



Case Report: The Effect of Pentazocine Abuse in a Female Sickle Cell Disease Patient in Calabar, South-south, Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Authors AK, EO and BOB designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors OE and EE managed the analyses of the study. Authors DA and OG managed the literature searches. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Background: Pentazocine is a synthetic opioid analgesic with mixed receptor activities. It acts as a partial agonist at the μ -receptor as well as being a kappa agonist. Its analgesic effect is estimated to be about 25-50% greater than that of morphine. Pentazocine acts has a short onset of action which occur about 10-20 minutes after administration and could last 2-4hours.

Aim: The study was aimed at further awakening the consciousness of this growing menace among people living with sickle cell disease as well as proffering solutions to curtail this increasing peril.

Presentation of Case: A 36 years old Nigerian female with three years history of excessive use of parenteral pentazocine on account of sickle cell bone pain crisis. She commenced self-administration after exposure by a private hospital on account of bone pain crisis where other

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analgesic fails to give her the necessary relieve. Hence, the beginning of her dependency. She started with two ampules daily and later increased to 20 ampules on the account of this, patient was said to have developed cutaneous and musculoskeletal complication. A diagnosis of pentazocine addiction in a SCD patient was made, she was admitted and jointly managed by a Psychiatrist, Phychologist, Haematologist and Plastic Surgeon. We hereby advocate for effective legislation, orientation and reorientation of health workers and the society at large about the risks and complication of parenteral pentazocine abuse. This menace can possibly be curtailed if oral formulation is made available and less addictive medications are used.

Conclusion: Analgesics that are less addictive should be administered after examining the nature of pain before furtherance to stronger analgesic which could predispose to addiction.

Keywords: Pentazocine abuse; sickle cell disease; opioid; bone pain crisis.

1. INTRODUCTION

Sickle Cell Disease (SCD) is a chronic heterogeneous group of autosomal recessive, structural haemoglobin disorder [1]. The homozygous form HbSS is the commonest form. Other forms of SCD include HbC in HbSC, β thalassaemia in HbS β thalassaemia.

SCD is the commonest genetic disorder in Sub-Saharan Africa [1]. Nigeria carries a high disease burden with estimated 1-2% of her population being affected by the disease. 20-30% of Nigeria population carries the sickle cell gene with a normal haemoglobin gene. There is variation in the burden of SCD from one geographical location to another [2] a prevalence of 3.7% was reported in a multi-centre study in Nigeria [3]. In Benin City, South-South Nigeria, a prevalence of 2.4% and 23% carrier state was reported by Nwogoh et al. [4].

The substitution of the hydrophilic glutamic acid with a less polar hydrophobic valine at position 6 of the β -globin chain constitutes the pathophysiology of sickle cell anaemia. During hypoxia there is intraerythrocytic hydrophobic interaction of the affected haemoglobin causing precipitation and eventually polymer formation, leading to the loss of potassium and water. This leads to cellular dehydration which promotes further precipitation and red cell rigidity.

Recurring bone pain crises constitute the commonest reason patients with SCD request clinical attention [1]. Pain related symptom represents 88% of all symptoms in a study among sickle cell disease patients [5]. Opioid analgesic still remains the major therapy for the management of bone pain crisis in SCD patients [1]. However, before the SCD patients attain adulthood, most of them would have had periodic exposure to opioids.

Pentazocine was introduced in 1967 to address the problem of lack of potent analgesic that had no unsavoury effect [6]. Pentazocine is a synthetic opioid analgesic with mixed receptor activities [7]. It acts as a partial agonist at the μ -receptor as well as being a kappa agonist. Its analgesic effect is estimated to be about 25-50% greater than that of morphine [7]. Pentazocine has a short onset of action which occur about 10-20 minutes after administration and could last 2-4hours [6,8]. The analgesic effect of Pentazocine is attributed to its agonist effect at the kappa receptors. At a higher dose, pentazocine elicit psychotomimetic and dysphoric effect. The exact mechanism of this effect is unknown [8]. However, despite the analgesic effect of pentazocine, chronic parenteral use or abuse predisposes to the following complication; skin fibrosis, ulceration, abnormal pigmentation, fibrosmyopathy, contractures and pyomyositis [6-8].

