

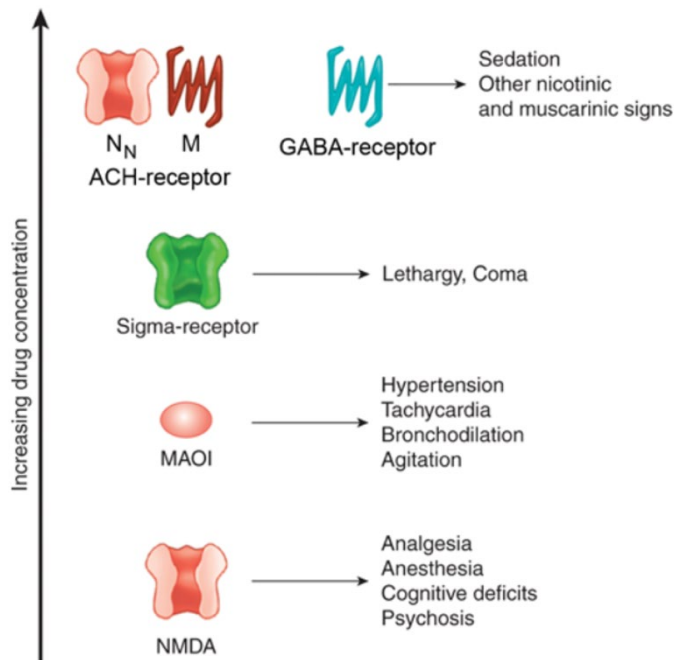


## Clinical Pharmacology & Toxicology Pearl of the Week

### ~ Phencyclidine (PCP) ~

#### What is PCP?

- ✓ A dissociative anesthetic abused for its psychoactive effects, reaching peak popularity in the 1970's
- ✓ Structurally similar to ketamine, with ketamine having one-tenth the potency as PCP with a shorter duration of action
- ✓ Non-competitive NMDA antagonist
- ✓ At escalating doses, stimulates biogenic amine reuptake complexes to block the re-uptake of dopamine and norepinephrine
- ✓ Can also bind sigma, acetylcholine and GABA receptors at high concentrations
- ✓ Street names: "angel dust", "peace pill", "sawgrass" and "rocket fuel"



From Goldfrank's Toxicologic Emergencies, 11<sup>th</sup> ed.

#### Clinical Presentation

- ✓ Onset of action is most rapid from the IV and inhalational routes (2-5 minutes), and slowest following gastrointestinal absorption (30-60 minutes)
- ✓ Signs and symptoms of toxicity usually last 4-6 hours, with large overdoses generally resolving within 24-48 hours
- ✓ Wide range of symptoms due to PCP's dissociative, sympathomimetic, muscarinic and nicotinic properties:
  - Neurological → agitation, confusion, hallucinations, delusions, violent behaviours, seizures, ataxia, muscle rigidity, coma
  - Cardiovascular → hypertension (60%), tachycardia (30%), hyperthermia (2.6-4%) or hypothermia (6.4%) depending on degree of agitation and environmental conditions
  - HEENT → nystagmus (60-90%), miosis

- Psych → feelings of strength, invulnerability, and violence
- ✓ Morbidity and mortality are related to associated trauma, rhabdomyolysis, seizures, and hypertensive crises

### **Investigations**

- ✓ Usually a clinical diagnosis
- ✓ Evaluate for other dangerous effects of PCP: occult trauma, rhabdomyolysis, hypoglycemia, hepatic injury due to hyperthermia, end-organ damage due to hypertensive emergency
- ✓ Urine drug screen:
  - Can detect PCP for 2-4 days after use, and can be positive for > 1 week
  - False positives can result from Dextromethorphan, Chlorpromazine, Methadone, Ketamine, Diphenhydramine, Venlafaxine, Tramadol

### **Management**

- ✓ Gastrointestinal decontamination is generally unnecessary, but activated charcoal may be beneficial with massive ingestions or for dangerous co-ingestions
- ✓ Environmental sensory deprivation by placing the patient in a quiet room with dimmed lights may be beneficial
- ✓ Chemical sedation as needed with benzodiazepines for agitation and violence
- ✓ Benzodiazepines are also the first-line treatment for PCP-induced hypertension, seizures, and hyperthermia secondary to psychomotor agitation in addition to cooling
- ✓ Hypertension persisting after benzodiazepines with signs of end-organ damage can further be treated with phentolamine or nitroprusside
- ✓ Treat rhabdomyolysis with adequate hydration with IV fluids

## References

1. Nelson L, Lewin N, Howland M, Hoffman R, Goldfrank L, Flomenbaum N. Goldfrank's Toxicologic Emergencies. 11<sup>th</sup> ed. New York: McGraw Hill Medical; 2019
2. Bey T, Patel A. Phencyclidine intoxication and adverse effects: a clinical and pharmacological review of an illicit drug. Cal J Emerg Med. 2007 Feb;8(1):9-14.
3. Journey J, Bentley T. Phencyclidine Toxicity. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan.

**The Clinical Pharmacology (CP) physician consultation service is available Mon-Fri, 8am-5pm. The on-call physician is listed in ROCA on the AHS Insite page. CP consultations are also available through Netcare e-referral, Specialist Link and through RAAPID. You can also find us in the [Alberta Referral Directory](#) (ARD) by searching "Pharmacology" from the ARD home page. Click [HERE](#) for more details about the service.**

**The Poison and Drug Information Service (PADIS) is available 24/7 for questions related to poisonings. Please call 1-800-332-1414 (AB and NWT) or 1-866-454-1212 (SK). Information about our outpatient Medical Toxicology Clinic can be found in [Alberta Referral Directory](#) (ARD) by searching "Toxicology" from the ARD home page.**

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