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Characteristics of Patients with Sickle Cell Anaemia Admitted to the Bogodogo University Hospital's Pediatric Unit in Ouagadougou, Burkina Faso, between 2017 and 2021

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Abstract

Introduction: Sickle cell anaemia, the most widespread genetic disease in the world, is an autosomal recessive hereditary disease characterised by the substitution of glutamic acid for valine in position 06 of the globin beta chain, giving rise to this aberrant haemoglobin S. The aim of this study is to determine the characteristics of patients with sickle cell anaemia admitted to the paediatric unit of Bogodogo University Hospital in Ouagadougou, Burkina Faso. **Methods**: We conducted a cross-sectional study with retrospective data collection, involving children aged 0 - 14 years admitted to the paediatric ward of Centre hospitalier universitaire Bogodogo (CHU-B) with a significant sickle cell syndrome from January 2017 to December 2021. **Results:** A total of 73 patients were carriers of significant sickle cell syndromes out of 22,071 admitted to the paediatric department of CHU-B, i.e. a hospital prevalence of 0.33%. The patients' average age was 6.9 ± 3.5 years, with extremes ranging from 1 to 14 years. The majority were male (sex ratio: 1.4). The most common reason for a consultation was pain (65.1%), followed by fever (48.5%). Pallor was the most prevalent physical indication (42.4%). Our patients stayed in the hospital for an average of 6.63 ± 5.7 days, with ranges of 1 to 30 days. It was 7.38 for individuals with SS and 5.74 for those with SC. The mean haemoglobin level was 7.5 g/dl ± 2.1 in SS patients and 10.07 ± 3.2 in SC patients. **Conclusion:** Sickle cell anaemia is considered in Burkina Faso as a public health crisis. Despite the low incidence in our investigation, significant sickle cell syndromes such as

homozygous SS and composite heterozygous SC were shown to be the most common in our environment. Regular monitoring of sickle cell patients, adherence to hygiene measures, and prevention of anaemia, infections, and malaria would all help to reduce the morbidity and mortality associated with this condition. Multicenter research on sickle cell disease management could increase patients' quality of life.

Subject Areas

Hematology, Pediatrics

Keywords

Sickle Cell Anaemia, Characteristics, Pediatric, Burkina Faso

1. Introduction

Sickle cell anaemia is an autosomal recessive inherited haemoglobin condition characterized by the presence of a defective hemoglobin in red blood cells called haemoglobin S (HbS). The substitution of valine for glutamic acid in position 06 of the globin beta chain resulted in this aberrant hemoglobin. In hypoxic settings, it causes red blood cells to deform into the shape of a crescent moon or sickle [1]. It is the most common genetic disorder on the planet. It primarily, but not entirely, affects African-descent populations [2]. The distribution of the HbS gene varies greatly in Africa. This haemoglobinopathy affects 40% of the population in Central Africa, mainly the Democratic Republic of the Congo and Congo Brazzaville; 5% in North Africa and up to 20% in West Africa [3]. In Burkina Faso, the sickle cell trait affects around 30% of the population, and significant sickle cell syndromes involve approximately 8.42% of hospitalized patients [4] [5], however other authors have found a prevalence of sickle cell syndromes in hospitals of 1.67% [6]. Sickle cell disease is a serious public health issue around the world, particularly in Sub-Saharan Africa, where a lack of resources prevents appropriate patient management, resulting in significant morbidity and mortality [7].

In fact, it is a chronic disease whose spontaneous progression is punctuated by acute and chronic consequences, making it so dangerous. Vaso-occlusive crises, severe bacterial infections, acute anaemia, acute chest syndrome, and acute vascular and thrombotic accidents are among the acute consequences that cause major morbidity and mortality. Chronic degenerative consequences may be to blame for peripheral blindness, aseptic osteonecrosis of the long bone heads, and other organ damage (renal, cardiac, and chronic respiratory failure due to pulmonary hypertension). Our countries' sickle cell disease management remains insufficient due to a lack of awareness of sickle cell disease among medical and paramedical staff, as well as a lack of initial and continuous sickle cell disease training for these staff [8] [9].

