

Analgesia Self-Medication Practice and Pentazocine Dependency in Adult Sickle Cell Patients in Southeast Nigeria

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Abstract

Background: Painful crisis is a debilitating hallmark characteristic feature of sickle cell disease (SCD). Analgesia medication is the standard of care. Self-medication is becoming a quick fix for pain resolution for persons living with SCD. The aim of this study was to evaluate analgesia self-medication practice and pentazocine dependency among adult sickle cell patients. **Methods:** A descriptive cross-sectional study was conducted among 111 adults with SCD attending sickle cell clinic at the University of Nigeria Teaching Hospital (UNTH) Ituku Ozalla Enugu and Alex Ekwueme Federal University Teaching Hospital Abakiliki (AEFUTHA) Ebonyi. Data were analyzed using SPSS version 22. A $P < 0.05$ was considered statistically significant. **Results:** The proportion of adults SCD participants in the study was 45.4% from UNTH Enugu and 54.6% from AEFUTHA Ebonyi. The proportion of male and female who self-medicated was 61.5% and 38.5%, respectively. The prevalence of analgesic self-medication was found to be 28.8%. Analgesics most and least frequently self-administered were paracetamol 50.5% and morphine 0.9% most reported reason for self-medication was “treatment delays in hospital” 73%. Dependency to pentazocine was 22.5%. Age was a significant predictor of self-medication among adult SCD patients. **Conclusion:** This study shows high prevalence of self-medication and dependency to pentazocine. There should be strict regulation on the use of pentazocine.

Keywords: Analgesia, pentazocine dependency, self-medication, sickle cell disease

INTRODUCTION

Sickle cell disease (SCD) is a chronic multisystem disorder characterized by episodic acute painful crisis, an insignia of SCD. Urgent resolution of painful episodes is critical to prevent frequent hospital admission, school, work absenteeism, and reduction in the quality of life of persons with SCD. Pain medications like opioids are commonly prescribed, especially for severe pain.^[1] According to an American “survey” painful crisis in SCD was the highest indication of hospital readmission with a significant contribution to overall cost of hospital stay.^[2] Opioids analgesia is the mainstay in pain management in SCD,^[3,4] and in Nigeria, pentazocine is the main opioids prescribed for the treatment of painful crisis in sickle cell painful crises.^[4,5] Its limited dysphoric and euphoric effect makes it a favorite among clinicians.^[6] The downside of prescribing pentazocine is the side effects of opioids; dependency and addiction. The burden of opioid dependency and addiction is increasing among adult sickle cell patient population. It negatively impacts on overall pain management in SCD.

Self-medication, which is the use of nonprescription medications under an individual’s own initiative is exceedingly

common in persons with chronic disease like SCD.^[7,8] Studies show that adults with SCD often lack self-efficacy, positive coping responses, self-care management skills, and the ability to adhere to treatment regimen, or skills required for independent and/or supportive living related to such neurocognitive deficiencies possibly due to brain necrosis^[9-11] These may encourage self-medicating practice in persons with SCD and in resource-limited settings, out of pocket expenses which is the major source of health care funding is also contributory.

There have been numerous case reports of analgesia self-medication pentazocine dependency and addiction among Nigerians living with SCD^[5,12-14] In this era of the global opioid crisis,^[15] there are growing concerns of the vulnerability of the SCD population

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to this opioid abuse, especially in resource-limited settings like Nigeria. This will certainly set back the advances made in pain management of SCD and create additional burden to a disease already characterized by reduced health-related quality of life, substantial morbidity, and mortality. With growing reports of pentazocine abuse, findings from a recent study are questioning the continual use of pentazocine and its efficacy in pain management in SCD as patients who were treated with pentazocine fared worse than other who received other treatments.^[16]

This study aimed to assess the self-medication practice and prevalence of pentazocine dependency in Nigerian adult sickle cell patients. This would contribute data to the extent of the crisis within the sickle cell population as well as for the special attention of policymakers and health-care professionals to protect the sickle cell population from the opioid addiction crisis in our settings.

METHODS

Study area

This study was conducted between November 2017 and August 2018. Adult sickle cell patients attending sickle cell clinic at outpatient sickle cell clinics of Sickle cell center Alex Ekwueme Federal University Teaching Hospital (AEFUTH) Abakiliki and University of Nigeria Teaching Hospital (UNTH) Ituku-Ozalla, Enugu were recruited for this study. Both were tertiary health facilities with patients referred from other health-care facilities in southeast Nigeria.