The world health organization analgesic ladder and guideline in terms of pain control has removed pentazocine from its guideline due to its dependence, addiction and associated complication [9,10]. Pentazocine addiction is defined as the persistent, abnormal use that may lead to adverse consequence, loss of control or preoccupation with opioids despite adequate analgesia [11].

Cases of opioid abuse have been on the increase worldwide [1]. This menace is of particular increase among people living with sickle cell disease which Nigeria bears the highest burden of disease condition in Sub-Saharan Africa. Many patients with SCD do have a low life expectance and poor quality of life [12]. The unhealthy practice of the abuse of pentazocine can reduce the performance status of people living with SCD in developing countries like ours where infrastructure, illiteracy, and poor healthcare services are serious limitations. The

management of bone crisis still remains a challenge among physicians. Some physicians advocate minimal use of analgesics as a result of the fear of addiction and drug dependence while others believe that inadequate analgesia could predispose patients to pseudo-addiction [13].

Several reports have been written on the abuse of substance by SCD patients. However, the prevalence is less than 10% worldwide [14]. In Nigeria, Ahmed *et al* reported a prevalence of 17.8% of opiate dependence among SCD patients in Maiduguri, North-East Nigeria with male preponderance [15]. So also, Mabayoje *et al* reported an incident of less than 10% in South-West Nigeria [14]. Iheanacho *et al.* in their study, reported a prevalence of 18.2% with male preponderance [16]. In spite of the available studies on pentazocine addiction in Nigeria, there is still a tremendous increase. This report is aimed at further enlightening and awakening the consciousness of this growing menace among people living with sickle cell disease as well as proffering solutions to curtail this increasing peril.

2. CASE REPORT

Mrs R. O. is a 36 years old Nigerian female retired banker with sickle cell anaemia that was diagnosed while she was 2 years old using haemoglobin electrophoresis. She presented on the 6th of January, 2019 at the Haematology Day Care Unit of the University of Calabar Teaching Hospital with a three years history of self-administration of pentazocine. She said she got addicted to the drug about three years ago when she was admitted at a private hospital in Lagos, South-West Nigeria on the account of bone pain crisis affecting both her upper and lower limbs with a pain score of 10/10 (based on numerical pain rating scale) which lasted for about 48hours and was non responsive to several analgesics such as diclofenac, tramadol and dihydrocodiene but got some relieve after intramuscular administration of pentazocine which patients claim pain began to subside and she was able to sleep.

Patient said while she was on admission, she enjoys the feeling of the quick relieve, sedative and the euphoric effect she derives following the intramuscular administration of pentazocine. On the account of this, patient was inquisitive to sought out the name of the medication and decided to seek the attention of a nurse for this information as to prevent the reoccurrence of the

pains. She also noticed that this medication became a drug of choice each time she presents to the same health facility. This was on going for a period of three months and was interfering with patient's job, domestic activities and family affairs because of the recurrent hospital admission. Patient decided to opt for the services of nurses that comes to her home to give her the injection and she pays approximately \$15 every day for their services. This continues for another six months before patient was taught how to inject herself on her thigh by a nurse. The thigh seems to be the commonest anatomical site of pentazocine abuse injection. This can be attributed to the anatomical structure of increase muscular activities around the thigh. Patient said she started with two vials daily with a vial costing about \$2 each which she took for about a month and later increased to 5 vials daily. This she claims she took for another period of four months with no relieve due to the persistence of the pain and other psychosocial cofounders such as stress from work, expressed emotions from family members, and depression. She had to increase her dosage to 20 vials daily amounting to about \$30. Despite all of this, patient's pain still persists and that lead to inconsistencies in her job, not meeting up with her goals and targets. Patient also developed bilateral ulceration at the site of the injection (the thighs) which was painful and associated with purulent discharge that requires frequent change of dressing using the convenience at her work place, thereby interrupting her service delivery. This was so obvious that the patient was warned by her superior, to prevent unwarranted dismissal, she had to tender her resignation voluntarily. This exacerbated patient's predicament that she had to borrow money, sell off her properties, intrude into money meant for housekeep and also steal to purchase pentazocine. This also precipitated some marital issues between her and her spouse and further worsen the patient's condition.

