

## Case study

### **A CASE REPORT ON THE EFFECT OF PENTAZOCINE ABUSE AMONG ADULT SICKLE CELL DISEASE PATIENT IN CALABAR, SOUTH-SOUTH, NIGERIA: A GROWING MENACE**

#### **ABSTRACT**

**Background:** Pentazocine is a synthetic opioid analgesic with mixed receptor activities. It acts as a partial agonist at the  $\mu$ -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 as 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 retired banker with sickle cell anaemia that was diagnosed at age two years using haemoglobin electrophoresis. She presented with a three years history of self-administration of pentazocine on account of sickle cell bone pain crisis affecting her upper and lower limbs with a pain score of 10/10 (based on numerical pain rating scale) which was non responsive to several analgesics such as diclofenac, tramadol and dihydrocodiene. The sedative and euphoric effect of pentazocine provided her some comforts and enables her sleep and thus, the commencement of her addiction and dependency. On review, 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. On further review, Patient was reported to be febrile, pale, mildly icteric, dehydrated with swollen, thickened, and bilateral hyperpigmentation with indurated macules and scares on the anteriomedial aspect of the thighs with purulent surface. Review of system was intact. The patient was diagnosed of Pentazocine addiction, pyomyocitis, and anaemic heart failure. Patient was admitted and was co-managed by a psychiatrist, haematologist and plastic surgeon.

**Discussion:** Pentazocine abuse poses serious psychological, socioeconomic and medical stress on people living with SCD. Due to the quick analgesic relieve and euphoric effect derived from the drug, patients feign pain after genuine pain have subsided in order to continue getting the medication.

**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.

**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,  $\beta$ thalassaemia in HbS $\beta$  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 and a less polar hydrophobic valine of the position 6 of the  $\beta$ -globin chain constitutes the pathophysiology of sickle cell anaemia. During hypoxic condition, the abnormal valine amino acid causes intraerythrocytic hydrophobic interaction of the affected haemoglobin tetramers, 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. Nitric oxide depletion, endothelia activation with increased expression of adhesion molecule, inflammation and activation of coagulation and other contributory factors.

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. Opioids are potent analgesic.

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  $\mu$ -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 acts as 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 expectancy and poor quality of life [12]. The unhealthy, awesome practice of the abuse of pentazocine can reduce the performance status of people living with SCD in developing countries like ours where infrastructural and poor healthcare services are serious limitations. The management of bone crisis still remains a challenge for 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]. However, in spite the available studies on pentazocine addiction in Nigeria, there is still tremendous increase on the addiction. 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.

### **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 earlier when she was admitted at a privately owned hospital in Lagos, South-West Nigeria on the account of sickle cell 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 gets 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 centre where she was given pentazocine and sent home after getting some relieve. 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 said she was taught on 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 site. 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 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 was still having the pains and that lead to inconsistencies in her job, not meeting up with her goals and targets due to 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. This was so obvious that the patient was warned by her superior to prevent unwarranted dismissal. Patient had to tender her resignation voluntarily. This now aggravated the patient's predicament because she had to borrow money, sell all her properties, intrude into money for housekeep and also steal to purchase pentazocine. This also caused marital issues between her and her spouse and further worsen the patient's condition.

Patient also said she gets the medication from a pharmacy without prescription and also she get injected at the pharmacy but refused to mention the name or address of the pharmacy. She also said 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.



Fig. 1 & 2 Showing bilateral ulceration of the thighs



Fig. 3 Showing bilateral purulent discharge from the thighs

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 6g/dL, WBC –  $12.8 \times 10^9$ , Neutrophile -55%, Lymphocytes – 45%, Platelet count –  $380 \times 10^9$ . 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.

## 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 exposes 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 from whenever patients takes this medication, patients have to feign pain after genuine pain have subsided in order to continue getting the medication. Patient decided to lure underpaid nurses or staff to enable her continue to get pentazocine. 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 is 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 and so on. 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.

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.

## **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 a 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.

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