CASE REPORT

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Focal Seizure After Status Epilepticus in a Bupropion Intoxication: Case Report

Bupropion Zehirlenmesine Bağlı Status Epileptikus Sonrası Fokal Nöbet: Olgu Sunumu

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Abstract

A 13-month-old boy presented with a tonic-clonic seizure after bupropion intake. Physical examination revealed tachycardia, tachypnea, dry oral mucosa, and dilated pupils. The patient with status epilepticus and cardiac involvement was treated with intravenous thiopental infusion and lipid emulsion therapy. We observed focal seizures in the form of licking and perioral clonic contractions showing bilateral temporal epileptic activity in electrocardiography. As known, there are many reported cases of status epilepticus associated with bupropion poisoning; however, none of them had late focal seizures and our case is the youngest patient in the literature.

Keywords: Bupropion poisoning, focal seizure, lipid emulsion therapy, long QTc, status epilepticus

Öz

On üç aylık erkek hasta bupropion alımı sonrası tonik-klonik nöbet ile başvurdu. Fizik muayenede taşikardik, takipneik, oral mukozası kuru ve dilate pupilleri vardı. Status epileptikus ve kardiyak tutulumu olan hasta, intravenöz tiyopental enfüzyonu ve lipid emülsiyon uygulanması ile tedavi edildi. Elektrokardiyografide bilateral temporal epileptik aktiviteyi içeren yalama, perioral klonik kasılma şeklinde fokal nöbetler gözlendi. Bildiğimiz kadarıyla, bupropion zehirlenmesi ile ilişkili status epileptikus gösteren çok sayıda olgu bildirilmiştir; ancak bunların hiçbirinde geç fokal nöbet yoktur ve olgumuz literatürdeki en genç olgudur.

Anahtar kelimeler: Bupropion zehirlenmesi, fokal nöbet, lipid emülsiyon tedavisi, status epileptikus, uzun QTc

Introduction

Bupropion is a selective inhibitor of the reuptake of dopamine, norepinephrine, and serotonin. It also has an anticholinergic effect. The mechanism of action in smoking cessation is not known exactly (1). Overdose of bupropion intake causes central nervous system symptoms such as hallucination, agitation, and seizures (2). We aim to draw attention to the treatment of side effects of bupropion intake by presenting a case with status epilepticus and long QTc, as a result of slow-releasing bupropion overdose.

Case Report

A 13-month-old previously healthy boy was admitted to our hospital one hour after the ingestion of 7 tablets of 150 mg (87.5 mg/kg), slow-releasing bupropion (Wellbutrin XL). He was conscious when he came to the emergency room, then gastric lavage and activated charcoal were applied to the patient. However, he developed generalized tonic-clonic seizures. Seizures were treated first with rectal diazepam, then with IV midazolam and phenobarbital.

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Because the seizures could not be controlled, the patient was admitted to the pediatric intensive care unit with a provisional diagnosis of status epilepticus due to drug intoxication. Physical examination on admission revealed a Glasgow Coma scale of 8 on the fourth hour of drug ingestion. He had shallow breathing and his respiratory rate was 38/min and his heart rate was 165/min. His arterial blood pressure was 82/49 mmHg and his capillary refill time was 2 seconds. No other pathological finding was detected on systemic physical examination. Venous blood gas results were as follows; pH: 7.30, pCO_2: 43mmHg, HCO_3: 20.7, and lactate level: 2.1 mmol/L. The other laboratory parameters were in normal ranges. The patient was intubated because of shallow breathing and ongoing seizures. He was sedated with thiopental before the procedure and thiopental infusion was continued to provide sedation and benefit from its anticonvulsant effect. Fentanyl was used to provide analgesia. Since his QTc read 0.50 seconds on an electrocardiogram, propranolol was added to his treatment lipid emulsion therapy was initiated because of ongoing epileptical activity and cardiac involvement (20% of lipid solution was loaded as 1 g/kg in 1 hour, then continued as an infusion at a rate of 1 g/kg/day). According to the close follow-up of the patient's triglyceride levels, lipid infusion was titrated up to 3 g/kg/day after 48 hours. Propranolol treatment was ceased on the 72nd hour of hospitalization since the QTc interval was normalized and thiopental infusion was stopped and replaced with phenobarbital treatment. Lipid infusion was weaned. The patient was extubated on day 4 since his consciousness level and breathing efforts were adequate. Then, he began to have focal seizures in the form of licking and perioral clonic contractions. Lipid infusion was titrated up to 3 g/kg/day again and followed by EEG monitoring. Then, levetiracetam was added to his antiepileptic treatment. Focal seizures disappeared on day 5 and the patient became completely conscious on day 6. Lipid infusion was ceased due to the absence of seizures within the last 24 hours and his mental and motor functions being completely normal. The patient was discharged with levetiracetam and phenobarbital antiepileptic therapies and consulted with pediatric neurology for future follow-up. The written informed consent for the publication was obtained from the parents on behalf of the patient.

Discussion

We observed status epilepticus, long QTc, tachycardia, and lethargy in our patient during the first phase. We achieved a burst suppression on EEG via thiopental infusion which was ceased 72 hours later. Then, the patient was observed to have focal seizures accompanied by bilateral temporal epileptic activity on EEG. There is no specific therapy, the treatment is symptomatic. Activated charcoal can be useful to eliminate bupropion absorption when used at the appropriate time. There is no known specific antidote. Lipid emulsion therapy has been suggested for the treatment of life-threatening bupropion-induced cardiovascular collapse after other interventions have failed. However, it is not suggested to be used in non-life-threatening conditions (3). More recently, a case series of bupropion overdose, from the Illinois Poison Center, has argued that lipid emulsion therapy for bupropion overdose may not be as efficient as suggested previously (4). There is no specific dose interval on literature about lipid emulsion therapy in children; however, publications suggest that a dosage up to 3 g/kg/h is safe. Still, in the case of prolonged and refractory status epilepticus, it seems reasonable to try lipid emulsion therapy (3). We continued lipid emulsion therapy after the cessation of thiopental infusion since the patient continued to have focal seizures. We believe that lipid emulsion therapy could also eliminate late phase effects. It has been associated with transient lipemia, hypertriglyceridemia, and mild pancreatitis (5).

In conclusion, our case serves to demonstrate some rare consequences of bupropion overdose, such as long QTc and status epilepticus in a pediatric patient. In our case, early diagnosis and supportive therapy improved the clinical outcome of the patient but new case reports and further studies are necessary to establish whether lipid emulsion therapy is indicated for bupropion toxicity or not.

Ethics

Informed Consent: The written informed consent for the publication was obtained from the parents on behalf of the patient.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: N.A., H.S.K., M.T.P., Design: N.A., H.S.K., M.T.P., Data Collection or Processing: N.A., Ü.K.B., E.Ş., Analysis or Interpretation: N.A., M.T.P., Ü.K.B., Drafting Manuscript: N.A., H.S.K., Writing, N.A., Ü.K.B., Critical Review: N.A., E.Ş., Supervision: N.A., E.Ş.

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