Case Report

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Acute Dystonia Due to Pregabalin Abuse in an Adolescent

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Abstract

Pregabalin is a drug used to treat neuropathic pain, epilepsy, and fibromyalgia. However, the number of reported cases of pregabalin abuse is steadily growing. This case showed dystonia, an adverse effect that has not been documented previously as a consequence of pregabalin administration. A 16-year-old male patient with no known pre-existing medical conditions has admitted to the paediatric emergency department for the first time, complaining of drowsiness caused by pregabalin abuse. During the patient's follow-up, acute dystonia was observed, and biperiden was administered in repeating doses. Subsequently, he was transferred to the pediatric intensive care unit (PICU) for further tests, closer follow-up monitoring, and treatment. After three days of follow-up, the patient was discharged due to the absence of complaints. This case report presents dystonia resulting from pregabalin abuse, a condition that has not previously been documented in the literature.

Keywords: Dystonia, Pregabalin abuse, Pregabalin

Introduction

Pregabalin is a gabapentinoid drug licensed by the FDA in 2004 to treat neuropathic pain and partial-onset seizures (1). Pregabalin usage has grown in recent years, usually in combination with other substances (2). High doses of pregabalin can elicit drowsiness, disorientation, and apathy, and the severity of these adverse effects have been shown to be dose-related (3). Upon review of the literature, there has been no recorded instance of pregabalin abuse result with dystonia as a serious adverse effect.

This study was conducted to document the onset of dystonia in an adolescent taking pregabalin for the first time and to outline the therapeutic interventions employed in response.

Case Report

A 16-year-old male patient has admitted to the paediatric emergency department with complaints of fatigue and headache. The patient's history revealed that he did not have a systemic disease or chronic drug usage. It was also discovered that he had consumed 750 mg of pregabalin for the first time three hours before admission, based on the recommendations of his friends. The initial physical examination findings of the patient were normal. During the follow-up in the paediatric emergency department, the patient exhibited dystonic movements in his arms. Biperiden (3 mg) was immediately administered intramuscularly, and the dystonic movements regressed after the first biperiden dose. A complete blood count, electrolyte, venous blood gas analysis, and blood glucose levels were performed. Additionally, a computerized brain tomography was performed to rule out intracranial haemorrhage and brain edema. The radiological and laboratory examinations revealed no pathology. Within the first hour of his hospitalization, the patient exhibited dystonic movements of the tongue. A second intramuscular dosage of 3 mg biperiden was administered. Subsequently, the patient's dystonic tongue movements subsided gradually. After the sixth hour of observation, dystonic movements in the patient's tongue recurred. A third 3 mg intravenous biperiden dose was given. Following the administration of the third biperiden dosage, the patient's dystonia diminished; however, bradycardia was observed. Sinus bradycardia was identified using electrocardiography. Troponin and creatine kinase MB (CKMB) testing were performed, and no pathology was detected. The patient's bradycardia regained in the 12th hour of his follow-up, and he was transferred to the paediatric intensive care unit (PICU). Electroencephalography, brain diffusion magnetic

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resonance images (Diffusion MRI) and conventional brain MRI exams were conducted, and no pathology was found in these examinations. Dystonic movements did not occur during the follow-up in PICU. The patient was consulted with Paediatric Psychiatry department on the third day of his PICU hospitalization. He had no active suicidal thoughts, his effect was euthymic, his connections were regular and purposeful, and his perception and memory orientation were normal. The laboratory data obtained on the third day revealed no pathology, and the patient was discharged because of the absence of complaints.

Discussion

Pregabalin is used to treat epilepsy, neuropathic pain, and fibromyalgia, and its recommended therapeutic dose ranges from 150 to 600 mg per day (4). Pregabalin abuse is uncommon, however studies reveal that a growing number of patients are self-administering higher-than-recommended doses to obtain euphoric peaks (5).

There are relatively few studies that solely describe pregabalin abuse in patients with no previous history of substance abuse. An analysis of 59 adult patients taking only pregabalin was published, and the mean pregabalin dose in these patients was reported to be between 750 and 2700 mg. One patient experienced severe coma seven hours after ingesting a high dose of pregabalin (2400 mg) and was subsequently hospitalized in the intensive care unit (6).