Efforts to improve sickle cell disease management have resulted in the

establishment of specialist sickle cell disease centers in America and Europe, which have proven to be beneficial [10] [11]. In Africa, the construction of such specialized centers is in its early stages, national health policies and plans are inadequate, and infrastructure, diagnostic tools, and qualified personnel are in short supply [12]. Burkina Faso, like many other African countries, lacks a reference center for sickle cell disease management.

The Centre Hospitalier Universitaire de Bogodogo (CHU-B) is one of the cities of Ouagadougou's newest CHUs. This is a first for the CHU-B paediatric department. We took stock of the care of sickle cell anaemia in the paediatric department of CHU-B to help improve the management of sickle cell illness in our country. Our research hypothesis, which was the first of its kind to be conducted in the paediatric ward of the Centre Hospitalier Universitaire de Bogodogo, was based on the fact that the prevalence of sickle cell disease was comparable to that of other hospitals in the country, and that sickle cell disease management followed national guidelines.

2. Methods

2.1. Site and Study Period

Our research was conducted in the paediatrics department of Bogodogo University Hospital from January 1, 2017 to December 31, 2021. This section is made up of eight (8) paediatric doctors, one of whom is a university hospital professor, two (2) paediatric nurses, thirty (30) state-qualified nurses, thirteen (13) state-qualified midwives and maieuticians, six ward boys and girls, and medical students.

2.2. Study Design, Population and Sampling

This was a descriptive and analytical cross-sectional study with data collected retrospectively. It involved children aged 0 to 14 years who were admitted to CHU-B's paediatric department during the research period and whose haemoglobin electrophoresis confirmed a significant sickle cell syndrome (SS homozygosity or compound heterozygozygosity SC or S-thalassaemia, SE or SO-Arab).

During the study period, we reviewed all of the records of children admitted to the paediatric ward. The study included children aged 0 - 14 years hospitalized in the paediatric department of CHU-B between 1 January 2017 and 31 December 2021, with haemoglobin electrophoresis indicating SS, SC, or Sβ-thalassaemia. The diagnosis of major sickle cell syndrome was confirmed by taking blood samples for haemoglobin electrophoresis. Furthermore, these children's clinical records, consultation registers, and hospitalisation registers contained socio-demographic, clinical, and therapeutic data. Our analysis excluded individuals with inaccessible clinical data (those with insufficient clinical and paraclinical evidence to make a diagnosis).

2.3. Data Processing and Analysis

A questionnaire was used to collect data from consultation registrations, patients' clinical records, and the hospitalization register. The information was entered into

Microsoft Excel 2016 (Microsoft Office). The data were analyzed using Epi-Info software version 7.2.2.6 after missing and outlier data were removed. Variables with more than 10% missing data were also eliminated. Pearson's Chi-2 test was used to compare qualitative variables, while Student's t test was used to compare quantitative variables in a univariate analysis. For all analyses, the significance level was fixed at p 0.05.

2.4. Ethical and Deontological Aspects

To conduct this investigation, we asked and received a favorable opinion from the CHU-B institutional ethics committee under Deliberation N˚2022-10-003 on November 3, 2022. The use of patient files, consultation and hospitalization registers, and all necessary documentation was done with the utmost regard for the anonymity and confidentiality of study participants' information.

3. Results

3.1. Investigate the Process of Selecting Participants

Figure 1 depicts the method for including participants, considering the inclusion and exclusion criteria.

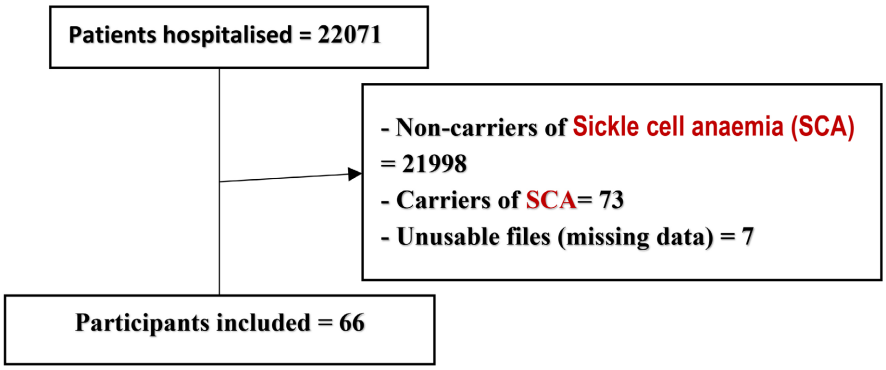

Figure 1. Flow chart of the study participant inclusion process.