Study design and patients selection

This was a cross-sectional study of 111 adults with SCD. These cohort of patients were approached by their hematologist during the consultation in hematology outpatient sickle cell clinics of both centers. Inclusion criteria: (1) SCD patients; (2) age ≥ 18 years at the time of the interview. Exclusion criteria: (1) patients without SCD; (2) SCD patients age < 18 years.

Study tool

A pre-tested self-administered, closed-ended instrument, pre-validated for use in adults with SCD was used. It consisted of 23 items representing self-medication practice and the presence of pentazocine dependency with a Cronbach alpha of 0.90. Sociodemographic, disease characteristics variables, and information on the pattern of self-medicated analgesic use and steroid dependency were collected. Outcome variables were the pattern of self-medication and presence of pentazocine dependency.

Statistical analysis

Data collected were analyzed using SPSS version 22 (SPSS Inc., Chicago, Illinois, USA). Descriptive analysis was expressed as percentages. Fisher's exact test was used to establish between association sociodemographic variables and self-medication practice and pentazocine dependency. Regression analysis was performed to establish possible predictors. Statistical significance assessed

using *P* values and 95% confidence intervals. We considered $P < 0.05$ statistically significant in the statistical analysis.

Ethical clearance

The study was approved by the Institution research ethics committee of UNTH and AEFUTH. Patients were informed about the study and signed an informed consent form after acceptance to participate.

RESULTS

Sociodemographic characteristics of the respondents

A total of 111 survey participants returned questionnaires giving 100% response rate. Most patients were female 60.4%, and majority of them were below the age of 30 years with a mean age of 22.4 ± 3.6 years. In respect to occupation, 62.2% were students, whereas teachers were 4.5%. Majority had sickle cell anemia (SS), while avascular necrosis was the most frequent complication 45.2% [Table 1].

Table 1: Sociodemographic characteristics of the respondents (n=111)

Variable	Categories	Frequency (%)
Sex	Male	44 (39.6)
	Female	67 (60.4)
Age group (years)	<20	21 (18.9)
	20-25	47 (42.3)
	26-30	12 (10.8)
	>30	31 (28.0)
Occupation	Students	69 (62.2)
	Teaching	5 (4.5)
	Civil servants	4 (3.6)
	Unemployed	6 (5.4)
	Others	27 (24.3)
Religion	Christianity	108 (97.3)
	Islam	3 (2.7)
Types of SCD	SS	94 (84.7)
	SC	17 (15.3)
Time of diagnosis	Infancy	46 (41.5)
	Childhood	43 (38.7)
	Adolescent	13 (11.7)
	Adulthood	9 (8.1)
Number of painful crisis per year requiring admission or resuscitation	0-3	65 (58.6)
	4-5	19 (17.1)
	>5	27 (24.3)
Participants who had SCD complications	Yes	42 (37.8)
	No	69 (62.2)
Participants who were transfused	Yes	83 (74.8)
Complications (n=42)		
	Acute chest syndrome	N/A 11 (26.2)
	Avascular necrosis	N/A 19 (45.2)
	Aseptic arthritis	N/A 3 (7.1)
	Pulmonary hypertension	N/A 3 (7.1)
	Nephropathy	N/A 1 (2.4)
	Stroke	N/A 2 (4.8)
	Others	N/A 3 (7.1)

The mean age was 22.4 ± 3.6 . N/A: Not available, SCD: Sickle cell disease, SS: SS Genotype, SC: SC Genotype

Analgesic medications used during painful crisis

Majority of participants 54.9% reported they received both oral and parenteral analgesic formulations during acute painful episodes. The analgesic most frequently administered was paracetamol 54.1% and the least administered was morphine 4.5%. Pentazocine was the most frequently administered parenteral analgesic 41.4% [Table 2].^[10] Most participants procured these drugs through out-of-pocket expenses [Table 3]. Only 28.8% reported they self-medicated with hospital delays before the commencement of treatment being the most frequent reason for self-medication [Table 3].

Self-medication practice and pentazocine dependency [Table 4]

The most frequent self-medicated oral analgesic is paracetamol group 50.5% and pentazocine is the most

frequently self-medicated parenteral analgesic agent. The least self-medicated agent was morphine 0.9% and 22.5% of the participants reported to have pentazocine dependency even when they were not having painful crisis. Almost all 98.2% procured pentazocine over the counter (OTC).

Factors associated with self-medication practice and pentazocine dependency of participants

Table 5 shows relationship between sociodemographic characteristics and self medication practice and pentazocine dependency of participants. We found that the occupation of participants was significantly associated with pentazocine dependency with $P < 0.001$.

