

Case Report

Tramadol-induced hypertensive crises, acute pulmonary edema, serotonin syndrome, and death in the beggar abused patient; a case report

Yasser Mohammed Hassanain Elsayed

***Corresponding author:** Yasser Mohammed Hassanain Elsayed, Critical Care Unit, Fraskour Central Hospital, Damietta Health Affairs, Egyptian Ministry of Health (MOH), Damietta, Egypt

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Abstract

Rationale: Drug adverse effects are sometimes very serious and fatal. Hypertensive emergency and acute pulmonary edema may be a risk and anxious side effects. Serotonin syndrome is a well-known critical and dangerous medical presentation. **Patient concerns:** A 35-year-old, a beggar female patient presented to the emergency department with a hypertensive emergency, acute pulmonary edema, and serotonin syndrome post-an overdose of oral tramadol. **Interventions:** Electrocardiography, oxygenation, and intravenous frusemide. **Diagnosis:** Tramadol-induced hypertensive crises, acute pulmonary edema, and death. **Outcomes:** Clinical deterioration ending with sudden death. **Lessons:** Hypertensive emergency, acute pulmonary edema, and serotonin syndrome may be occurring post-overdose of oral tramadol. This abnormal presentation considered a bad result of illegal use of abuse drug like tramadol.

Keywords: Tramadol; Hypertensive crises; Acute pulmonary edema; Death; The beggar; Serotonin syndrome

Abbreviations: ECG; Electrocardiography, GCS; Glasgow Coma Scale, ICU; Intensive care unit, IV; Intravenous, RBS; Random blood sugar, VR; ventricular rate

Introduction

Tramadol is placed as an opioid analgesic and synthetic analog of codeine. Mu-opioid receptor agonist working at the central level considered the target action in tramadol. However, the mu-opioid receptors of tramadol have a 10-fold analgesic effect and affinity less than codeine [1]. Tramadol is a mostly given synthetic analgesic for both moderate and severe pain in primary circumference [1,2]. The initial dose is 25 mg and the maximum dose of 100 mg a day; adult dose should not exceed 400 mg a day [2]. Tramadol is eminent as a less abuse substance and less associated respiratory depression. Serious possible side effects of tramadol are seizures, respiratory depression, serotonin syndrome, chest pain, dyspnea, tachycardia, and fainting [1,2]. Other likely side effects of tramadol include; extreme drowsiness, swelling of the face, tongue, throat, or extremities, hallucinations, severe rash, thoughts of suicide, sleepiness, vomiting, itching, sweating, agitation, Indigestion, dry mouth, diarrhea, tremor, loss of appetite, and sleeplessness [2]. With the

more increasing in using of tramadol as an analgesic drug in the clinical and applied medicine, it is likely there will be an increasing incidence of serotonin syndrome [3].

Hypertensive crises (76% urgencies and 24% emergencies) represented 3% of all the patient visits, but 27% of all medical emergencies [4]. Hypertensive crisis is defined as levels of systolic blood pressure >180 mmHg and/or levels of diastolic blood pressure >120 mmHg [5]. Depending on whether there is damage to vital organs or not, we can distinguish between hypertensive emergency and hypertensive urgency [5]. Hypertensive emergencies occur in up to 2% of patients with systemic hypertension [4]. Hypertensive emergencies are life-threatening conditions because their outcome is complicated by acute damage to vital organs, and can be presented with neurological, renal, cardiovascular, microangiopathic and obstetric complications [5]. Hypertensive emergencies include hypertensive encephalopathy, hypertensive acute left ventricular relaxation associated with acute myocardial infarction or unstable angina, aortic dissection, subarachnoid hemorrhage, ischemic stroke, and severe pre-eclampsia or eclampsia [5]. Hypertensive urgency is a situation with a severe increase in blood pressure without progressive dysfunction of vital organs. The most common symptoms are headache, dyspnea, nausea, vomiting, epistaxis, and pronounced anxiety [5]. Immediate reduction in blood pressure is required only in

patients with acute end-organ damage [4]. Nitroglycerin is a potent venodilator that reduces BP, decreasing preload and cardiac output. Therefore, it is not an acceptable first choice for hypertensive emergencies except in patients with acute coronary ischemia [7].

