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# Acute Propahenone Poising: A Case Report

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## ÖZET

***Akut Propafenon Zehirlenmesi***

*Giriş: Propofenon Hidroklorid 1C grubu antiaritmik ajandır.*

*Olgu Sunumu: İntihar amacıyla Propafenon (Rytmonorm) 300mg tabletlerden 10 adet alan 28 yaşında bayan hastanın başarılı tedavisini sunduk. Hastada koma, konvülziyon, bradikardi, hipotansiyon, ileti gecikmesi, ve ciddi atrioventriküler ve intraventriküler ileti bozuklukları gözlendi. Süratle dopamine ve bikarbonat infüzuna başlandı ve geçici elektrostimulatör uygulandı. Hastada kardiak arrest gelişmesi üzerine kardiyopulmoner resüstasyon uygulandı. İleti bozuklukları 6 saat daha devam etti ve 36 saat içerisinde azalarak ortadan kalktı. Hasta yatışının üçüncü gününde sinus ritminde ve iyi hemodinamik dengeyle taburcu edildi.*

***Tartışma**: Literatürde propafenonun farmakokinetiği ve intoksikasyonuyla ilgili yayınlar mevcuttur. Biz sık kullanımının aksine, düşük ölüm oranı taşıyan bu ilacı tartıştık. Gastrik lavaj, mekanik ventilasyon, alkalinizan solusyonların kullanılması ve ritm bozukluklarının yönetilmesi, bu vakadaki en önemli tedavi ölçütleridir.*

***Anahtar Kelimeler**: Propafenon, zehirlenme, intoksikasyon.*

## SUMMARY

***Acute Propaphenone Poisoning: A Case Report***

***Introduction**: Propaphenone hydrochloride is an antiarrhythmic which belongs to class 1C. In recent years it has been widely used in clinical medicine, mainly in the treatment of hyperkinetic arrhythmia.*

***Case report**: We describe the successful treatment of a 28-year old woman who ingested in a suicide attempt circa 10 pills each containing 300 mg of propaphenone (Rytmonorm). The patient showed coma, seizures, bradycardia, hypotension, conduction delay and severe atrioventricular and intraventricular conduction disorders; an infusion of bicarbonate and dopamine was immediately given and a temporary heart electro-stimulator was inserted. As the cardiac arrest was developed CPR performed. Intensive conduction disorders persisted for 6 hours and gradually disappeared over the course of 36 hours and the patient was discharged with sinusal rhythm and good hemodynamic balance on the third day after admittance.*

***Discussion**: The literature regarding propaphenone pharmacokinetic and intoxication is reviewed, and we discuss the low death rate attributed to this drug in contrast to its frequent use. Gastric lavage, mechanic ventilation, administration of alkalinization solutions and management of rhythm disorders were the most important therapeutic measures in this case.*

***Key words**: Prophaphenone, poisoning, intoxication.*

## INTRODUCTION

Propaphenone HCl, which was first synthesized in 1970, is a frequently-used, group 1C, anti-arrhythmic agent. Propaphenone is used with the following circumstances: symptomatic supraventricular tachycardia such as, AV nodal tachycardia, Wolf Parkinson White Syndrome or paroxysmal atrial fibrillation and serious, life threatening symptomatic ventricular tachyaritmias. (1) (2)

When taken orally, it metabolizes with a great extent in the liver and it converts to two active major metabolites. These are 5- hydroksypropaphenone and N-depropylpropaphenone, and they show their effects by blocking Phase 1-speed sodium channels. (3) (4)

Although its frequent clinical use, intoxications are rarely observed in therapeutic dosages. However, it has serious side-effects on cardiovascular system: A proarhythmic effect that causes a new arrhythmia or the worsening of an already existing arrhythmia may develop. This effect might seriously disturb the cardiac action and it may even cause a cardiac arrest. These proaryth-

