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A CASE REPORT ON TRAMADOL INDUCED VISUAL HALLUCINATIONS

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ABSTRACT

Tramadol is a centrally-acting analgesic commonly used in the treatment of chronic moderate to severe pain. It has a low affinity to μ-opioid receptors and inhibits the reuptake of serotonin and norepinephrine neurotransmitters, enhancing inhibitory effects on pain transmission both by opioid and monoaminergic mechanisms. Hallucinations after tramadol use have rarely been reported. Early recognition and proper immediate treatment are essential to reversing this complication.

KEYWORDS: Tramadol, Hallucination.

INTRODUCTION

Tramadol is a class IV drug approved by the FDA since July 7th, 2014; to be used in severe and persistent pain, requiring an extended period of treatment; and for which alternative treatment options are inadequate. There are two forms of tramadol: extended-release and immediate-release, both come in capsule form.

Tramadol is an opioid and, selectively binds to different opiate receptors in the central nervous system. The liver enzyme, CYP2D6, converts tramadol to its active metabolite M1, which has a stronger affinity for the mu receptor compared to the inactive form. Tramadol does not bind to the mu receptor as much as morphine. Unlike other opioids, tramadol does not reverse its course completely after the administration of naloxone. Along with the partial

agonist activity on the opioid receptors, it also inhibits the reuptake of serotonin and norepinephrine.

The organs most commonly affected by tramadol are the central nervous system, neuromuscular, and gastrointestinal. The cardiovascular system, dermatologic system, endocrine, genitourinary, and visual system are also affected by tramadol. The most prevalent side effects are nausea, dizziness, constipation, vomiting, somnolence, and headache. They tend to occur during the initial treatment rather than maintenance doses of the drug. Serious side effects include respiratory depression, which may result in death. Auditory and visual hallucinations after tramadol use do occur very occasionally and have rarely been reported.

CASE REPORT

An 88-year-old female patient presented to the emergency with complaints of a cough which was productive in nature, whitish in color. She used to get similar such episodes of cough and breathlessness in the past. She was taken to a local hospital, and GRBS and BP were found to be elevated. Left-sided chest pain present, aching type, no radiation, associated with nausea, and vomiting. The chest pain persisted for 4 hours. Not relieved on analgesics or PPI. She was then transferred to a tertiary care hospital for further evaluation and management.

After admission blood investigations were sent initially which showed elevated CRP- 14.2, NT-proBNP- 1936.14pg/mL, and D-dimer-1673.70 ng/mL. Blood cultures and Sputum Cultures were sent which were sterile. Total iron and TSAT were found low, peripheral smear showed anisopoikilocytosis, and she was started on oral iron supplements.

She was diagnosed with COPD-Infective exacerbation; and right upper lobe pneumonia. The patient was a known case of Type II Diabetes Mellitus, Systemic Hypertension, Dyslipidemia, and CAD-ACS NSTEMI. She was treated with an anticoagulant Injection of Heparin for 5 days, antibiotics Injection of Ceftriaxone 1gm, Doxycycline 100mg, and Cefixime 200 mg, antivirals Fluvir 20mg, antiplatelets, and other supportive medications.

The patient continued to complain of chest pain for which cardiology consultation was sought, they confirmed it to be pleuritic type chest pain. Thus, the patient was started on Tablet Ultracet (Tramadol Hydrochloride 37.5mg and Acetaminophen 325mg) twice daily. The patient was on the tablet for 3 days, after which the patient developed visual Hallucinations. Soon the drug was stopped. The patient recovered from the event and was

given topical analgesic liniments and discharged from hospital after course of antibiotic was over.

DISCUSSION

Tramadol has specific indications for moderate to severe pain. Due to possible misuse potential, limitations to its use is for pain that is refractory to other pain medication, such as non-opioid pain medication. There are two forms of tramadol: extended-release and immediate-release. Tramadol stimulates the μ-receptor and to a lesser extent the δ- and κ-opioid receptors. It also decreases the reuptake of norepinephrine and serotonin. Tramadol is also known to cause serotonin syndrome, particularly when it is used at high doses or in combination with other agents.

Unique Pharmacologic Properties of Tramadol.

- Half-life: Six hours
- Time for the drug to reach peak concentration: Extended Release: 12 hours
- Immediate Release: 1.6 to 1.9 hours
- Dosages: Extended Release: 100 mg, 200 mg, 300 mg
- Immediate Release: 50 mg

The side effects tend to occur during the initial treatment rather than maintenance doses of the drug._Serious side effects include respiratory depression, which may result in death. Tramadol is contraindicated in patients who have had a hypersensitivity reaction to any opioid. Patients under the age of twelve and eighteen, if they have had a history of tonsillectomy or adenoidectomy should not be given the medication. Because tramadol can cause respiratory depression, patients with a history of severe respiratory depression, or bronchial asthma, should avoid taking tramadol. Patients currently on MOAs, tricyclic antidepressants, who have GI obstruction should avoid taking tramadol. Due to the potential side effects of respiratory depression, patients should not use alcohol, benzodiazepines, or other CNS depressants at the same time. Because tramadol is hepatically metabolized, concurrent use of other drugs that undergo hepatic metabolism should be avoided.

In this case report, we have described visual hallucinations which occurred within 3 days, due to the administration of tramadol. A systematic review of the Vigiaccess database showed 1746 cases of hallucinations with use of Tramadol to date.

CONCLUSION

This case represents a unique incidence of Tramadol-induced Visual Hallucinations. Tramadol should be considered a possibility in any patient presenting a history of visual hallucinations.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ABBREVIATIONS:

FDA: Food and Drug Administration Advisory Committees.

CYP2D6: Cytochrome P450 2D6.

GRBS: General Random Blood Sugar.

BP: Blood Pressure.

PPI: Proton Pump Inhibitors.

CRP: C-Reactive Protein.

NT-pro-BNP: N-Terminal pro-B-type natriuretic peptide.

TSAT: Transferrin Saturation.

COPD: Chronic Obstructive Pulmonary Disease.

CAD: Coronary Artery Disease.

ACS: Acute Coronary Syndrome.

NSTEMI: Non-ST-Elevation Myocardial Infraction.

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