Case of Rhabdomyolysis in a Patient Undergoing Hemodialysis: A Possible Association with Tramadol HCl

Sinan Trabulus[1], Murat Özbalak[2], Eda Kaya[3], Tuğçe Apaydın[2], Hande Mefkure Özkaya[4], Özer Açbay[4], Nurhan Seyahi[1]

[1]Department of Internal Medicine, Division of Nephrology, İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, İstanbul, Turkey
[2]Department of Internal Medicine, İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, İstanbul, Turkey
[3]İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, İstanbul, Turkey
[4]Department of Internal Medicine, Division of Endocrinology, İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, İstanbul, Turkey

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Abstract

Tramadol hydrochloride (HCl) is a synthetic analgesic agent, which is generally safe at a low dose. Its adverse effects are reported in cases of intoxication. Here we present a 59-year-old male patient with multiple relapsing parathyroid carcinoma-related refractory hypercalcemia and generalized pain. Being prescribed tramadol HCl, he consumed an increased dosage following increased pain, resulting in rhabdomyolysis, which improved after cessation of the drug. Nevertheless, the patient died owing to pulmonary embolism. Rhabdomyolysis owing to tramadol HCl consumption is very rarely reported. Rhabdomyolysis should be considered in patients consuming tramadol HCl and having generalized muscle weakness.

Keywords: Hypercalcemia, Parathyroid carcinoma, Rhabdomyolysis, Tramadol hydrochloride

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Hemodiyalize giren bir hastada tramadol sonrası gelişen rabdomiyoliz

Öz

Tramadol Hidroklorit (HCl) düşük dozlarda genellikle güvenli olan sentetik bir analjeziktir. Yan etkiler intoksikasyon vakalarında bildirilmiştir. Biz, burada nüks paratiroid kanseri tanısı bulunan 59 yaşındaki erkek hastada medikal tedaviye dirençli ciddi hiperkalsemi ve generalize ağrı olgusunu sunuyoruz. Hasta, ağrıları için Tramadol HCl reçete edildikten sonra artan ağrılara paralel olarak ilaç dozunu arttırdı ve sonunda rabdomiyoliz gelişti. Rabdomiyoliz ilacın kesilmesinden sonra tamamen geriledi, yine de hasta pulmoner emboli nedeniyle eks oldu. Tramadol HCl kullanımına bağlı rabdomiyoliz çok nadir olarak bildirilmiştir. Tramadol HCl kullanan ve generalize kas ağrısı ile prezente olan hastalarda rabdomiyoliz düşünülmelidir.

Anahtar Sözcükler: Hiperkalsemi, paratiroid karsinomu, rabdomiyoliz, tramadol hidroklorit

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Tramadol hydrochloride (HCl) is a synthetic analgesic agent that acts on central nervous system and has opioid and non-opioid properties [1]. We present the case of a patient with metastatic parathyroid carcinoma treated with hemodialysis because of refractory hypercalcemia, and he developed rhabdomyolysis possibly owing to increased consumption of tramadol HCl.

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Address for Correspondence/Yazışma Adresi: Nurhan Seyahi; Department of Internal Medicine, Division of Nephrology, İstanbul University-Cerrahpasa, Cerrahpaşa School of Medicine, İstanbul, Turkey
E-mail/E-posta: nseyahi@yahoo.com
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Case Presentation

A 59-year-old male patient was admitted to our outpatient clinic in April 2015 with fatigue and generalized pain. He had a history of right total lobectomy and left subtotal lobectomy of the thyroid gland and right lower parathyroidectomy in 2010. The pathological evaluation was consistent with thyroid papillary microcarcinoma in the left lobe and parathyroid carcinoma. Parathyroid carcinoma relapsed in 2013. Since 2014, the patient was on low-calcium intermittent hemodialysis 3 days a week owing to refractory hypercalcemia (21.3 mg/dL). His analgesic need increased gradually. Consequently, he used a fentanyl transdermal patch (25 mcg) every 72 hours and tramadol HCl (100 mg) two times daily.

Table 1. Serum biochemical analysis of the patient between 2012 and 2015

Analysis	January 2012 (Initial presentation)	January 2013	January 2014 (Hemodialysis started owing to refractory hypercalcemia)	April 2015 (Time of presentation with rhabdomyolysis)	Normal range
Creatinine (mg/dL)	1.1	1.38	1.9	1.73	0.5–0.9
Uric acid (mg/dL)	7.7	6.0	8.2	7.7	3.4–7.0
AST (U/l)	21	21	44	244	<32
ALT (U/l)	11	9	8	87	<33
ALP (U/l)	192	106	329	265	35–105
LDH (IU/l)	318	505	266	1208	<250
CK (U/l)	NA	NA	NA	8892	<190
Albumin (g/dL)	3.47	3.8	2.8	3.2	3.5–5
Sodium (mmol/l)	138	140	136	133	136–145
Potassium (mmol/l)	3.4	4.23	4.3	3.5	3.5–5.1
Calcium (mg/dL)	16.5	12.9	21.8	10.8	8.4–10.2
Phosphorus (mg/dL)	2.4	2.6	4,09	5.3	2.5–4.5
Parathormone (pg/mL)	1145	481.1	1350	1684	15–65

NA: not analyzed

At the time of admission, physical examination revealed cachexia, generalized muscle weakness in extremities, inability to walk, and large purple lesions over his trunk and thighs. Results of serum biochemical analysis revealed elevated creatinine, transaminases, alkaline phosphatase, and parathormone levels. Platelet count, prothrombin time, international normalized ratio, and activated partial thromboplastin time were within normal limits. Following a tramadol HCl consumption of 100 mg every 2-3 hours during the last 3 days owing to increased analgesic need, the serum creatinine kinase (CK) level elevated unexpectedly [8892 U/l, N<190 U/l] (Table 1). We discontinued the tramadol HCl treatment and initiated extensive intravenous hydration. On the following day, the CK level increased to 46360 U/l. However, it decreased to 1227 U/l on the second day, although we were unable to perform hemodialysis owing to the patient's hypotensive status. On the third day of hospitalization, he developed dyspnea. Computerized tomography of the thorax revealed pulmonary emboli in the lower segments of the right pulmonary artery. He was transferred to the intensive care unit; he died on the fourth day.

Discussion

According to a recent study conducted by Moulis F et al. [2], the most frequently reported adverse effects of tramadol HCl were neurological (29.4%), including change in consciousness and seizures; psychiatric (22.8%), including confusions and hallucinations; and gastrointestinal (17.0%), including nausea and vomiting. To the best of our knowledge, there are a couple of case reports describing rhabdomyolysis related to tramadol HCl consumption [3, 4]. According to the Naranjo algorithm [5], the patient reached 6 points. Unfortunately, we were unable to conduct additional research on the rest of the questionnaire because our patient died, the result of the interpretation being "probable."

Narcotics result in direct cell toxicity and may increase the risk of rhabdomyolysis in drug users owing to staying in a stationary position after opioid injections [6]. Our patient was also in a stationary position owing to his aggravating pain. Moreover, to a larger extent, tramadol HCl is excreted via kidneys. Therefore, in our case, decreased opioid clearance owing to renal failure may be considered as an additional factor for rhabdomyolysis development.

Informed Consent: Written informed consent was obtained from the patient who participated in this study.

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