

1 Case Study

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3 **Case Report: Successful Management of Opioid Abuse and Addiction in a**
4 **Known SCD Patient at the University of Calabar Teaching Hospital,**
5 **Calabar, Nigeria**
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7 **ABSTRACT**

8 **BACKGROUND:** Opioids are group of potent analgesic with mixed receptor activities. Pain
9 related symptom accounts for the main reason for substance dependence among sickle cell
10 disease (SCD) patients.

11 **AIMS:** The report aims to elucidate the adverse effects of opioid and it's complication
12 (abuse, dependency and addiction) and provide management strategy for health practitioners
13 to curtail the dependency of SCD patients to opioid use.

14 **PRESENTATION OF CASE:** The patient was a 27 years old lady that was diagnosed with
15 sickle cell disease at the age of two. She presented with a two years history of oral self-
16 medication of DF118 and Tramadol. She became dependent on the opioid on the account of
17 sickle cell bone pain crises affecting both her upper and lower limbs with a pain score of
18 9/10. Other analgescic like Diclofenac and Pentazocin couldn't ameliorate her excruciating
19 pain but administration of 60mg of oral DF118 provided her with quick relieve. The sedative
20 effect of Tramadol and DF118 allows her sleep comfortably and hence the beginning of her
21 dependency. On review, patient's system was essentially intact and she was further referred
22 for psychiatrist evaluation and possible rehabilitation.

23 **DISCUSSION:** Recurrent bone pain crisis represent the most common reason patient with
24 SCD seek acute medical care. Due to the quick analgesic relief and euphoric effect derive
25 from both medication, patients feign pain after genuine pain had subsided in other to continue
26 getting the prescription. The immediate pain assessment and frequent reassessment at 15min,
27 30min, 1hour then 2hours with appropriate application of medication until pain relief is very
28 important to prevent drug abuse.

29 **CONCLUSION:** Less addictive analgesic should be **considered** first after observing the
30 nature of the pain before moving to stronger analgesic that have high potential for abuse and
31 when stronger analgesic is to be used it should be for a short duration.

32 **Keywords: Opioid Abuse, Sickle Cell Disease, Dependency, Addiction, UCTH**
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35 INTRODUCTION

36 Sickle cell disease (SCD) is a heterogeneous group of disorder, with a highly variable clinical
37 spectrum. It is an autosomal recessive structural haemoglobin disorder.¹ The most prevalent
38 form is sickle cell anaemia (HbSS), which is due to inheritance of the sickle cell gene in a
39 homozygous state. Other forms of SCD include the compound heterozygous forms in which
40 the sickle beta globin gene is co-inherited with another abnormal haemoglobin gene such as
41 HbC in HbSC, β thalassaemia in HbS β thalassaemia among others.^{1,2}

42 SCD is the most common genetic disorder in Sub-Sahara Africa. Nigeria is bearing a high
43 disease burden with an estimated 1 – 2% of its population affected by the disease. An
44 estimated 20 – 30% of her populace carry the sickle cell gene with a normal haemoglobin
45 gene (carrier state). The disease burden differ slightly from one geographical region to
46 another. Nwogoh et al³ reported the prevalence rate of SCD to be 2.4% and a 23% carrier
47 state in Benin City. Inyama et al⁴ reported a prevalence of 3.7% in a multi-centre study in
48 Nigeria.

49 The pathophysiology of Sickle cell anaemia is the substitution in the sixth position amino
50 acid of β globin gene or also the substitution of GAG for GTG at chromosome 11.⁵ This
51 substitution results in the broad clinical spectrum of the disease that extend beyond the red
52 cell, as a result of the tactoid formation which is due to the effect of the substitution of the
53 glutamic acid which is hydrophilic with a less polar hydrophobic, neutral amino acid valine.
54 During hypoxic condition, this abnormal valine amino acid causes intraerythrocytic
55 hydrophobic interaction of affected haemoglobin tetramers, thereafter causing their
56 precipitation and finally polymer formation, leading to the loss of potassium and water
57 resulting in cellular dehydration which also worsens the whole process⁵. Other contributing
58 factor include Nitric oxides depletion, endothelia activation with increase expression of

59 adhesion molecule, inflammation and activation of coagulation system all play a vital role in
60 the pathophysiology of this disease.⁵ Despite understanding the molecular basis for this
61 disease the mechanism of vaso-occlusive crisis remain so vast that it cannot be completely
62 **avoided** thereby predisposing many of this patient to recurrent recalcitrant, unbearable bone
63 pain crisis.

