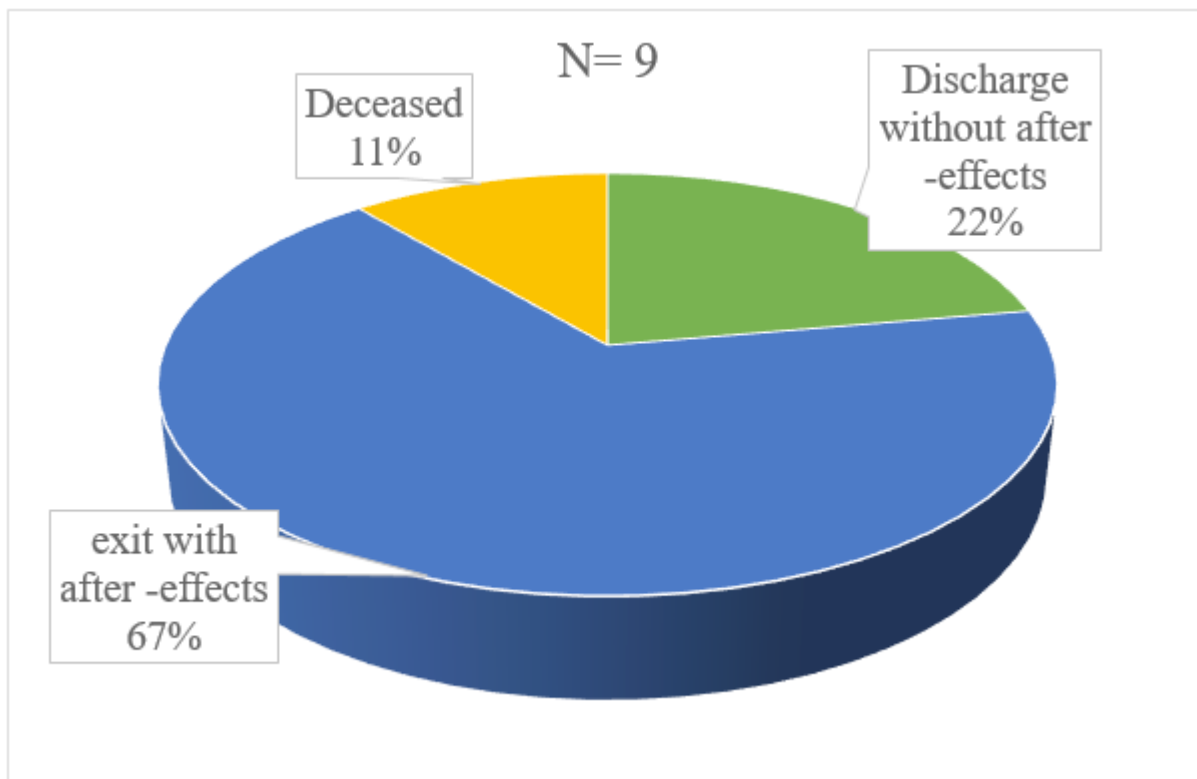


Figure 2: Distribution of patients according to evolution.