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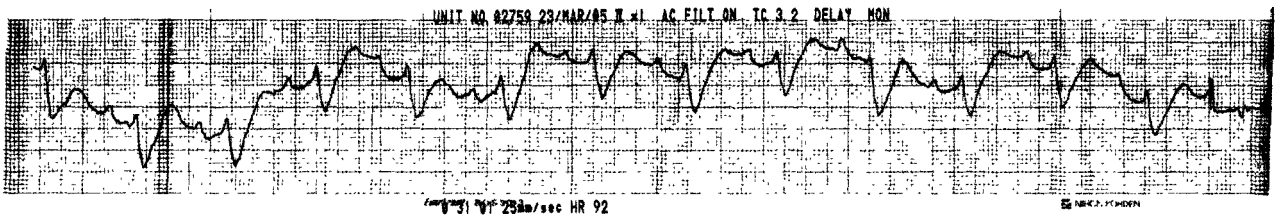

**Figure 1:** First-degree AV blockage, Long QT

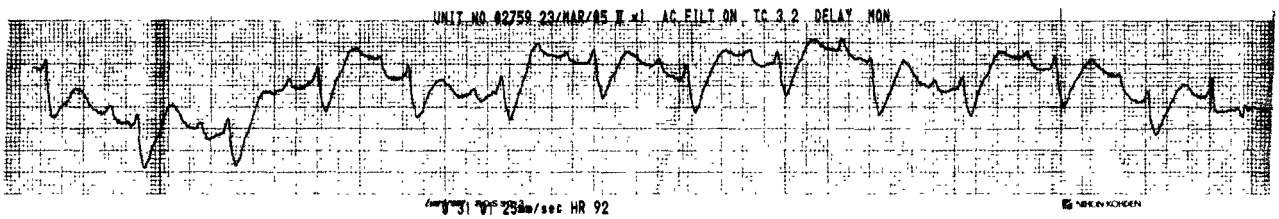

**Figure 2:** Pacemaker Rytm

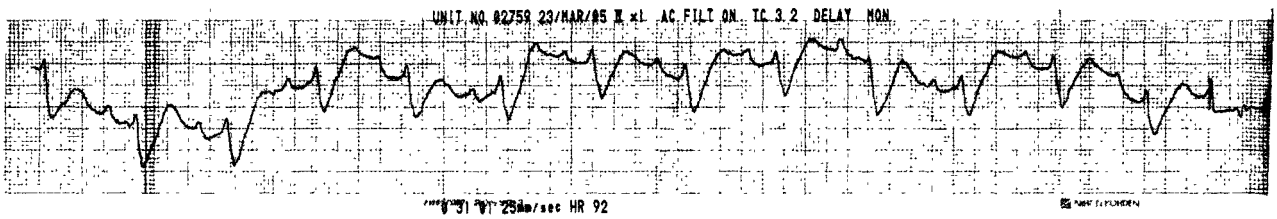

**Figure 3:** AV Dissosiation Rytm

mic effects can be observed as bradycardia, conduction disorders (synoatrial, atrioventricular or intraventricular blockage) heart rate acceleration (ventricular tachycardia). (4) (5)

In case of overdose, acutely developing, main clinical foundings are coma, hypotension, acidosis, synoatrial blockage, widened QRS, tachycardia, third-degree AV blockage, uneasiness, myoclonus and defibrillation-required ventricular arrhythmias. (4) (5) (6).

## CASE

Our patient is a 28-year old female; she has taken 10 pills of Propaphenone HCl (Rytmonorm) 300 mg at 22:00 to attempt suicide. She lost her consciousness while being taken to the emergency room by her relatives and she had convulsions. The patient came to the emergency room at 23:15. At the first examination, she was unconscious, her Glasgow Coma Score (GCS) was 7, spontaneous breathing was positive but superficial, and pulse was unmeasurable. Heart rate was: 30/min, NIBP was unmeasurable. LR: +/+. When stimulated with pain, she had tonic spasms.

The patient has a history of use of antidepressants due to depression. Following the first evaluation in the emergency room, the patient was admitted to the intensive care unit at 23:30 and monitorisation was applied. The patient, who had AV full blockage, was given 1 mg atropine. Arterial blood gases were measured and had the following values: pH: 7,09, pO2: 94,1 mmHg, pCO2: 42,0 mmHg, sO2: 94,2 % . The patient was intubated; the mechanical ventilation was started with the following values: Mode V-SIMV, f: 12/min, FiO2: 40 %, Vti: 500 ml. Then sedation was achieved by midazolam (6 mg/h). Nasogastric tube was applied and gastric lavage was made. Active coal and IV 100 ml NaHCO3 were given.