Serotonin syndrome symptoms usually occur within several hours of taking a new drug or increasing the dose of a drug you're already taking. Signs and symptoms include agitation or restlessness, confusion, tachycardia, hypertension, mydriasis, loss of muscle coordination, twitching muscles, muscle rigidity, heavy sweating, diarrhea, headache, shivering, and Goosebumps. Severe serotonin syndrome can be life-threatening. Signs include high fever, seizures, irregular arrhythmia, and coma [8]. The following drugs and supplements are possibly implicated in serotonin syndrome:

1. Selective serotonin reuptake inhibitors antidepressants such as citalopram
2. Serotonin and norepinephrine reuptake inhibitors antidepressants e.g. duloxetine.
3. Tricyclic antidepressants, such as amitriptyline.
4. Monoamine oxidase inhibitors antidepressants e.g. isocarboxazid.
5. Anti-migraine medications e.g. almotriptan.
6. Pain medications e.g. tramadol
7. Mood stabilizer e.g. lithium.
9. Antidepressant and tobacco-addiction medication e.g. bupropion.
8. Illicit drugs e.g. LSD.
10. Herbal supplements e.g. ginseng.
11. Anti-nausea medications e.g. granisetron.
12. Antibiotics e.g. Linezolid.
13. Anti-retroviral medication e.g. ritonavir [8].

Case presentations

A 35-year-old married, Egyptian beggar female patient presented to the emergency department with acute pulmonary edema, hypertensive crises, and coma. The relatives gave a recent history of taking 300 mg of oral tramadol tablets within seven hours. She had taken this tramadol overdose to become active for the more beggary work. The relatives deny a history of cardiovascular disease or other relevant diseases. Upon examination, the patient was in a coma (with GCS; 9), tachypnea, sweaty, fever, rigidity, and cyanosis. Her vital signs were as follows: blood pressure of 230/140 mmHg, pulse rate of 150/minute; regular, the temperature of 40.2°C, respiratory rate of 34/min, and initial pulse oximetry of 91 %. She was initially managed in the emergency department with O₂ inhalation using nasal cannula in the rate of 5 L/min, iv bolus furosemide 2 amp. injection (80 mg), and urinary catheterization. The patient was prepared to admit to ICU. Initial ECG tracing was the initial workup that showed sinus tachycardia (VR;150 bpm) with p-pulmonal (Figure 1). Unfortunately, the patient died before ICU admission.

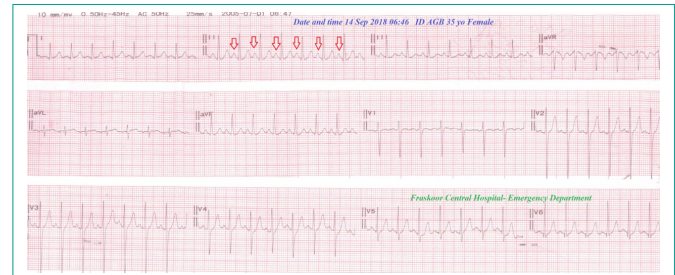


Figure 1: ECG tracing showing sinus tachycardia with VR;150 bpm and p-pulmonal in lead II (red arrows).

Discussion

• Overview

In the current case, there are acute pulmonary edema, hypertensive crises and coma post-overdose of oral tramadol had happened.

Serotonin syndrome symptoms were possible interpretations for the symptoms within several hours of increasing the dose of tramadol.

Sinus tachycardia with acute pulmonary edema and p-pulmonal may indicate right-side heart affection.

The increasing dose of tramadol was a major risk factor.

I can't compare the current case with similar conditions. There are no similar or known cases with the same management for near comparison.

• The primary objective

For my case study was clearing the existence of the hypertensive emergency, acute pulmonary edema, and serotonin syndrome post-overdose of oral tramadol.

• The secondary objective

For the case study was the management of a tramadol-induced hypertensive emergency, acute pulmonary edema, and serotonin syndrome.

• Study question here

How did tramadol-induced hypertensive emergency, acute pulmonary edema, and serotonin syndrome?

• Limitations of the study

There are no known limitations to the study.

Conclusions

Tramadol be inducing-hypertensive emergency, acute pulmonary edema, and serotonin syndrome.

The increasing dose of tramadol was a major risk factor.

The priority of management for any physician should be directed to identifying the etiology and knowing the drug adverse effects.

Cautions measures for tramadol abusing especially in illegal uses is highly recommended.

Conflicts of interest

There are no conflicts of interest.

Acknowledgment

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