Discussion

Pregnancy, postpartum and menopause are periods of life with increased vulnerability to stroke in women. During this study, 9 cases of postpartum stroke were studied. During pregnancy physiological changes and pre-existing cardiovascular diseases or risk factors increase the risk of stroke [5]. Similarly, the pathophysiology of stroke during pregnancy and the postpartum period is linked to changes in circulatory dynamics during pregnancy and the postpartum period. Coagulation factors VII, X, XII, fibrinogen and plasminogen activator inhibitors 1 and 2 are increased. Along with this anticoagulant factor like protein C and antithrombin are decreased during the third trimester and early postpartum period. These changes in procoagulant and anticoagulant factors make pregnancy a hypercoagulable state. The present study included women of all ages with an average age of 22 ± 10.9 years. Our result is lower than that of Andrea et al. [6] who observed a mean age of 26.1 ± 6.2 years with age ranges of 26 to 39 years. This could be explained by the fact that many adolescent girls are married before the age of maturity to carry pregnancies, sometimes not benefiting from any ANC, and therefore exposed to cardiovascular risk factors such as high blood pressure. The average time to admission of the postpartum vascular event was 13.5 ± 5.2 days. Several other studies have demonstrated that the time of greatest risk is postpartum [7] and that most postpartum strokes occur in the first 2 weeks after delivery, with 50% readmissions for postpartum stroke. Occurring within 8 days of delivery [8]. The presenting symptomatology was predominated by headaches, neurological deficits composed of motor weakness, blindness, aphasia, or coma and visual changes [6]. Due to its common clinical presentation with seizures, high blood pressure, proteinuria, and visual blurring, postpartum stroke is often misdiagnosed as eclampsia [9]. The main cardiovascular risk factor found in our patients' medical history was chronic hypertension. On the other hand, Too et al. in 2017 found that other risk factors included chronic hypertension (17.0%), severe pre-eclampsia (11.3% of patients), [10]. High blood pressure is known to increase the risk of stroke. postpartum, but many strokes occur in women without a history of chronic hypertension or hypertensive disorders of pregnancy [11]. So, De novo postpartum hypertension is a well-known but underestimated clinical condition. Because the majority of women who were normotensive until peripartum are re-examined at 6 weeks postpartum, many cases of mild asymptomatic hypertension are missed, and only those complicated by significant symptoms such as headache and Blurred vision or dyspnea are usually evaluated in the emergency department and, if not hospitalized, are not recorded [12]. In this series we noted a preponderance of ischemic events (cerebral infarction; cerebral venous thrombosis) postpartum. On the other hand, Miller et al. in 2019 on infection during childbirth, hospitalization and risk of readmission for postpartum stroke [13] reported that among women who suffered a postpartum stroke, 1189 (55.9%) were hemorrhagic, including 457 (38.4%) intracerebral hemorrhage (ICH), 646 (54.4%) subarachnoid hemorrhage (HM). This proportion of TVC in our study is lower than that reported by

Bajko et al. in Romania in 2021 (11.3%) during postpartum [14]. Furthermore, CVT represents 2 to 57% of pregnancy-related strokes [15], and the majority of cases appear in the postpartum period [16] with the main causes of increased risk during the postpartum period. pregnancy-related hypercoagulability, cesarean delivery, infections, blood loss during delivery and dehydration, fluctuations in intracranial pressure during labor, hypertensive complications of pregnancy, and even loss of cerebrospinal fluid after dural puncture [17]. Acute treatment of stroke is associated with the risk of bleeding, and current recommendations for the treatment of acute stroke do not apply to women in the puerperium; therefore, recommendations for acute treatment with intravenous thrombolysis (IVT) and/or mechanical thrombectomy (MT) are necessary. Intravenous thrombolysis with alteplase is the only approved systemic reperfusion therapy for patients with acute ischemic stroke [18] and MT is recommended for patients with large vessel occlusion [19]. Pregnant and postpartum women have been excluded from all randomized controlled trials (RCTs) of acute stroke, leading to a lack of evidence on potentially beneficial therapies in this patient population. For this reason, most otherwise potentially eligible pregnant or postpartum women with ischemic stroke do not receive therapy reperfusion [20]. In women with hemorrhagic stroke, for ICH or SAH, treatment involves initial stabilization measures such as blood pressure control (i.e. systolic blood pressure 160 mmHg), reversal of anticoagulation and identification of the cause and source control if possible. Urgent procedures such as aneurysm clipping/coiling, arteriovenous malformation embolization, and surgical resection can be performed, regardless of pregnancy status. Basic treatment, regardless of the presence of intracerebral hemorrhage. Intra-sinus thrombolysis or endovascular thrombectomy have been reported in some severe cases [21]. The evolution in our study was marked by discharge with sequelae. For other authors, residual neurological sequelae are present in up to 40% of cases [22].

Conclusion

Postpartum stroke remains a rare, multifactorial complication associated with significant maternal morbidity and mortality. We found an association between the occurrence of postpartum stroke and hypertensive disorders during pregnancy. Risk factors for postpartum stroke include: age, hypertension, diabetes. However, a positive impact on these factors could considerably reduce the mortality rate linked to postpartum stroke and contribute to better early care.

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