Opioid Poisoning or Overdose

Aliases

Carfentanil, Dilaudid®, drug abuse, EVZIO®, fentanyl, heroin, hydrocodone, hydromorphone, methadone, morphine, naloxone, Narcan®, opiate, opioid, overdose, oxycodone, Oxycontin®, Percocet®, Percodan®, Suboxone, U-47700, Vicodin®

Patient Care Goals

1. Rapid recognition and intervention of a clinically significant opioid poisoning or overdose.
2. Prevention of respiratory and/or cardiac arrest.

Patient Presentation

Inclusion Criteria

Patents exhibiting miosis (pinpoint pupils), decreased mental status, and respiratory depression of all age groups with known or suspected opioid use or abuse.

Exclusion Criteria:

Patients with altered mental status exclusively from other causes (e.g. head injury, or hypoglycemia).

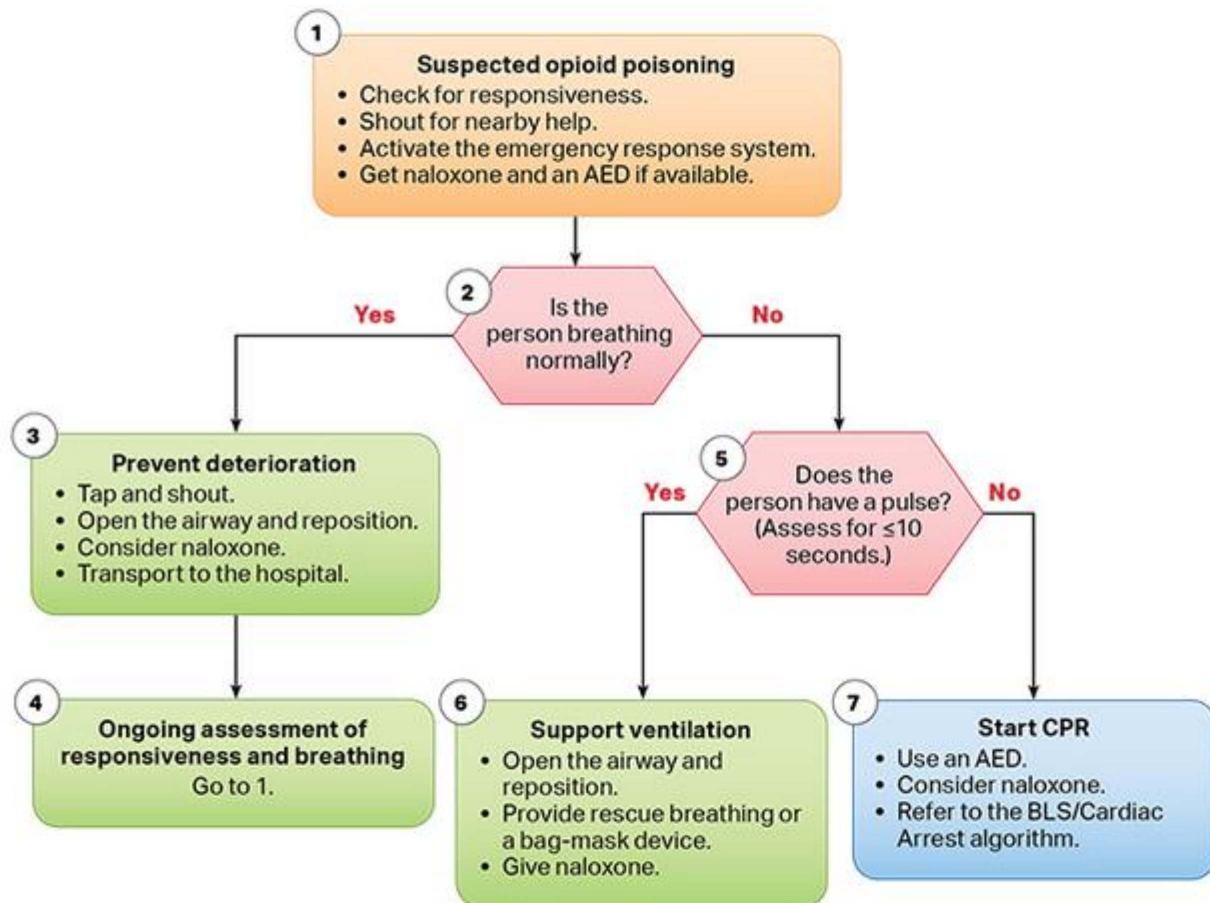
Patient Management

1. Don appropriate PPE with special consideration to potential airborne and/or skin contact with unknown substances present at scene and/or on person.
2. Initiate therapeutic interventions to support the patient's airway, breathing, and circulation prior to the administration of naloxone.
3. Identify specific medication taken (including immediate release versus sustained release) time of ingestion, and quantity, if possible.
4. Obtain and document pertinent cardiovascular history or other prescribed medications for underlying disease.
5. Be aware that unsecured hypodermic needles may be on scene if the intravenous route may have been used by the patient, and that there is a higher risk of needle sticks during the management of this patient population which may also have an increased incidence of blood-borne pathogens.
6. Consider **Naloxone**, an opioid antagonist, for administration to patients with respiratory depression in a confirmed or suspected opioid overdose.
7. Be aware that Naloxone administration:
    - Via the intravenous route provides more predictable bioavailability and flexibility in dosing and titration.
    - Via the intranasal or intramuscular routes or as a nebulized solution provides additional options of medication delivery.
8. If naloxone was administered to the patient prior to the arrival of EMS, obtain the dose and route through which it was administered and, if possible, bring the devices containing the dispensed naloxone with the patient along with all other medications on scene.

Assessment

1. Assess the patient's airway, breathing, circulation, and mental status.
2. Support the patient's airway by positioning, oxygen administration, and ventilator assistance with a bag valve mask if necessary.
3. Assess the patient for other etiologies of altered mental status including hypoxia (pulse oximetry less than 94%), hypoglycemia, hypotension, and traumatic head injury.
4. Remove any adhesive patches from the skin (legally prescribed opioids manufactured for transdermal absorption), if found.

Treatments and Interventions



1. Check responsiveness.
2. Assess breathing.
3. Prevent deterioration.
4. Conduct ongoing assessment.
5. Assess pulse.
6. Support ventilation
