Research Article

ISSN 2689-1085

Journal of Pediatrics & Neonatology

COVID-19 Pandemic Impact on Management of Sickle Cell Disease in Children

Deme Ly Indou[1]*, Gbedji K1, Dieng YJ[1], Diop I[1], Kane A[1], Thiam L[2], Seck Nd[3], Ndongo AA[1], Boiro Dj[1], Basse I[4], Niang B[1], Ba ID[1], Thiongane A[1], Ba A[1], Faye PM[1], Fall AL[1], Mbodj /Diop YF[1], Achnin O[1], Diagne I[3] and Ndiaye O[1]

[1]*University Cheikh Anta Diop, Dakar, Senegal.*

[2]*University Assane Seck de Ziguinchor, Senegal.*

[3]*University Gaston Berger Saint-Louis, Senegal.*

[4]*University Iba Der Thiam de Thies, Senegal.*

***Correspondence:**
Pr Indou Demely, University Cheikh Anta Diop, Dakar, Senegal, Tel: 00221776575230.

Received: 10 Dec 2025; **Accepted:** 12 Jan 2026; **Published:** 21 Jan 2026

Citation: Deme Ly Indou, Gbedji K, Dieng YJ, et al. COVID-19 Pandemic Impact on Management of Sickle Cell Disease in Children. J Pediatr Neonatal. 2026; 8(1): 1-4.

ABSTRACT

Introduction: *COVID-19 pandemic consequences are variously felt. In Senegal, containment measures had a negative impact on the monitoring of chronic diseases. Our aim was to assess this impact on the management of sickle cell disease.*

Patients and methods: *We conducted a descriptive and analytical cross-sectional study, from January 2019 to December 2020, at the Ambulatory Care Unit for children and adolescents with sickle cell disease (USAD) in Albert Royer National Children Hospital (CHNEAR) in Dakar. Patients followed up and seen during the study period were included. Those over the age of 15 or whose records were not found were not included. The follow-up and emergency activities for 2019 were compared with those for 2020. The information was analyzed with Epi info 7. The Fisher test was used for the comparisons. A value of p <0.05 was considered significant.*

Results: *A total of 5558 patients were included, with 95.46% SS homozygous, and a mean age of 8.4 years ± 4.2. In 2020, a significant decrease in follow-up consultations was observed (12.2% p = 0.00), as well as a significant increase in emergency consultations (11.1% p = 0.00). Outpatient care was more frequent in 2020, with a significant decrease in hospitalizations (4.5% p = 0.000), compared to 2019.*

Conclusion: *COVID-19 pandemic has led to a decrease in follow-up consultations with an increase in emergencies, among patients followed at the USAD.*

Keywords

COVID-19, Sickle cell disease, Management.

Introduction

Children are less affected by the COVID-19 pandemic, however, some preventive measures taken by health authorities have disrupted the organization of care for patients with chronic diseases. Sickle cell disease was classified among the high-risk comorbidities, however, rare cases have been reported, revealing many unknown factors [1]. The major risk is the occurrence of vaso-occlusive crises and acute episodes that can be life-threatening [2]. To assess the impact of the pandemic on the care of these patients, we compared follow-up, emergency consultation, and management activities before the pandemic and during the first wave of the pandemic in a sickle cell disease care unit.

Patients and Methods

We conducted a descriptive and analytical cross-sectional study from January 2019 to December 2020 at the Outpatient Unit for Children and Adolescents with Sickle Cell Disease (USAD)

of the Albert Royer National Children Hospital (CHNEAR). Individuals with major sickle cell syndromes who were followed and seen during the study period were included. Those over 15 years of age or whose records could not be located were excluded. Sociodemographic, clinical, and therapeutic data were collected. Scheduled follow-up, emergency consultation, and treatment activities in 2019 were compared to those in 2020. The analysis was performed using Epi Info 7. Quantitative variables were expressed as mean ± standard deviation, and qualitative variables as frequencies and percentages. Fisher's exact test was used for comparison, and a p-value < 0.05 was considered statistically significant.

