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Selected Topics: Toxicology

OVERDOSE OF PROPAFENONE SURREPTITIOUSLY SOLD AS "PERCOCET"

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□ **Abstract—Background: Drug abuse is a common problem in the United States. Drugs can be acquired in many ways, and can be knowingly or mistakenly misrepresented when sold. Propafenone is an uncommonly encountered class IC antidysrhythmic that is a look-alike for the opioid, oxycodone/acetaminophen 5/325. Objective: We report a case of propafenone overdose presenting with generalized tonic-clonic seizure and a widened QRS complex, occurring after the patient had reported ingesting "Percocet®" (Endo Pharmaceuticals, Chadds Ford, PA). Case Report: A 17-year-old boy presented to the emergency department (ED) after a witnessed seizure lasting 2 min. The patient reported having ingested 6 "Percocet®" tablets that he purchased from a classmate. He noted feeling weak and dizzy approximately 3 h after the ingestion, just before the seizure. On arrival in the ED, the patient was awake and alert with a QRS length of 168 ms. A sodium bicarbonate bolus and infusion shortened the QRS length to 90 ms. The patient was discharged the following day with no further complications. The pills were identified as propafenone hydrochloride (HCl) 225-mg tablets. The classmate surreptitiously sold the pills as "Percocet®" due to their similar "512" imprint. Conclusions: Pharmaceutical drugs are often sold on the street, and often misrepresented. Propafenone HCl 225-mg is an uncommonly encountered pharmaceutical, but is a look-alike for oxycodone/acetaminophen 5/325. An overdose due to propafenone ingestion may present with seizures and a widened QRS complex. © 2011 Elsevier Inc.**

□ **Keywords—propafenone; Percocet; cardiac dysrhythmia; seizure**

INTRODUCTION

Drug abuse is a common problem in the United States (US). Prescription drugs can be obtained in many ways, and then sold to the general public for consumption with little or no regard for side effects. These pharmaceuticals can be knowingly or mistakenly misrepresented when sold to unsuspecting consumers. Propafenone is an uncommonly encountered class IC antidysrhythmic with sodium channel, calcium channel, and beta-adrenergic receptor blocking properties that is a look-alike for the opioid, Percocet® (Endo Pharmaceuticals, Chadds Ford, PA) (oxycodone/acetaminophen 5/325). Propafenone is an antidysrhythmic used extensively in Europe, and is similar to flecainide and encainide. Clinical manifestations of propafenone overdose are similar to other pharmaceuticals with sodium channel blocking properties (e.g., cyclic antidepressants and local anesthetics).

CASE REPORT

A 17-year-old boy presented to the Emergency Department (ED) after a witnessed seizure lasting approximately 2 min. After a brief post-ictal period, the patient reported having ingested 6 "Percocet®" tablets that had been purchased from a classmate. He noted feeling weak and dizzy approximately 3 h after the ingestion, just before the seizure. On arrival in the ED, the patient was awake, alert, and in no distress. The initial vitals signs

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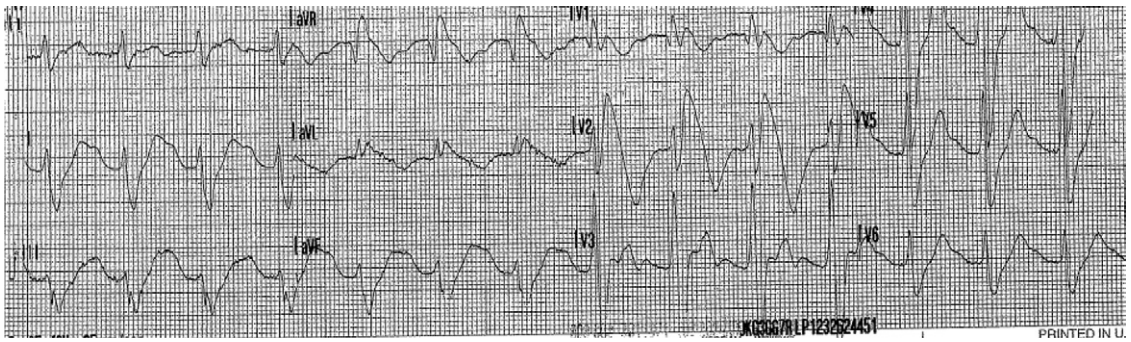

Figure 1. Prehospital wide-complex rhythm strip.

were: temperature 36.7°C, pulse 88 beats/min, blood pressure 118/78 mm Hg, respiratory rate 16 breaths/min, and oxygen saturation by pulse oximetry was 100%. The blood glucose level was 101 mg/dL. The physical examination was normal except for abrasions to the face and left hand, felt to be consistent with seizure activity. A prehospital rhythm strip revealed a wide-complex rhythm (Figure 1). An electrocardiogram (ECG) was performed in the ED that demonstrated a normal sinus rhythm at 91 beats/min, with a QRS length of 168 ms, a terminal R wave in aVR > 4 mm, and a QTc of 543 ms (Figure 2).