DISCUSSION

We found out the prevalence of analgesia self-medication and pentazocine dependency was high among sickle cell patients in Southeast Nigeria. Majority of the participants were between the age of 20–30 years, this is similar to another study conducted in Nigeria by Nazuaye and Uwadiae where the participants were between 18 and 30 years.^[14] Majority of participants in this study were females, and more than half were students. These findings too are similar to some studies conducted by Makanjuola and Nazuaye where the largest participants were students.^[5,14] This is different from another study conducted in Benin City where the median age of participants was 32 years.^[4]

Our study revealed that paracetamol (50.5%) was the most frequently self-medicated by adults with SCD than some other analgesics. The findings could be due to the cost of other opioid drugs that are more expensive than paracetamol. It could also be a reason why it was reported that many adults with SCD were inadequately treated.^[5,15] This study revealed that above average 58.6% had 0–3 painful crisis per year. This result is different as 0.8 painful episodes per year was reported in other studies.^[15,17] The study revealed that most of the participants 94.6% procured drugs by out-of-pocket expense, and 28.8% were through self-medication. This would confirm the suspicion that many pharmacies and chemists sell drugs to patients without prescription. Hospital delays before the commencement of treatment was a reason for self-medication. Prompt treatment of patients could bring a reduction to self-medication by analgesics for painful crisis. Furthermore, standard necessary treatment procedure for health-care providers will possibly reduce hospital delays.

In this study, pentazocine was the most used parenteral analgesic agent. This could be because pentazocine normally reduces painful crisis better than paracetamol. We also found out that the majority of participants who had pentazocine dependency bought drugs OTC in patent chemist shops. This is similar to another study that reported

Table 2: Participants analgesic use during crisis (n=111)

Variable	Categories	Frequency (%)
How drugs were administered	Orally	40 (36.0)
	Parenterally	8 (7.2)
	Both	61 (54.9)
	PCA	2 (1.8)
Received analgesics during painful crisis	Yes	100 (90.1)
	No	11 (9.9)
Received paracetamol/panadol/tylenol during painful crisis	Yes	60 (54.1)
	No	51 (45.9)
Received ibuprofen/advil during painful crisis	Yes	37 (33.3)
	No	74 (66.7)
Received piroxicam (feldene) during painful crisis	Yes	3 (2.7)
	No	108 (97.3)
Received dihydrocodeine (dfl18) during painful crisis	Yes	34 (30.6)
	No	77 (69.4)
Received pentazocine during painful crisis	Yes	46 (41.4)
	No	65 (58.6)
Received morphine during painful crisis	Yes	5 (4.5)
	No	106 (95.5)
Don't know the drugs received during painful crisis	Yes	9 (8.1)
	No	102 (91.9)

PCA: Patient-controlled analgesia

Table 3: Participants report on procurement of self-medicated analgesic drugs (n=111)

Variable	Categories	Frequency (%)
Means of financing procurement of drugs	National health insurance scheme	6 (5.4)
	Out of pocket expense	105 (94.6)
How participants procure drugs	Doctor prescription	79 (71.2)
	Self-medication	20 (28.8)
Reasons for self-medication	Easy to procure and faster to administer	25 (22.5)
	Visiting hospitals are so unpleasant and stressful	5 (4.5)
	Delays in hospitals before drugs are administered	81 (73.0)

Table 4: Participants practice of self-medication and pentazocine dependency (n=111)

Variable	Categories	Frequency (%)
Self-medication of paracetamol/panadol/tylenol	Yes	56 (50.5)
	No	55 (49.5)
Self-medication of ibuprofen/advil during	Yes	23 (20.7)
	No	88 (79.3)
Self-medication of piroxicam (feldene)	Yes	2 (1.8)
	No	109 (98.2)
Self-medication diclofenac potassium (cataflam)	Yes	24 (21.6)
	No	87 (78.4)
Self-medication dihydrocodeine (DF118)	Yes	15 (13.5)
	No	96 (86.5)
Self-medication of pentazocine	Yes	13 (11.7)
	No	98 (88.3)
Self-medication of pethidine	Yes	36 (32.4)
	No	75 (67.6)
Self-medication of morphine	Yes	1 (0.9)
	No	110 (99.1)
Dependency/to pentazocine even when not in pain	Yes	25 (22.5)
	No	86 (77.5)
Participants information about pentazocine dependency (n=111)		
Procurement of pentazocine	Using old prescription from pharmacy or patent chemist shop	2 (1.8)
	As OTC in patent chemist shop	109 (98.2)
Financing of buying pentazocine	Use my income	11 (9.9)
	My parents buy it	10 (9.0)
	Friends buy it	2 (1.8)
	I beg for money	88 (79.3)