Results

Our study included 5,558 patients, the majority of whom were homozygous SS (95.46%). The sex ratio was 1.26 in 2019 and 1.18 in 2020. The mean age in 2019 was 8.32 ± 4.03 years and 8.48 ± 4.23 years in 2020. The 5-10 year age group was the most frequent, representing 37.67% of patients in 2019 and 35.51% in 2020. The sociodemographic and clinical characteristics of the patients are shown in Table 1.

The emergency room management procedures are illustrated in Table 2.

Table 1: Sociodemographic and clinical characteristics of the patients.

	2019 (N=2888) (51.96%)		2020 (N=2670) (48,04%)	
	Number	**Pourcentage (%)**	**Number**	**Pourcentage (%)**
Gender				
Male	1611	55.78	1448	54.23
Female	1277	44.22	1222	45.77
Residence				
Dakar	2015	69.77	1872	70.11
Region	854	29.57	789	29.55
Sous-region	19	0.66	9	0.34
Employed father				
Yes	1028	35.60	158	43.37
No	1860	64.40	1512	56.63
Schooled				
Yes	1635	56.61	1749	65.50
No	517	17.90	156	5.84
Simple	1520	52.63%	1078	40.37%
follow Emergency	1331	46.09%	1527	57.20%

The conditions that prompted an emergency consultation are shown in Figure 1.

Figure 1: Conditions that prompted emergency visits.

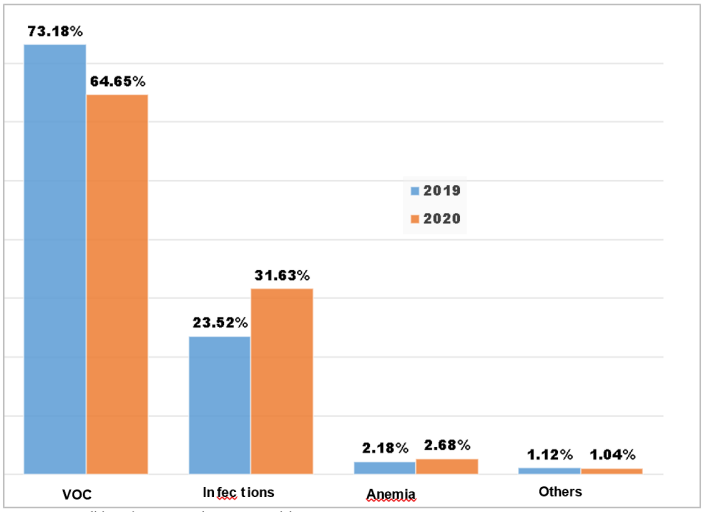


Table 2: Emergency Room Management Procedures.

	2019 (N=1331)		2020 (N=1527)	
	Number	**Pourcentage (%)**	**Pourcentage (%)**	**Number**
Prescription	296	22.24	480	31.44
Day hospital	852	64.01	906	59.33
Hospitalization	183	13.75	141	9.23
Transfusion	37	1.28	65	2.43

We observed a significant difference between follow-up consultation and emergency department visit rates in 2019 and 2020 (Table 3).

Table 3: Comparison of follow-up activities with emergency department and transfusion visits.

