

# Cardiac Arrest in Patient with Phencyclidine (PCP) Intoxication

Sonia Fnu<sup>1</sup>, Mukesh Kumar<sup>2\*</sup>, Hamza Ahsan<sup>3</sup>, Abbasi Abdul Rahman Ahemd<sup>3</sup>

<sup>1</sup>Department of toxicology, Albert Einstein college of Medicine, New York, USA; <sup>2</sup>Griffin Hospital and Montefiore Medical Center, New York, USA; <sup>3</sup>Montefiore Medical Center, New York, USA

## ABSTRACT

**Introduction:** Phencyclidine (PCP) is a least addictive drug due to its lack of CNS suppression like other drugs such as opioids, benzodiazepine and alcohol. Mortality from PCP is also not very common as it does not cause any direct toxic effects. However PCP intoxication is lethal through its secondary effects such, rhabdomyolysis, Acute renal failure, hyperkalemia and seizures.

**Case presentation:** Toxicity from PCP is dose dependent with various levels of CNS excitement based on the dose. We describe a case of a patient who presented to the emergency department with cardiac arrest. Patient had prolonged cardiac arrest on initial evaluation; the patient had potassium of 11.9 with acute renal failure and rhabdomyolysis. Patient admitted to ICU after initial resuscitation. Patient had a complicated ICU course with compartment syndrome and multiple organ failure. Wife reports the patient takes some substance before this event patient urine came back positive for phencyclidine.

**Discussion:** It is important to understand the lethality of phencyclidine. More commonly we discuss the high mortality from opioids with the patients but we do not discuss the mortality from other substances such as PCP, family and patients should be warn appropriately regarding the drugs which can cause death.

**Keywords:** Cardiac arrest; Phencyclidine; Hyperkalemia

## INTRODUCTION

Phencyclidine is a dissociative anesthetic and tranquilizer that at present is being abused as psychedelic and hallucinogenic agent with increasing frequency. PCP is considered as less addictive among all the illicit substances due to its unique mechanism of action and more CNS excitement than depressant. Also mortality from PCP is less compared to most common substances such as opioids, cocaine, alcohol. We present a Case report of a patient with PCP intoxication leading to cardiac arrest and death.

## CASE PRESENTATION

A 39 years old man with a history of substance abuse was brought to ER by EMS after the wife found the patient unresponsive. EMS arrived at home, found the patient in an asystole and initiated CPR. Total of 4 epinephrine, defibrillated twice as the patient has ventricular fibrillation. The patient then had PEA after a second defibrillation. Transported to the emergency department with CPR ongoing, the patient achieved Return to spontaneous circulation after 40 minutes. In the emergency department the patient again had cardiac arrest 4 rounds of epinephrine 1 mg administered along with 200 J shock and amiodarone 300 mg, ROSC achieved in 24 minutes. More than one hour later, while still in the ED,

the patient had another episode of pulselessness, during which 2 epinephrine 1 mg were administered, shocked with 200 J, ROSC achieved after 10 minutes. Initial labs as outlined below. Initial EKG with Junctional Rhythm. Echocardiography with severe Left ventricular dysfunction. Chest x-ray clear. CT head done initially unremarkable no stroke or anoxic damage but repeat CT after 48 h hour reveals severe global anoxic brain injury. Clinical examination revealed ecchymosis and swelling of the upper arm and forearm, no palpable pulses at the level of the wrist and hand was cold. Emergent bedside fasciotomy done for compartment syndrome. Unfortunately patients developed multiorgan failure, respiratory failure, renal failure, shock liver, cardiogenic shock and passed on day 6th of hospitalization (Table 1).

**Table 1:** Labs on presentation.

Mineral	Content
Potassium	11.7 meq/L
Sodium	139 meq/L
Creatinine	2.61 mg/dL
Blood urea nitrogen	31 mg /dL
Glucose	107 mg/dL
Bicarb	14 meq/L

**Correspondence to:** Mukesh Kumar, Griffin Hospital and Montefiore Medical Center, New York, USA, E-mail: dr.mukeshkotwani@gmail.com

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Creatinine kinase	80,000 U/L
Troponin	0.78 ng/mL
AST	7650 U/L
ALT	8000 U/L
urine Amphetamines, Benzodiazepines, cocaine, opiates, methadone, oxycodone	Negative
Urine THC, Urine PCP	Positive

## RESULTS AND DISCUSSION

Phencyclidine (PCP, "angel dust") is an infamous hallucinogenic sought for its ability to induce the illusion of euphoria, omnipotence, superhuman strength, and social and sexual prowess. Ketamine is the only one authorized for medical use [1]. Phencyclidine is available in multiple forms powder, tablet and crystals and liquids. Most commonly it is found in PCP-laced marijuana and inhalation accounts for 70% of usage [2-4]. PCP can produce CNS stimulation and depression through its different effects in the CNS. Clinical effects are dose dependents. At Low dose it causes euphoria, disorientation combativeness with high dose it causes muscle contraction, hyperthermia, convulsions, stupor and coma [5]. Muscle tone becomes exaggerated and patients exhibit hyperreflexia and myoclonic. Complications of this hypertonic muscle activity include hyperthermia and rhabdomyolysis [6]. Non-traumatic causes of death include cardiopulmonary arrest, intracranial hemorrhage in hypertension, and hyperkalemia secondary to rhabdomyolysis [7]. Our patient had multiple cardiac arrests. Initial evaluation showed hyperkalemia with potassium of 11.7 with severe rhabdomyolysis creatine Kinase of 80,000. Patient went into cardiac arrest with asystole and ventricular fibrillation. It could be possible that our patient had seizures from PCP overdose and developed compartment syndrome that led to severe rhabdomyolysis and hyperkalemia. Hyperkalemia is well known to cause various cardiac arrhythmia from ventricular fibrillation to asystole. Cardiac rhythm complications are directly proportional to level of hyperkalemia. Patients with values above 10 meq/L have high mortality from cardiac arrest. There have been few case reports reporting severe Rhabdomyolysis with PCP intoxication [8,9].

## CONCLUSION

Though PCP is not directly associated with high mortality as compared to other drugs such as opioids cocaine alcohol but it can be lethal through its indirect effect such as mentioned above like hyperthermia and rhabdomyolysis. Most of the time patients are not aware of the complete toxic profile of the uncommon drug like PCP and related compounds. It is very important to educate the patients who have a history of multiple substance abuse regarding the potentially lethal complication of PCP and should be discussed that even if taken occasionally it can be lethal.

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