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**CASE REPORT / *OLGU SUNUMU***

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# Increase of Liver Enzyme Caused by Suicidal Overdose of Phenyramidol Hydrochloride

## İntihar Amaçlı Yüksek Doz Feniramidol Hidroklorür Alımına Bağlı Karaciğer Enzim Yükselmesi

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**SUMMARY** Phenyramidol hydrochloride is a potent non-narcotic analgesic with concomitant muscle-relaxant activity that is the result of an interneuronal blocking action. Phenyramidol is conjugated in the liver with glucuronic acid and is primarily excreted as phenyramidol glucuronide in urine. Some is also excreted in feces via bile. If liver dysfunction develops in the course of phenyramidol usage, the treatment should be discontinued. We were unable to find in the literature any publication concerning overdose of phenyramidol hydrochloride – either accidental or intentional. In our case, a patient ingested 16 units of 400 mg phenyramidol hydrochloride with the intent of committing suicide. Ours is the first article to be published on the subject of phenyramidol hydrochloride overdose.
**Key Words:** Attempted suicide, phenyramidol hydrochloride, increase of liver enzyme

**ÖZET** Feniramidol hidroklorür intranöronal blokaj yaparak kas gevşetici etki gösteren potent narkotik olmayan analjezik bir ajandır. Feniramidol glukuronik asit ile konjuge edilir ve primer olarak idrarla feniramidol glukuronid olarak atılır. Bazen feçes yoluyla da atılır. Şayet feniramidol kullanımına bağlı karaciğer enzim yükselmesi varsa tedavi sonlandırılmalıdır. Literatürde yüksek doz feniramidol hidroklorür kullanımı ya da intihar amaçlı yüksek doz feniramidol hidroklorür kullanımına dair bir yayın bulunamamıştır. Bu yazıda intihar amaçlı 16 adet feniramidol hidroklorür 400 mg alan bir hasta tartışılmıştır. Bu olgu sunumu yüksek doz feniramidol hidroklorür kullanımına bağlı yayınlanacak olan ilk makaledir.
**Anahtar Kelimeler:** İntihar girişimi, feniramidol hidroklorür, karaciğer enzim yükselmesie

## Introduction

Phenyramidol was first introduced in clinical practice in 1960 (1). It is used on patients with acute and chronic musculoskeletal disorders. It is available in oral and injectable forms and administered at doses of 400-3200 and 800 mg/d, respectively (2). Phenyramidol is conjugated in the liver with glucuronic acid and is primarily excreted as phenyramidol glucuronide in urine. Some is also excreted in feces via bile. The distribution, metabolism, and excretion of phenyramidol in dogs were studied by Miller. Preliminary investigations had shown that very little, if any, phenyramidol was excreted unchanged in the urine of dogs. However, radioactive tracer studies had demonstrated the presence of some form of phenyramidol in the tissue and urine of dogs over long periods of time (72 hours) following oral administration (3). If liver dysfunction develops in the course of phenyramidol usage, the treatment should be discontinued (4).

In this article, a case is presented in which an overdose of phenyramidol, frequently used in this country as a muscle relaxant and analgesic, elevated the patient's liver enzyme levels.

## Case

In our case, a 40-year-old female patient was admitted to the emergency service of Nusaybin State Hospital 5-6 hours after allegedly attempting suicide by ingesting 16-17 units of 400 mg phenyramidol hydrochloride (Cabral). The patient was examined and her general condition found to be moderate, conscious, lucid, and cooperative; BP 100/78 mmHg, pulse 86 bpm. Her heartbeat was normal and rhythmic. Both her lungs sounded normal and were participating equally in respiration. Abdominal examination revealed the patient to be experiencing pain and nausea. There was no rigidity or tenderness. The patient's other systemic examinations were normal. Poison Information Centre, upon consultation, indicated there was insufficient data regarding phenyramidol hydrochloride overdose. 0.9% NaCl fluid support was administered intravenously, as were 50 mg of metaclopramide HCl and 10 mg of ranitidine. A nasogastric tube was inserted. Gastric lavage was performed, but no drug particles were detected. 1 mg/kg activated charcoal was administered. The patient was admitted to the hospital for observation. The results of the first of her blood test were: AST 131 U/L, ALT 96.9 U/L. Other parameters were within normal ranges: Hct 39.7%, Hgb 13.3 g/dL, glucose 136 mg/dL, blood urea nitrogen 23 mg/dL, uric acid 4.3 mg/dL, creatinine 0.71 mg/dL, albumin 4.79 g/dL, sodium (Na) 139 mmol/L, potassium (K) 4 mmol/L, chloride (Cl) 108 mmol/L. 6 hours later, AST and ALT were measured at 131.3 U/L and 139.1 U/L, respectively. There were no abnormalities in the other parameters. At 15 hours after her initial tests, AST was 56 U/L and ALT was 50.4 U/L; on the third day following the initial tests, AST was 16.2 U/L and ALT was 50.4 U/L. There were no abnormalities in her other parameters. There were no viral infections, alcohol use, blood transfusions, history of recent surgery, use of herbal products, or drug use in the patient's history that would increase liver enzyme. One week after admission, the patient's liver enzyme levels and other blood parameter values were all normal.

## Discussion

Phenyramidol HCl has properties of a centrally-acting muscle relaxant and an analgesic. It is chemically unrelated to any other muscle relaxant or non-narcotic analgesic. It exerts its myorelaxant effect via blocking polysynaptic reflexes. Its analgesic activity is through interneuronal blocking, and this mechanism can alleviate painful muscle spasms without impairing normal neuromuscular function (5). It is not available in the US or, with the exception of Turkey, in Europe (2). Drugs can be subdivided into 2 main categories according to their mechanism of hepatic injury. The first group consists of agents that are intrinsically hepatotoxic, leading to injury in a dose-dependent and predictable manner. The second group consists of agents that lead to unpredictable (idiosyncratic) hepatic injury in a non-dose-dependent manner (6). When administered together with anticonvulsants, phenyramidol HCl may increase the anticonvulsant plasma levels and thus may cause nystagmus, ataxia, and mental changes. Therefore, concomitant use should be avoided with these kinds of drugs (3). In our case, no chronic drug usage by the patient was reported; the increase in liver enzyme occurred as a result of her use of phenyramidol for her suicide attempt. N. Ozcan and E.D. Ikinciogullari, in 2007 in "Study, Performed for the National Poison Information Center, of the Applications of a Centrally Acting Muscle Relaxant Medication", published the results of their examination of a total of 488 patients exposed to phenyramidol. In 168 of those cases, those exposed were between the ages of 1 and 4. The number of cases of suicide by phenyramidol was as high as 240. In spite of this fact, the poison information center has no detailed information on the results of those cases. In 2003 in their article "Phenyramidol-Associated Liver Toxicity", Aydin S. Koksal et al reported the occurrence of elevated liver enzyme in a patient who used 400 mg of phenyramidol twice a day for lower back pain. There are no publications in the literature in the form of case reports of phenyramidol intoxication.

To conclude, phenyramidol HCl is considered a nontoxic medication. It is widely prescribed in Turkey as a muscle relaxant and analgesic. A large number of cases related to phenyramidol HCl intoxication have been reported to our country's National Poison Information Center.

We believe this article is a necessary contribution to the relevant literature.

**Conflict of Interest**
**Authors reported no conflicts of interest.**

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