Two of the three adolescents who abused pregabalin in a case series presented by Alan et al. showed signs of sweating, irritability, sleep disorders, anorexia, shivering, and aggression, whereas the third patient showed no symptoms (7). In Jordanian research, the consequences of pregabalin withdrawal, such as headache, anxiety, depression, joint and muscular discomfort, tremor, numbness, and high dosage usage to extend pregabalin duration, were reported (8). The patient admitted to our hospital had taken an amount of pregabalin over the therapeutic dose for nonmedical purposes. The first finding was excessive sleepiness, which was consistent with the actual literature findings, but dystonia was observed in his follow-up, which has not been previously documented in the literature. The absence of pathology in our patient's laboratory and radiological exams and the normal mental assessment supported the relationship between the development of dystonic movements and pregabalin usage.

Acute dystonia is a hyperkinetic movement disorder caused by various factors, and pharmacological therapies such as anticholinergic, dopamine-depleting, and benzodiazepine group drugs can be used in treatment (9). One hypothesis that explains the pathophysiology of dystonia caused by pregabalin may be the GABA density involved in high-frequency myoclonus; in susceptible individuals, there is an assumed increase of GABAergic transmission in a specific area (10). However, the exact mechanisms of pregabalin induced dystonia remains poorly understood, yet. Biperiden can be used in the treatment of acute dystonia with its anticholinergic effect (11). In the presented case, dystonia persisted for an average of 13 hours, and three doses of biperiden were administered intermittently to subside its effect.

In conclusion, pregabalin use in various clinical indications have been increasing in recent years, however this brings along with a new clinical entity called "pregabalin abuse" so further research is needed to understand its adverse consequences and the treatment of these undesired effects. In this case report, we intended to draw attention to pregabalin abuse and highlight dystonia as a novel symptom.

References

1. Verma V, Singh N, Singh Jaggi A. Pregabalin in neuropathic pain: evidences and possible mechanisms. Curr Neuropharmacol. 2014 Jan;12(1):44-56.
2. Kuhn D, Müller TJ, Mutschler J. Pregabalinmissbrauch und -Abhängigkeit in verschiedenen europäischen Ländern im Hinblick auf deren Substitutionspolitik [Pregabalin abuse and dependence in various European countries: Association with substitution policies]. Fortschr Neurol Psychiatr. 2021 Nov;89(11):553-561.
3. Rietjens SJ, Sikma MA, Hunault CC, de Lange DW, Hondebrink L. Pregabalin poisoning: Evaluation of dose-toxicity relationship. Br J Clin Pharmacol. 2022 Mar;88(3):1288-1297).
4. Alles SRA, Cain SM, Snutch TP. Pregabalin as a Pain Therapeutic: Beyond Calcium Channels. Front Cell Neurosci. 2020 Apr 15;14:83.
5. Evoy KE, Morrison MD, Saklad SR. Abuse and Misuse of Pregabalin and Gabapentin. Drugs. 2017 Mar;77(4):403-426.
6. Isoardi, KZ, Polkinghorne, G, Harris, K, Isbister, GK. Pregabalin poisoning and rising recreational use: a retrospective observational series. *Br J Clin Pharmacol*. 2020; 86: 2435–2440.
7. Alan BE, Kızılkan MP, Akgül S. Pregabalin abuse in adolescence: a case series. Turk J Pediatr. 2022;64(2):357-363.
8. Al-Husseini A, Wazaify M, Van Hout MC. Pregabalin Misuse and Abuse in Jordan: a Qualitative Study of User Experiences. Int J Ment Health Addict. 2018;16(3):642-654.
9. Batla A. Dystonia: A review. Neurol India. 2018 Mar-Apr;66(Supplement):S48-S58
10. Richerson GB, Wu Y. Dynamic equilibrium of neurotransmitter transporters: Not just for reuptake anymore. *J Neurophysiol.* 2003;90:1363–74
11. Termsarasab, P., Thammongkolchai, T. & Frucht, S.J. Medical treatment of dystonia. *J Clin Mov Disord* **3**, 19 (2016)