

Tramadol overdose induced seizure, dramatic rise of CPK and acute renal failure

Reza Afshari, Haleh Ghooshkhanehee

Medical Toxicology Research Centre, Mashhad University of Medical Sciences, Iran.

Abstract

Tramadol, an analgesic with a low affinity to opioid receptors, inhibits the reuptake of norepinephrin and serotonin. It is also abused by opioid addicts. Tramadol overdose can induce CNS and respiratory depression, tachycardia, and seizures.

In this report, a 19 years male was admitted due to suicidal attempt of ingestion of 4000 mg of Tramadol. He experienced frequent seizures, confusion, myosis, and dramaticrise of CPK, LDH and Creatinine. Improvement was had in the following days by administering fluids, NaHCO₃ and chlordiasopoxide and routine management. He was discharged with no further sequelae.

Introduction

Tramadol is a centrally acting unique analgesic with a dual mechanism in the treatment of pain with a low affinity to opioid receptors and inhibiting the reuptake of norepinephrin and serotonin in the spine.^{1,2} It is also increasingly abused by opioid addicted subjects. Tramadol overdose is being associated with CNS and respiratory depression, coma, nausea and vomiting, tachycardia, agitation, and seizures.^{3,4}

Case Report

A 19 years male was admitted due to suicidal attempt with alleged ingestion of 4000 mg of Tramadol tablets and no co-ingestion. He experienced a generalized seizure around one hour after exposure, and reached to the Triage half an hour later. He was an ex-raw opium dependent. In the past two months he just abused 100 mg tramadol twice a day. At admission he was confused. In a few minutes a second generalized tonic-clonic seizure occurred, which was controlled by diazepam. He had no past medical history of head trauma, but reported one episode of seizure at 6 months of age with fever. He was on no other medication. Vital signs were in normal range. On physical examination, slight reactive myosis was observed, and deep tendon

reflexes were decreased. Electrocardiogram showed a sinus tachycardia. Another episode of seizure occurred after 2 hours of hospitalization. In para-clinical evaluation significant step wised rise in CPK (max 122275 U/L), LDH (max 5790 U/L) and Creatinine (max 4.3 mg/dL) were found. These subsided in the following days. He received fluids, and NaHCO₃ and chlordiasopoxide as well as routine management. He was considered for dialysis but it was not required. Kidneys were reported to be normal on ultrasound. The patient was discharged with no further seizures or neurological sequelae six days later, and was followed in an outpatient clinic.

Discussion

Timing of seizure in regard to taking overdose suggests Tramadol as the potential cause. No history of head trauma or fever, and normal blood tests including electrolytes and sugar, also rule out other potential causes of seizure.

Much of the toxicity in tramadol overdose can be attributed to the monoamine uptake inhibition rather than its opioid effects. Agitation, tachycardia, confusion and hypertension suggest a possible mild serotonin syndrome.⁴ Seizure may also have contributed to tramadol induced rhabdomyolysis. Dramatic rise of CPK and creatinine in this case was safely managed by fluids and sodium bicarbonate. This report, with other data, indicates the importance of safety in toxico-vigilance. Justification for prescribing of such a potentially harmful drug with poorly documented efficacy should be further investigated.

References

1. Clarot F, Proust B, Vaz E, Gouille JP. Tramadol-benzodiazepines and buprenorphine-benzodiazepines: two potentially fatal cocktails? *J Clin Forensic Med.* 2003; 10:125-6.
2. Tobias JD. Seizure after overdose of tramadol. *South Med J* 1997; 90:826-7.
3. Marquardt KA, Alsop JA, Albertson TE. Tramadol exposures reported to statewide poison control system. *Ann Pharmacother* 2005; 39:1039-44.
4. Spiller HA, Gorman SE, Villalobos D, Benson BE, Ruskosky DR, Stancavage MM et al. Prospective multicenter evaluation of tramadol exposure. *J Toxicol Clin Toxicol* 1997; 35:361-4.