

Letter to Editor: COVID-19- or Tramadol-induced Seizure: A Differential Diagnosis in Young People



Solmaz Nekoueifard¹ , Mohammad Majidi^{2*} 

1. General Practitioner, Urmia Health Center, Urmia University of Medical Sciences, Urmia, Iran.

2. Department of Forensic Medicine and Clinical Toxicology, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran.



Citation: Nekoueifard S, Majidi M. COVID-19- or Tramadol-induced Seizure: A Differential Diagnosis in Young People. International Journal of Medical Toxicology and Forensic Medicine. 2020; 10(4):32009. <https://doi.org/10.32598/ijmtfm.v10i4.32009>

 <https://doi.org/10.32598/ijmtfm.v10i4.32009>

Letter to Editor

Coronavirus disease 2019 (COVID-19) was first declared in December 2019 from Wuhan, China [1, 2]. It then has been reported a pandemic in March 2020 by the World Health Organization [3]. Clinical features of COVID-19 are different from asymptomatic to mild to moderate symptoms, such as fever, headache, myalgia, sore throat, anosmia, cough, fatigue headache, hemoptysis, and dyspnea to the life-threatening complications, including shock, pneumonia, acute respiratory distress syndrome, myocarditis, myocardial infarction, acute kidney injury, multi-organ failure, and even death [1, 2]. One of the possible routes for central nervous system (CNS) involvement by COVID-19 is diffusing through the respiratory tract to the olfactory bulb and the formation of blood clots in the CNS [1, 4]. COVID-19 has been associated with neurological complications, such as anosmia, stroke, paralysis, cranial nerve deficits, encephalopathy, delirium, transient ischemic attack, meningitis, acute stroke, encephalitis, and seizures [4]. Tramadol is a new synthetic and analgesic opioid that is used to treat acute and chronic pain worldwide [5]. In recent years, tramadol abuse and overdose have increased in young adults in Iran [3]. The main side effects of tramadol poisoning are nausea, vomiting, constipation, tachycardia, headache, ataxia, dizziness, drowsiness, somnolence, and loss of consciousness [6, 7]. In

addition, other important life-threatening complications due to tramadol poisoning are rhabdomyolysis, renal and liver failure, pulmonary arrest, CNS depression, and seizures [8-10]. Seizures are important complications of both tramadol abuse and COVID-19. Therefore, for patients, especially young people suspicious of tramadol-induced seizures with no history of seizures and urine toxicology screen tests, the possibility of development of COVID-19-induced seizures should always be taken into account.

Ethical Considerations

Compliance with ethical guidelines

This letter to the editor did not require a consent form and an ethical code.

Funding

This study was funded by the authors, who did not receive further funding from any internal or external sources.

Author's contributions

All authors contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

* Corresponding Author:

Mohammad Majidi, MD.

Address: Department of Forensic Medicine and Clinical Toxicology, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran.

Tel: +98 (914) 3472825

E-mail: majidi_m@umsu.ac.ir

Acknowledgements

The authors would like to express their gratitude to the three patients who agreed to voluntarily participate in this study. They also wish to thank the management and staff of Taleghani Hospital, Urmia, Iran, for supporting this study and approving its protocol prior to implementation.

References:

- [1] Asadi-Pooya AA, Simani L. Central nervous system manifestations of COVID-19: A systematic review. *J Neurol Sci.* 2020; 413:116832. [DOI:10.1016/j.jns.2020.116832] [PMID] [PMCID]
- [2] Nalleballe K, Onteddu SR, Sharma R, Dandu V, Brown A, Jasti M, et al. Spectrum of neuropsychiatric manifestations in COVID-19. *Brain Behav Immun.* 2020; 88:71-4. [DOI:10.1016/j.bbi.2020.06.020] [PMID] [PMCID]
- [3] Fotuhi M, Mian A, Meysami S, Raji CA. Neurobiology of COVID-19. *J Alzheimers Dis.* 2020; 76(1):3-19. [DOI:10.3233/JAD-200581] [PMID] [PMCID]
- [4] Lahiri D, Ardila A. COVID-19 Pandemic: A neurological perspective. *Cureus.* 2020; 12(4):e7889. [DOI:10.7759/cureus.7889] [PMID] [PMCID]
- [5] Radbruch L, Grond S, Lehmann KA. A risk-benefit assessment of tramadol in the management of pain. *Drug Saf.* 1996; 15(1):8-29. [DOI:10.2165/00002018-199615010-00002] [PMID]
- [6] Taghaddosinejad F, Mehrpour O, Afshari R, Seghatoleslami A, Abdollahi M, Dart RC. Factors related to seizure in tramadol poisoning and its blood concentration. *J Med Toxicol* 2011; 7:183-8. [DOI:10.1007/s13181-011-0168-0] [PMID] [PMCID]
- [7] Sarjami S, Pajoumand A. [One-year epidemiological study of acute adult and adolescent poisoning admitted to Loghman Hospital (Persian)]. *Sci J Forensic Med.* 2008, 13(4):235-40. <http://sjfm.ir/article-1-4-fa.html>
- [8] Rahimi HR, Soltaninejad K, Shadnia Sh. Acute tramadol poisoning and its clinical and laboratory findings. *J Res Med Sci.* 2014; 19(9):855-9. [PMID] [PMCID]
- [9] Shadnia S, Soltaninejad K, Heydari K, Sasanian G, Abdollahi M. Tramadol intoxication: A review of 114 cases. *Hum Exp Toxicol.* 2008; 27:201-5. [DOI:10.1177/0960327108090270] [PMID]
- [10] Khoshideh B, Arefi M, Ghorbani M, Akbarpour S, Taghizadeh F. Clinical and laboratory findings of rhabdomyolysis in opioid overdose patients in the intensive care unit of a poisoning center in 2014 in Iran. *Epidemiol Health.* 2017; 39:e2017050. [DOI:10.4178/epih.e2017050] [PMID] [PMCID]