**Int. j. adv. multidisc. res. stud.** 2026; 6(3):488-489

**Received:** 26-04-2026
**Accepted:** 06-05-2026

International Journal of Advanced Multidisciplinary Research and Studies

**ISSN: 2583-049X**

**Letter to the Editor**

# Strokes in Pediatric Patients Require a Comprehensive Workup to Avoid Overlooking Alternative Causes

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**DOI:** https://doi.org/10.62225/2583049X.2026.6.3.6282
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**Letter to the Editor**

We read with interest the article by Kago-Tagoe *et al*. on a single-center retrospective observational study of the causes of ischemic and hemorrhagic stroke in 47 pediatric patients from Yaounde [1]. The most common cause of ischemic stroke in this cohort (87% of cases) was sickle cell anemia, followed by sepsis, protein-S deficiency and dilated cardiomyopathy [1]. The most common causes of hemorrhagic stroke (13% of cases) were sickle cell anemia, idiopathic thrombocytopenic purpura and hemophilia [1]. Strokes in Cameroon were found to be most common at 6 years of age, with ischemic strokes predominating and sickle cell anemia being the most common cause [1]. Several points should be discussed.

The first point is that the conclusions are not convincing. The statement that stroke occurs around the age of 6 is not convincing because the sample size was small, because it was a single center, and because there was no control group with a different mean age for comparison. In addition, the conclusions should be limited to pediatric patients.

The second point is that only 3/47 patients had received a cerebral MRI, while in the remaining patients the stroke was diagnosed with a cerebral computed tomography (CCT) [1]. CCT is known to easily miss small embolic strokes [2], which is why multimodal MRI is preferable to CCT as the initial diagnostic method for strokes.

The third point is that the observation period covered the years 2015 to 2022, suggesting that at least some of the included patients may have been SARS-CoV-2 positive. Since SARS-CoV-2 infection has been shown to be a risk factor for ischemic stroke [3], it would have been useful to know how many of the included patients were SARS-CoV-2 positive and in how many the stroke was due to COVID-19 infection.

The fourth point is that it was not reported in how many of the 8 patients with hemorrhagic stroke the hemorrhage was secondary to ischemic stroke and in how many the hemorrhage was primary. Knowing this status is crucial for the treatment and outcome of these patients.

The fifth point is that no vascular information was collected from the patients [1]. Since stroke can be caused by macro- and microangiopathy even in pediatric patients [4], it would have been useful to know the vascular status of the included patients, especially how many had stenosis or occlusion of the carotid arteries or intracerebral arteries, how many had vasculitis, how many had reversible cerebral vasocontriciton syndrome, how many had dissection, how many had aneurysm, and how many had venous sinus thrombosis.

The sixth point is that no information was given about the treatment that the included patients received and their outcome. How many of the patients underwent thrombolysis or thrombectomy? How many required anticoagulation? How many required rehabilitation and what was the modified Rankin Scale score at the three-month follow-up?

The seventh point is the retrospective design of the study [1]. Retrospective designs have several disadvantages [5]. Since they are based on the review of medical records that were not originally designed to collect data for research purposes, some information is inevitably missing. Selection and recall errors also affect the results [5].

In summary, pediatric patients with stroke require comprehensive evaluation, multimodal MRI, admission to a stroke unit, thrombolysis or thrombectomy in case of large vessel occlusion, and early rehabilitation.

**Declarations**

**Ethical Approval:** Was obtained NNC-2025 54.

**Consent to Participation:** Not applicable.

**Consent for Publication:** Not applicable.

**Funding:** None received.

**Availability of Data and Material:** All data are available from the corresponding author.

**Completing Interests:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

**Author Contribution:** All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

**Acknowledgements:** None.

**Keywords:** Acute Ischemic Stroke, Hemorrhagic Stroke, Children, Sickle Cell Anemia, Infection

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