In consultation with medical toxicologists from the local poison control center, intravenous sodium bicarbonate was administered as two boluses of 1 mEq/kg followed by a continuous infusion at a rate of 0.5 mEq/kg/h. At this time the pills were unidentified, and sodium bicarbonate was recommended for treatment of a suspected cyclic antidepressant ingestion. The QRS length decreased to 90 ms, and remained normal for the next 8 h while the patient received continuous sodium bicarbonate infusion (Figure 3). Laboratory findings were significant for a normal chemistry profile, acetaminophen

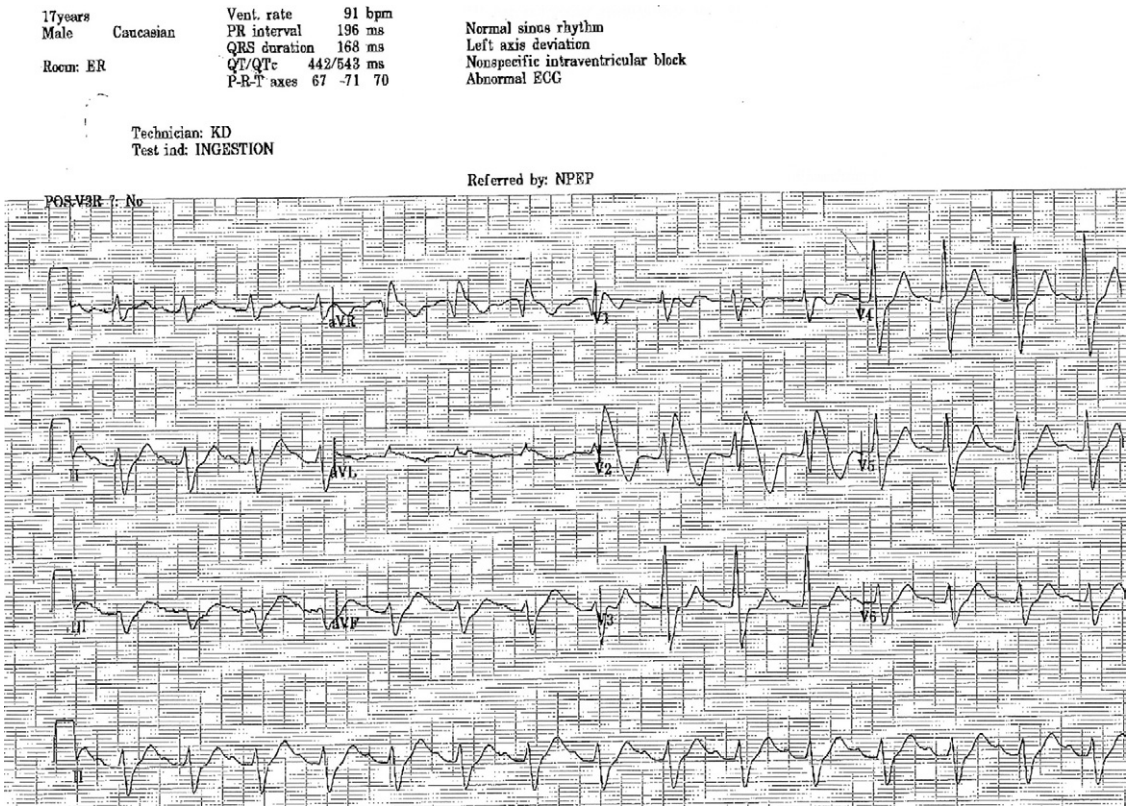

Figure 2. Electrocardiogram performed on arrival demonstrating prolonged QRS.