64 Opioid are group of potent analgesic with mixed receptor activities. Opioid is said to be
65 absorbed from the gastrointestinal tract and metabolized in the liver, gastrointestinal tract and
66 kidney. **There are four types of opioid receptors (Mu, Kappa, Delta, Nociceptor-OR) with a**
67 **major analgesic effect and a subtype nociceptor-OR which is termed the MOP.**⁶ Most opioid
68 tend to cause a reduction in consciousness and euphoria predisposing them to abuse.⁶

69 Recurrent bone pain crisis represent the most common reason patient with SCD seek acute
70 medical care. In a study among sickle cell anaemia patient that are substance dependent, pain
71 related symptom accounted for about 88% of all symptom.⁷ Opioid analgesic are the
72 mainstay of therapy for bone pain crisis in SCD, thus before adulthood most SCD patients
73 must have had intermittent exposure to opioids. Opioids are potent analgesic associated with
74 decrease hospitalization.⁸ The management of bone pain crisis has been an issue of debate
75 among physician. Some physician advocate minimal use of these drug for fear of addiction,
76 while others believe that inadequate analgesia predisposes patients to pseudoaddiction.⁹
77 There have been several report in substance abuse by SCD patients with a prevalence of less
78 than 10% worldwide,¹⁰ but varies from one region to another in Nigeria. Ahmed et al¹¹
79 reported a prevalence of 17.8% of opiate dependence among patient with SCD in Maiduguri,
80 North East Nigeria with a male preponderance. Similarly, in a study by Mabayoje et al¹⁰ an
81 incident of less than 10% was reported in the South West. Furthermore, Iheanacho et al¹² also
82 reported a less than 18.2% with male preponderance. From the various studies, it could be
83 said that the incidence varies with geographical location with a more prevalence of male sex

84 **CASE REPORT**

85 Miss EO is a 27 years old Nigerian Female graduate with sickle cell anaemia. That was
86 diagnosed when she was 2 years old using Haemoglobin electrophoresis. She presented on
87 the 4th of January 2017 with a 2 years history of self-medication of DF118 and a self-
88 medication of Tramadol. She said she got addicted to these drugs about 2 years ago while she
89 was admitted at government hospital in Calabar on account of sickle cell bone pain crisis
90 affecting her upper and lower limb which was so severe with a pain score of 9/10 (based on
91 numerical pain rating scale) and lasted for about 48hours despite administration of several
92 analgesic such as Diclofenac and Pentazocin. Pain began to subside on administration of oral
93 DF118 at 60mg to alternate with Tramadol 100mg which was given for a week. Patient said
94 while she was on admission she enjoyed the feelings of the quick relief of the pain and
95 sedative effect that allows her to sleep comfortably following the administration of DF118
96 and Tramadol. Patient on account of this improvement sought to know the name of the
97 medication that could give such a wonderful relief and also because of fear of reoccurrence of
98 the pain. She also noticed that both medication become drug of choice each time she has
99 severe bone pain and present to the same health centre. She said on account of the
100 psychological burden of the disease on her parents, who were worried of the repeated bone
101 pain crisis with frequent hospital visits and was also discovered that both medication give
102 their daughter relief and reduce their hospital visit, therefore decided to purchase a card of
103 each medication weekly for her. Administering 30mg of DF118 twice daily initially but after
104 5 months increased the dosage to 60mg twice daily for a year because the initial dosage could
105 not control the pain and she was very uncomfortable. She started with the new dose in the
106 absence of pain because she was enjoying the euphoric effect. Patient revealed she was
107 purchasing the drug on her own and even exaggerates her pain to get the drug prescription
108 from her physician and at most time she gets it without prescription from a private pharmacy

109 whose identity she does not want to disclose. Patient said she spends about ₦300
110 (approximately \$1) to purchase a card, which she finances with her pocket money, selling her
111 belonging, borrowing and buying on credit. Patient said after a year of self-medication of oral
112 DF118 at 60mg twice daily she discovered she was not getting the relief she used to get.
113 Patient said she got depressed and decided to change to another potent oral opioid (Tramadol)
114 not the injectable because she reacts to the injectable, with nausea and continuous vomiting.
115 She said she started with 50mg of Tramadol twice daily, got relief and also enjoyed the
116 euphoric effect and later increased the dose to 100mg then 200mg twice daily which she took
117 every day for 1year even in the absence of pain. She gets the drug from a pharmacy and each
118 card costs between ₦1700 - ₦2000 (approximately \$7). She also gets prescription from a
119 doctor who she refuse to mention the name or address. She also claims that anytime she tries
120 to stop the medication she is being thrown into withdrawal symptoms which include lack of
121 sleep, restlessness, sweating, dizziness, blurred vision, headache, joint pain and abdominal
122 cramping, depression, agitation and craving for the drugs. Thus, these made her to seek help.