3.2. Prevalence of Sickle Cell Anaemia

From January 2017 to December 2021, 73 patients were carriers of significant sickle cell syndromes out of 22,071 admitted to CHU-B's pediatric department, suggesting a hospital prevalence of 0.33%. Our study includes 38 cases of homozygous sickle cell syndrome (52.05%) and 35 cases of composite heterozygous sickle cell syndrome (47.95%).

However, for data completeness issues, we only included 66 individuals with significant sickle cell syndrome in the data analysis.

3.3. Socio-Demographic Characteristics

The average age of the patients was 6.9 ± 3.5 years, with extremes ranging from 1 to 14 years, and they were predominantly male (sex ratio: 1.4). (See Table 1).

Table 1. Distribution of patients with sickle cell syndromes admitted to the paediatric department of CHU-B from 2017 to 2021 according to their sociodemographic characteristics (n = 66).

Socio-demographic characteristics	Effective	Pourcentage (%)
Ages groups in years		
[0 - 5]	23	34.8
[5 - 10]	25	37.9
[10 - 15]	18	27.3
Sex		
Male	38	57.6
Residence place		
Ouagadougou	45	68.2
Out of Ouagadougou	21	31.8
Father's profession		
Retailer	28	42.4
Civil servant	20	30.3
Farmer	18	27.3
Father's education level		
Out of school	35	53.0
Primary	5	7.6
Secondary	20	30.3
Higher	6	9.1
Mother's profession		
Unemployed	26	39.4
Shopkeeper	21	31.8
Civil servant	12	18.2
Pupil/student	4	6.1
Farmer	3	4.5
Mother's educational level		
Out of school	44	66.7
Primary	3	4.5
Secondary	19	28.8
Higher	0	0

3.4. Clinical Characteristics

The most common reason for consultation was pain (65.1%), followed by fever (48.5%). Pallor was the most common physical sign (42.4%). Our patients spent an average of 6.63 ± 5.7 days in the hospital, with extremes ranging from 1 to 30 days. It was 7.38 for people with SS and 5.74 for patients with SC. Table 2 summarizes the clinical features of our research subjects.

Table 2. Comparison in univariate analysis of patients included according to the type of Sickle cell anaemia and clinical characteristics between January 2017 and December 2021 at CHU-B.

Medical characteristics	Major Sickle cell anaemia syndrome		p-value
	SC n (%)	SS n (%)	
Reasons for consultation			
Pain	23 (34.8)	20 (30.3)	0.11
Fever	15 (22.7)	17 (25.8)	0.17
Palmoplantar pallor	7 (10.6)	11 (18.2)	0.09
Cough	5 (7.6)	6 (9.1)	0.44
Dyspnoea	3 (4.5)	6 (9.1)	0.21
Headache	5 (7.6)	2 (3.0)	0.55
Vomiting	2 (3.0)	4 (6.1)	0.31
Motor deficit	1 (1.5)	3 (4.5)	0.39
Convulsions	1 (1.5)	2 (3.0)	0.75
Jaundice	1 (1.5)	1 (1.5)	1
Physical signs			
Conjunctival pallor	16 (24.2)	12 (18.2)	0.34
Osteoarticular pain	8 (12.1)	13 (20.2)	0.29
Abdominal defensiveness	5 (7.6)	4 (6.1)	0.46
Respiratory difficulties	1 (1.5)	4 (6.1)	0.42
Hepatomegaly	2 (3.0)	4 (6.1)	0.43
Crepitating rales	2 (3.0)	3 (4.5)	0.46
Splenomegaly	2 (3.0)	2 (3.0)	0.5
Jaundice	1 (1.5)	1 (1.5)	0.5
Diagnosis/reason for hospitalisation			
Simple vaso-occlusive crisis	27 (37.9)	9 (13.6)	0.08
Severe vaso-occlusive crisis	3 (3.0)	2 (3.0)	0.5
Severe anaemia	7 (10.6)	4 (6.1)	0.30
Severe malaria	5 (7.6)	4 (6.1)	0.4
Lower respiratory infection	5 (7.6)	2 (2.0)	0.4
Urinary tract infection	1 (1.5)	1 (1.5)	0.5
Acute cholecystitis	1 (1.5)	1 (1.5)	0.5
Length of hospital stay in days			
[1 - 5]	23 (34.8)	16 (24.2)	0.09
[6 - 10]	6 (9.1)	11 (16.7)	0.64
[11 - 15]	1 (1.5)	5 (7.6)	0.35
[16 - 20]	1 (1.5)	1 (1.5)	1
[26 - 30]	1 (1.5)	1 (1.5)	1