Folow-up	Emergency Planned transfusion	P
2019 1520	1368	0.00
2020 1078	1592	

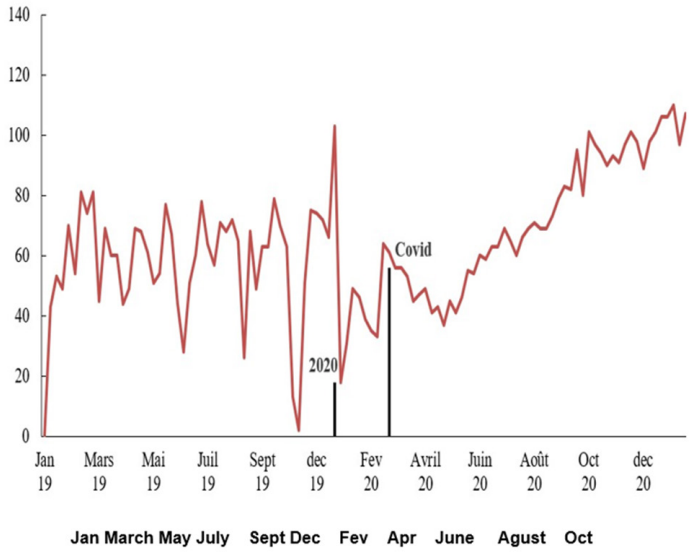
The frequency of emergency visits was 46.09% in 2019 and 57.2% in 2020, with p = 0.00 (Table 4). We observed a significant decrease in hospitalizations in 2020 and an increase in observation periods, compared to 2019 (Table 4).

Table 4: Patient management patterns in 2019 and 2020.

Hospitalisation	Day hospital Prescription	P
2019 183	1148	0,00
2020 141	1386	

Figure 2 illustrates the evolution of emergency consultations during our study period.

Figure 2: Evolution of the number of patients admitted to the emergency department at the USAD in 2019 and 2020.



Discussion

The size of the study population is justified by the study setting, which is a reference unit for the management of sickle cell disease in children and adolescents.

The average age of 8 years could be explained by a late diagnosis of sickle cell disease due to the absence of a national screening program in Senegal [3,4]. In Morocco, a similar result was reported, while in Togo, the average age was later, at 10 years [5,6]. A male predominance was reported by some authors [3,7,8]. Others observed a female predominance, or even gender equality [4,6,9]. The homozygous SS genotype was the most frequent [4-6,10]. A decrease in the attendance rate of the USAD was observed in 2020 (48.04%), compared to 2019 (51.96%).

This situation was linked to the fear surrounding COVID-19 and the travel restrictions, including curfews, implemented as soon as the first case of the disease appeared in early March 2020. We observed a 12.2% decrease in follow-up consultations at the USAD in 2020 (p=0.000), related to the suspension of scheduled follow-up appointments from early March to the end of June 2020. Indeed, from the moment the first case of COVID-19 was reported in Senegal, the number of patients dropped from 49 to 5 per week until July 2020, before increasing again with the easing of restrictions. This decrease in patient visits was 33% between the first quarter of 2019 and the first quarter of 2020 for general pediatric consultations at the hospital [11]. In addition to the constraints related to travel and transport restrictions, the parents were afraid of Fann Hospital, which housed the 1st Epidemic Treatment Center (ETC).

Elsewhere, this decrease in patient visits was observed in both medical and surgical departments, in general and specialized consultations [12,13]. Conversely, a significant increase in emergency room visits was observed in 2020 (11.1%, p=0.00), due to the rise in acute symptoms related to the consequences of lockdown. Because of the suspension of scheduled follow-up care and the economic slowdown, some parents were no longer able to renew their patients' prescriptions.

This exposed patients to the risk of complications, especially since most parents were not employed [10]. A 34.2% decrease in general emergency department visits was observed in Marseille [14]. Indeed, while northern countries were more affected by the pandemic, their populations had access to online medical assistance to alleviate the burden on emergency departments. Pain from vaso-occlusive crises was the leading reason for emergency department visits in 2019 and 2020, as it was in 2015 [4]. Similar results were reported by other authors [3,6,8]. Cases of vaso-occlusive crises and acute episodes were reported by some authors due to COVID-19 [2]. Thoracic involvement was more frequent in older patients [15]. A significant decrease in the number of hospitalizations (p=0.000) and the number of patients placed under observation (p=0.005) was observed in 2020. The indication for blood transfusions had significantly increased, compared to 2019 (p=0.001). However, outpatient care was more frequent. Nevertheless, no cases of COVID-19 were diagnosed in USAD patients during our study period. Pediatric cases were also rare in France, where the pandemic was more severely impacted [16].