Patient said she gets the medication from a pharmacy without prescription and also she gets injected at the pharmacy but she refused to mention the name or address of the pharmacy. She also claimed that anytime she tries to stop, she develops withdrawal symptoms which include; restlessness, dizziness, agitation and craving. Patient decided to seek medical attention because of the above symptoms, and the bilateral ulceration and purulent discharge from her thighs.

On mental examination, patient was conscious, alert, coherent, well oriented in time, place and person. Well-groomed with good motor function, no hallucinatory or delusion. Sense of judgement mildly impaired. Patient was admitted and was co-managed by a psychiatrist and plastic surgeon. The psychiatric review made an impression of pentazocine addiction.

On physical examination, a young lady, febrile, pale, mildly icteric, dehydrated with swollen, thickened, and bilateral hyperpigmentation with indurated macules and scars on the anteriomedian aspect of the thighs with purulent surface. Review of system was intact. Respiratory rate was 36 circle per minutes, pulse rate was 132 beats per minutes with mild tender hepatomegaly. The following diagnosis were made. Pentazocine addiction, pyomyocitis, and anaemic heart failure.

Laboratory investigation; PCV – 18%; haemoglobin 6 g/dL, WBC – 12.8×10^9 , Neutrophile -55%, Lymphocytes – 45%, Platelet count – 380×10^9 . Patient is still on admission and being review by the haematologist, the Plastic surgeon and the Psychiatrist. Patient has

regained insight and performance status have improved.

3. DISCUSSION

This is a case study of a SCD patient who is dependent and addicted to pentazocine. Bone pain crises is the commonest presentation among patients with SCD, which our index patient suffers about 9-11 episodes of crisis annually necessitating her to seek treatment from health practitioner who unfortunately exposed her to pentazocine. It was noticed that the patient was on this prescribed medication routinely anytime she visits the health facility. This was due to lack of control and regulation of the use of pentazocine in the management of bone pain crisis in patients with SCD by health professionals. Due to the quick analgesic relieve and euphoric effect derived whenever patients takes this medication, patients have to feign pain after genuine pain have subsided in order to continue getting the medication. SCD patients who are addicted to opioids are at increased risk of developing haemostatic disorders [17]. Patient decided to lure underpaid nurses or staff to



Figs. 1 and 2. Showing bilateral ulceration of the thighs

enable her continue to get the drug. This could be attributed to unprofessionalism and corrupt practices among health professionals.

Also, it is pertinent that clinical expertise and judgement of physicians is highly needed to distinguish between genuine pain and feign pain. The immediate pain assessment and frequent reassessment at intervals with appropriate administration of medication until pain ameliorate. More so, a strong legislation and punitive measure should be enacted in terms of controlling the prescription and sales of this medication.

Furthermore, a comprehensive psychological assessment should always be carried out for

early detection of any antisocial behavior, malingering and drug dependence via the establishment of a routine opioid addiction clinic that should be ran simultaneously with SCD clinic. Subsequently, SCD patients who fulfill the diagnostic criteria for mental and behavioral disorder due to use of opioids according to the international classification of mental and behavioral disorders (ICD-10) should be referred for detoxification and thereafter rehabilitation in a mental health facility. Patients could also be referred to self –help groups like the sickle cell club after rehabilitation, where they could share ideas and ventilate their feelings and encourage one another. This will improve their quality of life and dissuade them from indulging in substance abuse.