3.5. Paraclinical Characteristics

The mean haemoglobin level was 7.5 g/dl ± 2.1 in SS patients and 10.07 ± 3.2 in SC patients. Table 3 shows the distribution of patients according to paraclinical data.

Table 3. Comparison in univariate analysis of patients included according to type of Sickle cell anaemia and paraclinical characteristics between January 2017 and December 2021 at CHU-B.

Biological parameters	Major sickle cell syndrome Sickle cell anaemia		p-value
	SC n (%)	SS n (%)	
Haemoglobin level			
<7 g/dl	**5 (7.6)**	**20 (30.3)**	**0.002**
7 à 10 g/dl	19 (28.8)	13 (19.7)	0.67
>10 g/dl	**8 (12.1)**	**1 (1.5)**	**0.03**
Mean blood volume (MBV)			
Microcytosis	25 (37.9)	21 (31.8)	0.52
Normocytosis	7 (10.6)	13 (19.7)	0.78
Leucocytes (élément/ml)			
Leucopénie	1 (1.5)	0 (0)	0.33
Normal	5 (7.6)	2 (3.0)	0.58
Hyperleucocytose	26 (39.4)	32 (48.5)	0.15
Plaquettes (nombre/ml)			
Moins de 150,000	3 (4.5)	8 (12.1)	0.76
150,000 à 400,000	18 (27.3)	18 (27.3)	1
Plus de 400,000	11 (16.7)	8 (12.1)	0.82
Sodium (mmol/l)			
Hyponatrémie	7 (10.8)	11 (16.9)	0.16
Normal	24 (38.5)	22 (33.8)	0.79
Hypernatrémie	1 (1.5)	1 (1.5)	0.99
Potassium (mmol/l)			
Hypokaliémie	2 (3.0)	5 (7.6)	0.89
Normal	28 (42.4)	27 (41.5)	0.64
Hyperkaliémie	2 (3.0)	2 (3.0)	0.98
Calcium (mmol/l)			
Hypocalcémie	7 (10.8)	11 (16.9)	0.16
Normal	28 (43.1)	23 (34.8)	0.23
Hypercalcémie	1 (1.5)	1 (1.5)	1
Bicarbonate (mmol/l)			
Bas	17 (26.2)	19 (29.2)	0.99
Normal	14 (21.5)	15 (23.1)	0.98
Élevé	1 (1.5)	1 (1.5)	1

Continued

Chlore (mmol/l)			
Bas	5 (7.7)	6 (9.2)	0.91
Normal	24 (36.9)	24 (36.9)	0.19
Elevée	3 (4.5)	4 (6.2)	0.27
CRP (mg/l)			
Normal	20 (30.3)	21 (31.8)	0.68
Elevée	12 (18.2)	13 (19.7)	0.72
Glycémie (mmol/l)			
Hypoglycémie	4 (10.8)	3 (8.1)	0.46
Normal	10 (27)	13 (35.1)	0.67
Hyperglycémie	2 (5.4)	5 (13.5)	0.77
Créatininémie (µmol/l)			
Normale	32 (48.5)	33 (51.5)	0.99
Anormale	0	1 (1.5)	0.89

3.6. Caractéristiques Thérapeutiques

Les antalgiques, les antibiotiques et la réhydratation intraveineuse étaient les traitements les plus fréquemment administrés aux patients drépanocytaires admis au service de pédiatrie du CHU-B. La transfusion sanguine était plus souvent administrée aux patients SS qu'aux patients SC (p = 0,04). (See Table 4)

Table 4. Comparaison en analyse univariée des patients inclus selon le type de syndromes drépanocytaires majeurs et les types de traitements reçus entre janvier 2017 et décembre 2021 au CHU-B.

