OPIOID OVERDOSE

(*Last updated 05/02/2019; Reviewers: Matthew D. Sztajnkrycer, MD, PhD; Naresh Veerabattini, MBBS)*

PRESENTING COMPLAINT: Depressed mental status, constricted pupil

FINDINGS

- **A** **Secure** airway
- **B** ↓RR
- **C** ↓BP, ↓HR
- **D** Coma (V,P,U)*, pinpoint pupils
- **E** Needle track marks
- **L_{PC}** ABG (↓PH, ↑pCO2)
- **U_{PC}** Not pertinent

***V** (verbal), **P (**pain), **U** (unconsciousness), **D** (delirious)

U_{PC} (point of care ultrasound) **L_{PC}** (point of care labs)

OTHER HISTORY

Predisposing factors: Therapeutic use of opioid, recreational use, intended self-harm, attempt to hide drugs from law enforcement, accidental exposure in pediatric patients

Sign and symptoms

Decreased bowel sound, normal pupil examination does not exclude opioid toxicity

Opioid toxidrome: Clinical triad of respiratory depression (<12 breaths per minute), CNS depression, and miosis. May be noted with clonidine, imidazolines, olanzapine, organophosphates, and carbamates

DIFFERENTIAL DIAGNOSIS

- Other CNS depressant overdose (e.g., ethanol, benzodiazepines), cerebrovascular accident (pontine hemorrhage), sepsis

OTHER INVESTIGATIONS

- **Labs:** Serum- glucose, acetaminophen, creatine phosphokinase; Urine- Screening for drugs of abuse to detect heroin, morphine, and codeine; may be ineffective in detecting other opioids like methadone, oxycodone, hydrocodone, hydromorphone, and fentanyl.
- **Monitor:** Continuous Pulse oximetry, cardiac monitoring if co-ingestion is suspected, $Etco_2$.
- **Imaging:** CXR if adventitious lung sounds or hypoxia present, ECHO if self-harm or co-ingestion with cocaine is suspected, Abdominal imaging if body packing/stuffing is suspected.

THERAPEUTIC INTERVENTIONS

- **Medications**: Naloxone (Buprenorphine overdose may not respond to Naloxone and longer acting agents, e.g., methadone requires several doses); naloxone administration may precipitate seizures in tramadol intoxication. Due to the efficacy of naloxone, it should be administered prior to definitive airway management in patients with presumed opioid toxicity and severe respiratory depression/arrest. Naloxone continuous infusion often needed
- **Procedures:**
    1) Support airway and breathing: trial of noninvasive ventilation, intubate if unable to protect the airway
    2) Cardiac support if co-ingestion with the cardiotoxic drug.
    3) Whole bowel irrigation after confirmation of bowel sounds in case of body stuffing and operative intervention if gastrointestinal obstruction/perforation is suspected.
    4) ECG if suspecting methadone overdose (QTc prolongation)
- **Consult:** Poison control/Toxicology.

ONGOING TREATMENT

Follow-Up: Psychiatric evaluation for intentional overdose and counseling if overdose during recreational use

Manage Complications: Acute lung injury may require mechanical ventilation, QTc prolongation requires cardiac monitoring with avoidance of other QTc prolonging agents and electrolyte deficiencies (hypokalemia, hypomagnesemia, and hypocalcemia). Massive opioid overdose if rupture of ingested packets.

CAUTION

Complications: Overshoot of naloxone dose may precipitate acute opioid withdrawal, which should be managed expectantly. Dosing of naloxone is aimed to reverse the life-threatening effects of opioids while avoiding withdrawal. It should be titrated to the reversal of significant respiratory depression, and not to pupil size. It has a short half-life of 1 hour. Therefore, it may need to be re-dosed.

Other reversal agents include naltrexone and nalmefene.

REFERENCES & ACKNOWLEDGMENTS

Acknowledgment: *Muhammad Rishi, MD; Namita Jayaprakash, MD*

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