



Pethidine Induced Epileptic Seizure

Petidine Bağlı Epileptik Nöbet

Gulistan Halac¹, Pinar Tekturk², Halide Rengin Bilgen¹, Cigdem Deniz¹, Talip Asil¹

¹Bezmialem Vakıf University, Medical Faculty, Neurology Department, Istanbul, Turkey
²Istanbul University, Istanbul Medical Faculty, Neurology Department, Istanbul, Turkey

Abstract

In this presentation we report a case of seizures following the administration of pethidine

Key words: Epilepsy, drugs, confusion.

Özet

Bu makalede petidin enjeksiyonunu takiben jeneralize tonik klonik nöbet geçiren bir olgu literatür eşliğinde sunulmuştur.

Anahtar kelimeler: Epilepsi, ilaçlar, konfüzyon.

Introduction

Pethidine is a fast acting and potent opioid analgesic which is prescribed by oral, intramuscular, intravenous and subcutaneous injection. This drug is indicated for the treatment of moderate to severe pain such as fracture, dislocation, delivery or severe acute pain caused by urogenital, gastrointestinal, biliary tract, sceletal system and neoplastic diseases and postoperatively¹. Its side effects include dyspnea, nausea, vomiting, loss of appetite, hypotension, constipation, and urinary retention. We will discuss a case who didn't have any history of epilepsy and had a tonic clonic seizure and mental deterioration after pethidine injection during a Extracorporeal Shock Wave Lithotripsy (ESWL) procedure.

Case

A 18 year-old woman was brought to our emergency service with unconsciousness before her ESWL procedure which had been planned for her nephrolithiasis. It was learned

that she had an 100mg intramuscular pethidine injection about seven minute before her unconsciousness. She witnessed by medical staff that describes her faint as total unconsciousness, upward deviation of her eyes, contraction of her both legs and arms and urinary incontinence. During administration she was unconscious and she gave extensor response after painful stimulus. Glasgow Coma Score was calculated as 5. Biochemical examination all metabolic studies including glucose, electrolyte levels, thyroid function were within normal limits. Cranial Magnetic Resonance Image was applied and acute cerebrovascular disease, paranchymal and meningeal inflammation was ruled out. After 1 hours the patient was still confused. Electroencephalography was performed after 2 hours, showed normal. Her medical history revealed only nephrolithiasis. She had no family history of epilepsy. After 2 hours her pyhsical and neurological examination was normal. After this event she had no seizure for three years and took no medication.

Corresponding Author / Sorumlu Yazar:

Dr. Gulistan Halac
Bezmialem Vakıf University, Medical Faculty, Neurology
Department, Istanbul/Turkey
E-mail: halacdr@yahoo.com
Phone number: +90 533 3742541

Article History / Makale Geçmişi:

Date Received / Geliş Tarihi: 07.01.2015
Date Accepted / Kabul Tarihi: 08.05.2015

Discussion

In this case who didn't have any history of epilepsy and had a tonic clonic seizure and mental deterioration after about seven minute pethidine injection during a ESWL procedure. Laboratory including blood and cerebrospinal fluid, neuro-imaging and electrophysiological tests in order to find out the etiology investigations were unremarkable. The patient's conscious had recovery in 2 hours. We decided that our patient had a generalized tonic-clonic epileptic seizure and postictal mental deterioration due to pethidine intoxication.

Epilepsy is a disease which can be seen in all ages, needs long term treatment and follow-up and seriously effects life quality. Seizures can be idiopathic, cryptogenic or symptomatic according to the underlying cause. Drugs are also included among the etiologies of seizures. Anti-arhythmic, anesthetic, psychotropic, anti-depressant, antibiotic and central nervous system stimulant drugs may decrease the seizure threshold and cause seizure². Pethidine is a powerful, fast acting, opioid analgesic drug. It is also a frequent choice of drug because of its spasmolytic effect on biliary spasm or renal colic. After administration, it is fastly hydrolised into pethidinic acid in the liver and turns into norpethidine by demethylation. Out of favor effects can be seen by regular intake or during renal or hepatic failure. In patients with renal or hepatic failure the metabolite norpethidine accumulates to a greater extent and thereby toxic side effects may occur at recommended doses^{3,4}. However, its administration together with drugs that decreases seizure threshold such as phenothiazine may increase seizure risk⁵. Active metabolite of pethidine is norpethidine. Norpethidine is responsible from analgesic effect and has a half-life of 8-12 hours. It's active metabolite can cause

hyperexcitability in the central nervous system and induce hyperreflexia, myoclonia and rarely seizures. Pryle and colleagues showed that no association was found between seizure activity and peak plasma pethidine level⁶. The cause of pethidine-induced seizures is insufficient understood and is attributed partly to the increase in blood concentration of norpethidine to pethidine. Because of all these side effects pethidine has been chosen rarely recently.

Our case had no history of drug usage or any medical disease. She had also no metabolic or organic disorder that can explain seizure occurrence. According to the time relation of pethidine administration and seizure occurrence during ESWL procedure, we think that our case had pethidine induced seizure. She had no seizure without medication during three year follow-up. In this study we wanted to remind that drugs cause epileptic seizure and pethidine is rarely one of them. It is important to intervene in this unpredictable toxicity, shared information in the literature for approach to measures and effective treatment.

References

1. Desai KB, Ribbans WJ, Taylor GJ Incidence of five common fracture types in an institutional epileptic population. *Injury* 1996;27(2):97-100.
2. Delanty N, Vaughan CJ, French JA. Medical causes of seizures *Lancet* 1998;1:352(9125):383-90
3. Dangizer LH, Martin SJ, Blum RA. Central nervous system toxicity associated with meperidine use in hepatic disease. *Pharmacotherapy* 1994;14(2):235-8
4. Mauro VF, Bongfiglio MF, Spunt AL. Meperidine-induced seizure in a patient without renal dysfunction or sickle cell anemia. *Clin Pharm* 1986;5(10):837-9.
5. Kaiko RF, Foley KM, Grabinski PY, et al. Central nervous system excitatory effects of meperidine in cancer patients. *Ann Neurol* 1983;13(2):180-5
6. Pryle BJ, Grech H, Stoddart PA, et al. Toxicity of norpethidine in sickle cell crises. *BMJ* 1992;304(6840):1478-9.