Types de traitements reçus	Type de SDM		p-value
	SC n (%)	SS n (%)	
Antalgiques	29 (43.9)	28 (42.4)	0.72
Antibiotiques	32 (48.5)	33 (50)	0.92
Anti-inflammatoires non stéroïdiens	13 (19.7)	19 (28.8)	0.11
Antipaludiques	6 (9.1)	7 (10.6)	0.35
Réhydratation intraveineuse	25 (39.7)	30 (47.6)	0.44
Oxygénothérapie	4 (6.1)	5 (7.6)	0.21
Transfusion sanguine simple	**3 (4.5)**	**15 (22.7)**	**0.04**

4. Discussion

4.1. Limitations and Constraints of Our Study

The retrospective nature of our study could be a source of selection bias due to the unavailability of certain information. In addition, the small sample size of our study does not allow for strong internal and external validation. Notwithstanding the limitations and constraints of our study, our results were compared with those

of previous studies on the subject, as well as with scientific requirements available in journals, newspapers and books.

4.2. Prevalence of Major Sickle Cell Syndrome Sickle Cell Anaemia

Our study revealed a hospital prevalence of Sickle cell anaemia major sickle cell syndrome of 0.33%. Our results are like those of NACOULMA *et al*. in Bobo-Dioulasso, Burkina Faso [13] and R. TRAORE in Bamako, Mali [14], who found prevalences of 0.33% and 0.43% respectively. However, they are lower than those of Keita I. *et al* in Ségou, Mali [15], who found a prevalence of 1.5%. This low prevalence may be explained by a lack of information in patient records, where sickle cell disease is not often mentioned.

It can also be explained by the fact that the Centre Hospitalier Universitaire de Bogodogo (CHU-B) only became operational in March 2017, and by the fact that the paediatrics department at CHU-B is not a reference centre for the management of sickle cell disease, as sickle cell patients are mainly seen in haematology departments. A larger multicentre study including centres specialising in the management of sickle cell disease would allow a better assessment of the hospital prevalence of major sickle cell syndrome, which remains a public health problem in our context and in Sub-Saharan.

4.3. Sociodemographic Characteristics

Males predominated (56.3%) in our study, which is like the findings of BITWE *et al*. in Congo [16] and D. DIALLO in Mali [17], who observed male predominance of 54.1% and 54.5%, respectively. GODY [18] in Central Africa and ELOUNDOU [19] in Gabon, on the other hand, discovered a female majority of 52% and 58.3%, respectively. Although sickle cell illness is not sex-related, this male predominance in our situation could be explained by parents' increased inclination to bring their male children to hospital compared to female children. Furthermore, studies have revealed the presence of regulating elements in females, including the increased synthesis of fetal Hb (Hb F), which inhibits polymerization. This could account for the decreased clinical expressivity in.

The average age of the patients in our study was 6.9 years, with the 6 to 10 age group predominating (37.9%). DIARRA *et al*. in Ouagadougou [20] and MOUAFO TAMBO *et al*. in Yaoundé [21] made the same observation, with mean ages of 7 and 7.2 years, respectively. OUEDRAOGO S. *et al*. in Ouagadougou [7] and NACOULMA *et al*. in Bobo-Dioulasso [13] also found that the 6 to 10 age group predominated, with 36.7% and 45.7%, respectively. This could be explained, on the one hand, by late diagnosis of the disease and, on the other hand, by most individuals showing clinical signs of sickle cell disease after the age of 5.