123 On examination, a young lady, pale, anicteric, conscious, alert and coherent, well oriented in
124 person, time and place, well groomed with good motor function with intact both long and
125 short term memory, sense of judgement was mildly impaired. A review of her system were
126 essentially intact, patient was referred to the psychiatric for further evaluation and possible
127 detoxification and rehabilitation.

128 The following were the full blood count; PCV was 27%, Hb 9g/dl, WBC $11.2 \times 10^9/L$,
129 Neutrophiles 68%, Lymphocyte 32%, and Platelet $452 \times 10^9/L$

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133 **DISCUSSION**

134 This is a case study of a SCA patient who is dependent and addicted to tramadol and DF118.

135 BPC is the most commonest presentation among SCD,¹⁴ which our index patients suffers

136 about 10-12 episodes annually necessitating **her** to seek treatment from an health practitioner

137 **who prescribed** Tramadol and DF118. It was also noticed that the patient was on these

138 prescribed drug (DF118 & Tramadol) for too long with prescription note not properly

139 controlled, which made her to have access to this prescription note. Due to the quick

140 analgesic relief and euphoric effect **derived** from both **medications**, patient has to feign pain

141 after genuine pain had subsided, in **order** to continue getting the prescription¹⁴. **Based** on this

142 it is pertinent to say patient is addicted to both drug and the primary aim of both drugs is now

143 being abused. Lack of proper orientation and counselling of the parents of the patient also

144 contributed to the abuse of the above medications. At this juncture clinical expertise and

145 judgement of the physician is highly needed to distinguish genuine pain from feigned pain in

146 patient with SCD with DF118 & Tramadol abuse. There **is** paucity of information on DF118

147 and Tramadol abuse among sickle cell disease patient. Alao et al¹³ reported the case of a 38

148 year old female sickle cell anaemia patient, though the drug of choice in this instance was

149 cocaine.

150 The immediate pain assessment and frequent reassessment at 15min, 30min, 1hour then

151 2hours with appropriate application of medication until pain relief, **are** very important to

152 prevent drug abuse.^{15,16} Therefore the less addictive analgesic should be administered first

153 after considering the nature of the pain before moving to stronger analgesic that have high

154 potential for abuse and when stronger analgesic is to be used it should be for a short

155 duration.^{15,16}

156 The psychiatrist made an impression of opioid abuse and addiction in a known SCD patient.
157 Patient was initially managed on outpatient basis because patient had full insight of her
158 problem and also has the desire to stop but does not wish to be admitted.

159 On mental state examination, patient was calm with good hygiene, cooperative and appears
160 motivated and emotionally stable. Her perception was normal, thoughts well collected with
161 normal cognition.

162 On physical examination, the patient was a young slim tall lady, afebrile, anicteric, acyanose
163 with long limbs. Patient was gradually tapered off tramadol with a 50mg weekly reduction
164 for about 6weeks until she suddenly developed an episode of bone pain crisis. She was then
165 admitted for five weeks where she was treated with NSAID (Arthrotec) 75mg which was
166 alternated with paracetamol 1000mg. Patient was also given diazepam 10mg and was
167 carefully observed all through the period of admission with total avoidance of opioid and was
168 discharged and placed on a routine medication of folic acid, paludrine and was given 2
169 weekly clinic appointment to ensure proper follow up. The patient was also counselled to
170 adopt pain tolerance.

171 CONCLUSION

172 It is suggested that regular orientation of health worker on the use of opioid particular DF118
173 and Tramadol among opioid naive SCD, a careful objective assessment of sickle cell patient
174 presenting with painful episodes should be carried out by an experienced health caregiver
175 with each case taken on its own merit. A non-opioid analgesic should be commenced first and
176 if an opioid should be used, it should be used for a short duration. Prescription note of opioid
177 analgesic should be properly controlled; there should be a drug unit established and also
178 legislation against sales of this controlled drug. Opioid addictive patient should be taught how
179 to tolerate pains and referred to a psychiatrist for detoxification and rehabilitation.

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