OTC: Over the counter

easy access to the drug over the pharmacy, chemist shops, and other retail medicine outlets in the country.^[14] This showed that there is either no policy or enforcement of laws regulating procurement of drugs by patients. It was reported in another study that pentazocine is a less dependence producing analgesic compared with morphine.^[5] Another study reported that they could get the drugs by obtaining analgesic prescription from multiple sources, and sharing analgesics between patients in hospital.^[12] In the assessment of factors associated with self-medication and pentazocine dependency, we found no significant relationship between sociodemographic characteristics and self-medication practices, but the occupation was statistically associated with pentazocine dependence.

The prevalence of analgesia self-medication was 28.8% and higher among males 61.5% than females 38.5% in our study. It is similar to the report in some studies.^[14-16] Pentazocine dependency among those who self-medicated was 22.5%. The result from our study is supported by some studies which stated that drug dependency resulting from self-medication to treat sickle cell crisis was more than 20%,^[14,15] but it is higher than 17% opioid-dependent found in another study by Sagir *et al.* in Northern Nigeria.^[18] Some patients who were addicted to analgesics reported frequent disappointment while in the emergency room.^[3,13,15]

Health professionals should have sufficient understanding of SCD and ensure proper analgesic administration to reduce morbidity, complications, and low quality of life associated with painful episodes.^[14] It was reported that pain management in SCD should rely on bed rest, fluid hydration, and administration of opioid analgesics according to the pain intensity.^[14]

CONCLUSION AND RECOMMENDATIONS

This study shows a high prevalence of self-medication and dependency on pentazocine facilitated by high hospital delays in the management of painful bone crises. Furthermore, there is the high purchase of pentazocine OTC in patent chemist shops. There is a need to reduce hospital delays with stricter regulation surveillance and monitoring of accessibility of opioids analgesics like pentazocine. There should be better legislation with enforcement against indiscriminate sales of opioid drugs without doctor prescriptions.

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Conflicts of interest

There are no conflicts of interest.

Table 5: Relationship between sociodemographics and self-medication practice and pentazocine dependency of participants (n=111)

Variable	Categories	Self-medication		χ^2	P
		Yes, n (%)	No, n (%)		
Types of SCD	SS	13 (100)	81 (82.7)	1.834	0.176
	SC	0	17 (17.3)		
	Total	13 (100)	98 (100)		
Age group (years)	<20	0	21 (21.4)	4.336	0.227
	20-25	6 (46.2)	41 (41.8)		
	26-30	4 (30.8)	8 (8.2)		
	>30	3 (23.0)	28 (28.6)		
	Total	13 (100)	98 (100)		
Sex	Male	8 (61.5)	36 (36.7)	3.469	0.063
	Female	5 (38.5)	62 (63.3)		
	Total	13 (100)	98 (100)		
Occupation	Students	12 (92.3)	57 (58.2)	14.702	0.741
	Teaching	0	5 (5.1)		
	Civil servants	0	4 (4.1)		
	Unemployed	0	6 (6.1)		
	Others	1 (7.7)	26 (26.5)		
	Total	13 (100)	98 (100)		
Marital status	Married	13 (100)	86 (87.8)	1.947	0.163
	Divorced	0	12 (12.2)		
	Total	13 (100)	98 (100)		

Variables	Categories	Pentazocine, n (%)	Dependency, n (%)	χ^2	P
Types of SCD	SS	1 (100)	93 (84.5)	0.117	0.732
	SC	0	17 (15.5)		
	Total	1 (100)	110 (100)		
Age group (years)	<20	0	21 (19.1)	1.018	0.797
	20-25	1 (100)	46 (41.8)		
	26-30	0	12 (10.9)		
	>30	0	31 (28.2)		
	Total	1 (100)	110 (100)		
Sex	Male	1 (100)	43 (39.1)	1.651	0.199
	Female	0	67 (60.9)		
	Total	1 (100)	110 (100)		
Occupation	Students	1 (100)	68 (61.8)	63.000	<0.001
	Teaching	0	5 (4.6)		
	Civil servants	0	4 (3.6)		
	Unemployed	0	6 (5.5)		
	Others	0	27 (24.5)		
	Total	1 (100)	110 (100)		
Marital status	Married	1 (100)	98 (89.1)	0.127	0.722
	Divorced	0	12 (10.9)		
	Total	1 (100)	110 (100)		

SCD: Sickle cell disease, SS: SS Genotype, SC: SC Genotype

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