4.4. Clinical Characteristics

In our study, SS patients were slightly in the majority (51.5%) as in the study by OUEDRAOGO S. in Ouagadougou [7] who identified a predominance of 56.7% of the SS phenotype whereas NACOULMA [13] in Bobo Dioulasso

observed a predominance of SC heterozygotes (52.7%). The predominance of the SS homozygous form in our study could be explained by the severity of this form compared with the SC heterozygous form, requiring more frequent hospitalizations.

Pain was the main reason for consultation among patients in our study (65.1%). Most studies reported pain as the main reason for consultation in sickle cell patients. These include the studies by DOUAMBA S. *et al*. in Burkina Faso [22] with 97%, SARIGDA A. in Burkina Faso [23] with 42.9%, MASHAKO M. R. *et al*. in Congo [25] with 50.7% and KINGWENGDE A. *et al*. in Congo [24] with 69.3%. These findings could be explained by the fact that pain is the most common symptom of sickle cell disease, affecting the abdomen and osteoarticular areas. Delayed and ineffective pain treatment exacerbates sickle cell disease, exposing the patient to organ issues, which is why healthcare providers' ability to handle this condition must be continuously improved. Patients and their family must also be educated, particularly on pain management at home, to improve their quality of life.

Sickle cell anaemia is a devastating condition characterized by complications that cause significant morbidity and mortality. The most common reasons for hospitalization were vaso-occlusive crises (37.9% in SS and 13.6% in SC patients), severe anaemia (10.6% in SS and 6.1% in SC patients), and severe malaria (7.5% in SS and 6.1% in SC patients). Our analysis also included three cases of ischemic stroke and one incidence of ATS as more significant reasons for admission. Our findings are like those of NACOULMA *et al*. [13] in Burkina Faso, KINGWENGDE A. A. *et al*. [24], and MASHAKO M. R. *et al*. [25] in Congo, who discovered that CVO was the most common cause of hospitalization at 66.3%, 69.3%, and 82.9%, respectively. In contrast, OUEDRAOGO S. *et al*. in Burkina Faso [7] reported that infections were the most common causes of hospitalization in 90% of cases before CVO (33%). Drépanocytose is a genetic disease that affects red blood cells, which explains their vulnerability, exposing them to potential damage to all organs in the body. Furthermore, certain factors, such as infections, are responsible for the onset of vaso-occlusive crises, which could explain why. Improved patient education on trigger factors, as well as adequate vaccination coverage, may contribute to a higher quality of life for diabetic patients. This would be accomplished through improved vaccine policy and availability for the most vulnerable patients.

4.5. Paraclinical Characteristics

The average level of hemoglobin was 7.5 g/dl ± 2.1 for SS patients and 10.07 g/dl ± 3.2 for SC patients. A hemoglobin level of less than 7g/dl was significantly associated with the SS phenotype ($p = 0.002$), whereas a hemoglobin level greater than 10g/dl was statistically associated with the SC phenotype ($p = 0.03$). DOUAMBA *et al*. in Burkina Faso [23] and ELOUNDOU C.O. in Gabon [19] made the same observation, with an average hemoglobin level of 6.7 g/dl and 7.72 g/dl among SS patients.

In accordance with the literature, the basal level of hemoglobin in SS patients is on average 8 g/dl (6 to 10 g/dl), but it ranges from 10 to 12 g/dl in SC patients [26]. These findings indicate chronic hemolysis in homozygous SS patients, but less so in SC patients. This chronic hemolysis is associated with premature hemolysis in the sickle cell disease patients. Severe anemia can occur in cases of CVO and inflammatory syndromes, including infection, due to a decrease in erythropoiesis and early loss of red blood cells. On the other hand, an increase in haemoglobin levels above the basal threshold may cause vaso-occlusive attacks due to blood hyperviscosity [27]. These findings would explain the need to monitor haemoglobin balance, which also involves regular monitoring of sickle cell patients.

In our series, the mean GMV was 74.9 fl ± 8.5 with a tendency towards microcytosis in all the patients included in our study, certainly influenced by SC heterozygotes who in the majority of cases (37.9%) had a GMV < 80 fl. In the absence of chronic inflammation or marked martial or vitamin B deficiency, VGM does not appear to change during critical periods. Thus, normocytosis characterises homozygotes and microcytosis heterozygotes, as described in the literature [28].