Conclusion

In sickle cell patients followed at USAD, a significant decrease in follow-up appointments and a significant increase in emergency visits were observed due to COVID-19 prevention restrictions. Hence the importance of raising awareness.

References

1. Menapace LA, Thein SL. COVID-19 and sickle cell disease. Haematologica. 2020; 105: 2501.
2. Nur E, Gaartman AE, Biemond BJ, et al. Vaso-occlusive Crisis and Acute Chest Syndrome in Sickle Cell Disease due to 2019 Novel Coronavirus Disease (COVID-19). Am J Hematol. 2020; 95: 725-726.
3. Thiam L, Dramé A, Coly IZ, et al. Profils épidemiologiques, cliniques et hématologiques de la drépanocytose homozygote SS en phase inter critique chez l'enfant à Ziguinchor, Sénégal. Pan Afr Med J. 2017; 28: 208.
4. Dème Ly I, Ba ID, Thiongane A, et al. Profil épidémiologique et clinique des enfants et adolescents atteints de syndromes drépanocytaires majeurs admis en situation d'urgence en consultation drépanocytose à Dakar. J Afr Pediatr Genet Med. 2017; 15: 44-49.
5. Dahmani F, Benkirane S, Kouzih J, et al. Profil épidémiologique des hémoglobinopathies: étude transversale descriptive autour du cas index. Pan Afr Med J. 2017; 27: 150.
6. Gbadoé AD, Atsou K, Agbodjan Djossou OA, et al. Prise en charge ambulatoire des drépanocytaires: évaluation de la première année de suivi des patients dans le service de pédiatrie de Lomé (Togo). Bull Soc Pathol Exot. 2001; 94: 101-105.

7. BECPD. Répartition de la population sénégalaise par région administrative en. 2020.
8. Boiro D, Guèye M, Thiongane A, et al. Drépanocytose chez l'enfant, profils clinique et évolutif: à propos de 138 cas suivis au service de pédiatrie de l'hôpital Abass Ndao de Dakar. Médecine Afr Noire. 2016; 63: 326-332.
9. Josué SL, Gokaba TLO, Kocko I, et al. Suivi des Drépanocytaires au Centre National de Référence de la Drépanocytose de Brazzaville (Janvier 2016-Juin 2017). Health Sci Dis. 2019; 20: 1-8.
10. Diagne I, Ndiaye O, Moreira C, et al. Les syndromes drépanocytaires majeurs en pédiatrie à Dakar (Sénégal). Arch Pediatr. 2000; 7: 16-24.
11. Ousmane Ndiaye, Fatime Tall Fall, Papa Moctar Faye, et al. Impact de la pandémie à COVID-19 sur les activités du Service de Pédiatrie du Centre Hospitalier National d´Enfants Albert Royer: étude préliminaire comparant les premiers trimestres des années 2019 et 2020. PAMJ. 2020; 36: 1-7.
12. Barry IS, Baldé EY, Béavogui M, et al. Impact de la pandémie de COVID-19 sur les activités du service de cardiologie de l'hôpital national Ignace Deen du CHU de Conakry. Ann Cardiol Angeiol. 2020; 70: 102-105.
13. Menapace Laurel A, Thein Swee Lay. COVID-19 and sickle cell disease. Haematologica. 2020; 105: 2501.
14. Azerad MA, Bayoudh F, Weber T, et al. Sickle cell disease and COVID-19: Atypical presentations and favorable outcomes. EJHaem. 2020; 1: 338-341.
15. Chen Goodspeed A, Idowu M. COVID-19 Presentation in Patients with Sickle Cell Disease: A Case Series. Am J Case Rep. 2021; 22: 931758.
16. Arlet JB, De Luna G, Khimoud D, et al. Prognosis of patients with sickle cell disease and COVID-19: a French experience. Lancet Haematol. 2020; 7: 632-634.