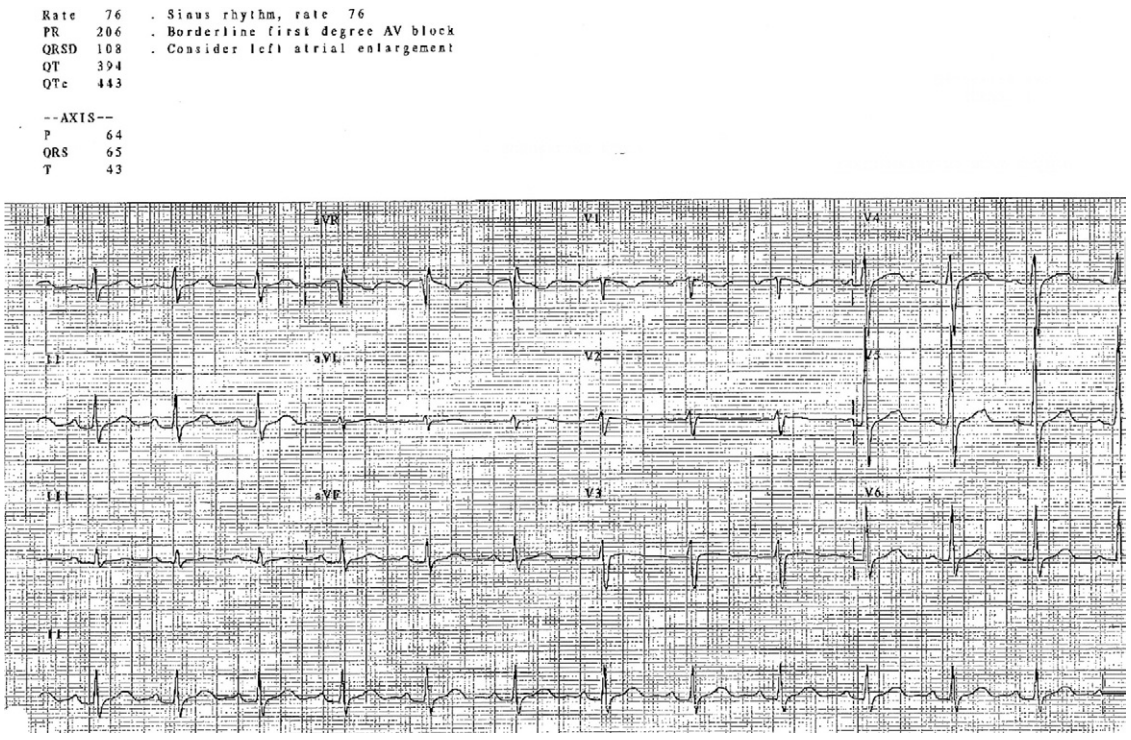

Figure 3. Electrocardiogram demonstrating normalized QRS length during continuous infusion of sodium bicarbonate.

level < 10 mg/L, and a negative urine drug screen that included tricyclic antidepressants.

Several hours after presentation, some sample pills were brought to the ED, and were identified as propafenone hydrochloride (HCl) 225-mg tablets. By history, the patient ingested a total dose of 1350 mg, or three times the typical starting total daily dose. The patient believed the pills he bought from his classmate were "Percocet®" tablets due to the distinctive "512" imprint. The classmate later admitted to the police that he surreptitiously sold his deceased grandmother's propafenone tablets as "Percocet®."

The patient's hospital stay was uneventful, and the QRS length remained normal upon discharge the next day, 8 h after discontinuation of the sodium bicarbonate infusion.

DISCUSSION

Propafenone HCl (Rythmol®, Reliant Pharmaceuticals, Inc., Liberty Corner, NJ) is US Food and Drug Administration-approved for use in decreasing the rate of recurrence of paroxysmal atrial fibrillation or flutter and supraventricular tachycardia in patients with disabling symptoms. Additionally, propafenone is indicated for patients with documented ventricular dysrhythmias that are deemed life threatening (1). Propafenone has significant prodysrhythmic effects, and is known to cause premature ventricular contractions, ventricular tachycardia, or ventricular fibrillation in therapeutic dosing. Therefore, propafenone is not frequently used, and is reserved for those patients in whom the risk-to-benefit ratio is favorable.

When administered orally, propafenone is almost completely absorbed, but a substantial amount is not bioavailable due to extensive first-pass metabolism. The peak plasma concentrations are reached approximately 3.5 h after administration (1). Propafenone is metabolized by cytochrome P450 2D6 (CYP2D6), CYP1A2, and CYP3A4, and therefore is susceptible to significant drug interactions (1). This is a major consideration for patients taking the pharmaceutical chronically, especially when displaying signs of toxicity.