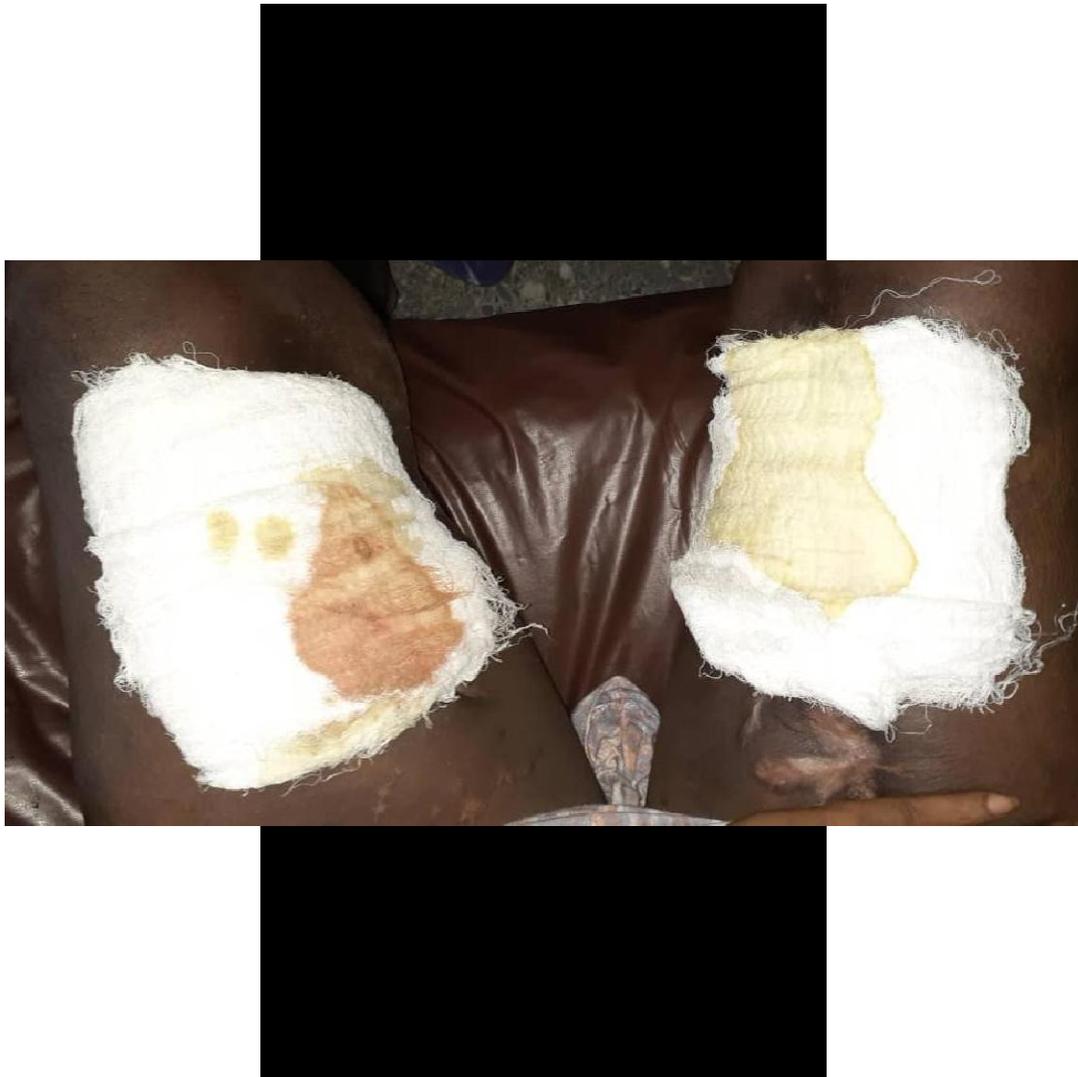


Fig. 3. Showing bilateral purulent discharge from the thighs

Pentazocine abuse poses serious psychological, socioeconomic and medical stress on people living with SCD. Thereby affecting the family, jobs, and society at large. The management of this complication is financially burdensome.

4. CONCLUSION/RECOMMENDATION

Analgesics that are less addictive should be administered after examining the nature of pain before furtherance to stronger analgesic which could predispose to addiction. We suggest that regular orientation and reorientation of health workers on the use of opioid particularly pentazocine in opioid naïve SCD patient should be encouraged. Furthermore, a strong guideline should be distributed to every health facility on the use of pentazocine and a stereotypic approach in the management of pains in SCD patients by the Federal Ministry of Health. Also, legislation should be enacted on the regulation of the prescription and sales of pentazocine. More so, oral formulation of pentazocine should be recommended so as to curb the complication associated with its parenteral use.

CONSENT

Informed consent for inclusion into the study and permission for pictures used was obtained from the patient.

ETHICAL APPROVAL

Ethical approval was obtained from the Health Research and Ethical Committee of UCTH, Calabar.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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