In the ECG, a 3rd degree AV blockage was observed and heart rate was 25-30/min. Arterial pressure was measured invasively from radial artery and IBP was 40/20 mmHg. Dobutamine infusion (10 $\mu$g/h) was started immediately. Fluid treatment was started with 1000 cc/h 0,9 % NaCl and applied for an hour and continued with a rate of 100 cc/h. Arterial blood pressure increased and urine output began.

At 00:05 the patient suddenly developed asystole and she was given 1 mg adrenaline and 1 mg atropine; she

was applied external cardiac massage. 3 minutes later, she responded to CPR, HR was found 52/min. Since the patient had 3rd degree AV blockage, external cardiac pacemaker was applied; her arterial blood pressure increased to 70/30 mmHg.

During the following 5 hours of treatment, the patient had improved her arterial blood pressure, heart rate, and arterial blood gases. The rhythm became AV dissosiation but QRS intervals narrowed. Cardiac pacemaker support was diminished.

After 7 hours since the invasive blood pressure was 140/70 mmHg, heart rate was 80/min and the rhythm was AV dissosiation, the external pacemaker was taken off. Then weaning started.

7 and a half hour after starting weaning the patient was extubated. She was conscious and coopered. Her blood gases had the following values: pH: 7.351, pO2: 105,2 mmHg, pCO2: 24,2 mmHg, sO2: 98,5 %.

At the end of the 36th hour following her admittance to the emergency room, since the patient had normal values, she was transferred to the Internal Medicine Clinic.

## DISCUSSION

Propaphenone HCl reaches high levels in the blood shortly after its intake. It is converted to two active metabolites also responsible for toxicity. Their amounts in the blood level increase. Arrhythmic symptoms, namely toxic effects, begin 150 min. after the intake of Propaphenone HCl. Our patient showed these toxic effects 60 min. after intake; they reached their maximum level after 120 min. This toxic state lasted for 4 hours.

**The treatment can be examined in two groups:**

1. Decontamination: Gastric lavage and active charcoal treatment are generally used in all oral toxic contaminations. (6) (7)

2. Supporting Treatment: If there is a serious arrhythmia in patients, pacemaker should be applied, from which patient benefit greatly. This treatment increases cardiac output and corrects the organ and tissue perfusion. Since the patients are inclined to be serious metabolic acidosis, they must be given NaHCO3. NaHCO3 corrects acidosis, the widened QRS and hypotension. Atropine or isoproterenol is used for bradycardia. Benzodiazepines are used to get rid of uneasiness and agitations. In this treatment, the use of heamodialysis is insignificant. (6)

## CONCLUSION

Propaphenone HCl intoxication causes serious arrhythmias and metabolic acidosis, and therefore, must be treated in the intensive care unit and the patients must be fully monitorised. The use of the following types of treatment is necessary: Gastric lavage, mechanical ventilation support, alkaline solutions, and cardiac electro-stimulators (pace maker). The cardiac electro-stimulators are crucial to get rid of rhythm disorders and it is a good method of treatment.

## BIBLIOGRAPHY


1- **Clarot F, Goulle 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(8):595–9.

2- **Ielasi G, Panagia M, Grasso L, Caminiti G.** Acute voluntary poisoning with propafenone. A clinical case. Minerva Anestesiol. 1993;59(1–2):69-73.

3- **Fonck K, Haenebalcke C, Hemeryck A, Belpaire F, Jordaens L, Calle P, Buylaert W.** ECG changes and plasma concentrations of propafenone and its metabolites in a case of severe poisoning. J Toxicol Clin Toxicol. 1998;36(3):247–51.

4- **Kayaalp S.Oğuz,** Clinical Pharmacology. 2000 Ankara; (1) pp 507-508

5- **Stancak B, Markovic P, Rajnic A, Petrikova V.** Acute toxicity of propafenone in a case of suicidal attempt. Bratisl Lek Listy. 2004;105(1):14–7.

6- **Jerrold B. Leikin, Frank P.Paloucek,** Lexi-comp's clinical reference library. Poisoning & Toxicology Compendium: pp 72 1998 p.72

7- **Maxeiner H, Klug E.** Lethal suicidal intoxication with propafenone, after a history of self-inflicted injuries. Forensic Sci Int. 1997 Sep 19;89(1–2):27–32.