Propafenone exerts its antidysrhythmic effects by blocking sodium channels, calcium channels, and beta-adrenergic receptors. In overdose, propafenone may closely resemble cyclic antidepressant toxicity due to similar sodium channel blocking properties (2). The slowing of the fast inward sodium current (Phase 0) manifests as a prolonged QRS on the ECG. In addition to sodium channel blockade, propafenone also possesses minor beta-adrenergic receptor and calcium channel blocking effects (3–5). These effects are most likely the underlying cause for a relative bradycardia sometimes noted with

propafenone overdose. This absence of tachycardia may help distinguish propafenone overdose from cyclic antidepressant toxicity, as in this case.

Patients presenting with propafenone toxicity after acute overdose typically display lightheadedness, hypotension, and seizures, but may also present with congestive heart failure, especially with chronic use (4). The typical ECG findings include a relative bradycardia and prolonged QRS length, but other findings have been described, including bundle branch block, prolonged PR interval, prolonged QT interval, and ventricular tachycardia (4,5).

The use of sodium bicarbonate in the treatment of propafenone overdoses has been described before, but has not been universally accepted. Pentel et al. describe hypertonic sodium bicarbonate as ineffective at decreasing QRS in patients taking class IC antidysrhythmics (6). Some have suggested that the administration of an anticonvulsant is crucial in the treatment of seizures associated with propafenone overdose (7). Other therapies described in the literature include catecholamine administration for hypotension and transvenous cardiac pacing (3). However, the mainstay of therapy for sodium channel-blocking agent toxicity is sodium bicarbonate. In the case we present here, our patient improved rapidly and remarkably with 50 mEq of sodium bicarbonate and had no recurrence of the ECG abnormalities while treated with a continuous sodium bicarbonate infusion.

Misrepresentation of street drugs has been described in the past, but very few current data exist on how often this occurs (8–10). When prescription drugs are sold as "look-alike" medications, consumers are at a very high risk of having an adverse reaction, as described in this case. More commonly, prescription drugs are surreptitiously sold as pharmaceuticals with similar effects, or within the same drug class. For instance, tramadol may be surreptitiously sold as oxycodone, or diazepam sold as alprazolam. A previously described clinical problem is the sedating antipsychotic, haloperidol, surreptitiously sold as "street Xanax" or "street Valium." Patients ingesting these drugs may present with dystonic reactions after unknowingly ingesting the antipsychotic (11,12).

CONCLUSION

We report a case of a widened QRS complex and generalized tonic-clonic seizure due to propafenone overdose that was successfully treated with sodium bicarbonate continuous infusion. Propafenone HCl 225-mg is a look-alike for oxycodone/acetaminophen 5/325, and may be used surreptitiously in the street sale of pharmaceutical opioids.

REFERENCES

1. Rythmol® (Propafenone HCl) full prescribing information. Liberty Corner, NJ: ©Reliant Pharmaceuticals, Inc.; Revised 2004.
2. Hollowell H, Mattu A, Perron AD, Holstege C, Brady WJ. Wide-complex tachycardia: beyond the traditional differential diagnosis of ventricular tachycardia vs supraventricular tachycardia with aberrant conduction. Am J Emerg Med 2005;23:876–89.
3. Kerns W 2nd, English B, Ford M. Propafenone overdose. Ann Emerg Med 1994;24:98–103.
4. Clarot F, Goullé JP, Horst M, Vaz E, Lacroix C, Proust B. Fatal propafenone overdoses: case reports and a review of the literature. J Anal Toxicol 2003;27:595–9.
5. McHugh TP, Perina DG. Propafenone ingestion. Ann Emerg Med 1987;16:437–40.
6. Pentel PR, Fifield J, Salerno DM. Lack of effect of hypertonic sodium bicarbonate on QRS duration in patients taking therapeutic doses of class IC antiarrhythmic drugs. J Clin Pharmacol 1990;30:789–94.
7. Molia AC, Tholon JP, Lamiable DL, Trenque TC. Unintentional pediatric overdose of propafenone. Ann Pharmacother 2003;37:1147–8.
8. Falck R, Seal M. Street drug misrepresentation. JAMA 1980;244:332.
9. Morgan JP, Wesson DR, Puder KS, Smith DE. Duplicitous drugs: the history and recent status of look-alike drugs. J Psychoactive Drugs 1987;19:21–31.
10. Bryant SG. Street drug misrepresentation. JAMA 1980;244:2160.
11. Hendrickson RG, Morocco AP, Greenberg MI. Acute dystonia reactions to "street Xanax". N Engl J Med 2002;346:1753.
12. Demetropoulos S, Schauben JL. Acute dystonic reactions from "street Valium". J Emerg Med 1987;5:293–7.