As for the other haemogram parameters, hyperleukocytosis was noted in 87.9% of patients with an average of 18.9 G/L and thrombocytosis in 28.8% of patients with an average of 314.9 G/L. Hyperleukocytosis is physiological in sickle cell disease and may be explained by hyperactivity of the marrow and inflammatory phenomena. But infections in our context could be partly responsible for hyperleukocytosis. Similar results have been found in the literature [28] [29].

4.6. Therapeutic characteristics

In our study, 87.3% of patients benefited by hyperhydration, similar to the study conducted by ROGER D *et al*. [30] in Benin, which indicated that 85.7% of patients were hyperhydrated. Hyperhydration is a crucial treatment for CVO. It has traditionally been recommended in sickle cell disease as a preventive and curative treatment for vaso-occlusive crises. It is the "first line of treatment" for patients with sickle cell disease. It is acknowledged and recommended by all authors. This is demonstrated by its use in all patients admitted for CVO. Depending on the patient's clinical condition, oral or intravenous administration may be selected.

In our series, pain management was dominated using injectable level I analgesics (69.7%) alone or in combination with other analgesics (16.7%). Tier II analgesics were prescribed in 7.6% of cases and Tier III in 1.5%. Our results are like those of C.O. ELOUNDOU [19] in Gabon, who reported the use of level I analgesics in 81.6% of cases and level II analgesics in 18.3% of cases. In general, in our context and in other countries in the West African sub-region, the use of tier III analgesics was very rare [31] [32].

The World Health Organization has well-defined pain management guidelines. Analgesics are administered based on the intensity of the pain. Pain management in sickle cell disease involves combining analgesics of varied dosages to produce a

synergistic effect. insufficient pain evaluation based on pain scales frequently leads to insufficient pain management, which continues and perpetuates the crisis and raises the chance of preventable sequelae.

For sickle cell disease patients, blood transfusions remain the preferred therapy option. In reality, 27.2% of patients had a basic transfusion of red blood cells. Of these, 22.7% were SS homozygotes, while 4.5% were SC composite heterozygotes. Our findings are consistent with those of OUEDRAOGO S. in Burkina Faso [7] and DIAGNE *et al*. in Senegal [33], who discovered 20% and 30% transfusion in SS homozygotes, respectively, while MBIKA *et al*. [34] in Congo Brazzaville discovered up to 75.7% blood transfusion in SS patients. The frequency of blood transfusions varied statistically depending on sickle cell phenotype.

SS patients were transfused more often than SC patients ($p = 0.04$), reflecting the more severe anaemia in SS patients. Indeed, deglobulation attacks in sickle cell patients during vaso-occlusive crises, viral infections, parasitic infections such as malaria or bacterial infections aggravate anaemia, especially in SS patients, which would require blood transfusions.

Despite the high prevalence of significant sickle cell syndromes in Sub-Saharan African nations such as Burkina Faso, blood safety remains a major issue, denying some patients, especially sickle cell patients, the blood products they require to recover. Furthermore, the high prevalence of illnesses transmitted through blood transfusion exposes transfused patients to infectious dangers. It is therefore vital to undertake initiatives targeted at minimizing the infectious risk of blood transfusions while also boosting the supply of blood products for the thousands of patients in need.

5. Conclusion

Sickle cell anaemia is the world's most common hereditary disorder. Burkina Faso has a public health crisis. Despite the low incidence in our investigation, significant sickle cell syndromes such as homozygous SS and composite heterozygous SC were shown to be the most common in our environment. CVO was the most common complication among our patients, and antibacterial and analgesic medication was virtually always provided for serious sickle cell kids admitted to CHU-B's paediatrics department. Regular monitoring of sickle cell patients, adherence to hygiene measures, and prevention of anaemia, infections, and malaria would all help to reduce the morbidity and mortality associated with this condition. Multicenter research on sickle cell disease management could increase patients' quality of life.

Conflicts of Interest

The authors declare no conflicts of interest.

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