7. Naloxone can be administered via the **Auto-Injector [EMR], IV [AEMT], IM [EMT], IN [EMR], or ETT [PARA]** routes. (As the ETT route is not very effective, its use should be reserved for dire circumstances with a patient in extremis with no other choice)
    1. Adults: The typical initial adult dose ranges between 0.4–2 mg IV, IM, up to a dose of 4 mg IN or 5 mg ETT
    2. Pediatrics: The pediatric dose of naloxone is 0.1 mg/kg IV, IM, IN, or ETT
        a. Maximum dose of 2 mg IV, IM, or ETT
        b. Maximum dose of 4 mg IN
    3. **May repeat dose every 5 minutes. If minimal response to naloxone, consider stopping at 6mg IV/IM or 3 administration Intra-Nasal**
        a. Consider co-ingestions or other causes of respiratory depression
8. Start CPR, per resuscitaiton alogirthms

Patient Safety Considerations

1. Clinical duration of naloxone
    a. The clinical opioid reversal effect of naloxone is limited and may end within an hour whereas opioids often have a duration of 4 hours or longer.
    b. Monitor the patient for recurrent respiratory depression and decreased mental status.

2. Opioid withdrawal
    a. **Be aware that patients with altered mental status secondary to an opioid overdose may become agitated or violent following naloxone administration due to opioid withdrawal. Therefore the goal is to use the lowest dose possible to avoid precipitating withdrawal**.
    b. **Be prepared for this potential scenario and take the appropriate measures in advance to ensure and maintain scene safety.**
3. **EMS providers should be prepared to initiate airway management before, during, and after naloxone administration and to provide appropriate airway support until the patient has adequate respiratory effort.**

Notes and Educational Pearls Key Considerations

- The essential feature of opioid overdose requiring EMS intervention is respiratory depression or apnea.
- Some opioids have additional toxic effects (e.g. methadone can produce QT prolongation, and tramadol can produce seizures).
- High-potency opioids:

- Fentanyl is 50–100 times more potent than morphine. It is legally manufactured in an injectable and oral liquid, tablet, and transdermal (worn as a patch) forms, however much of the fentanyl adulterating the heroin supply are illegal fentanyl analogs such as acetyl fentanyl.
- Carfentanil is 10,000 times more potent than morphine.
    - It is legally manufactured in a liquid form, however, a powder or tablet is the most common form of this drug in illegal production.
    - In the concentration in which it is legally manufactured (3 mg/mL), an intramuscular dose of 2 mL of carfentanil will sedate an elephant.
- Synthetic opioids (e.g. W-18, are 10,000 times more potent than morphine).
- Many synthetic opioids are not detectable by routine toxicology screening assays.

- Patients with opioid overdose from fentanyl or fentanyl analogs may rapidly exhibit chest wall rigidity and require positive end expiratory pressure (PEEP), in addition to multiple and/or larger doses of naloxone, to achieve adequate ventilation.
- PPE that provides additional cutaneous, respiratory, or ocular protection may be considered when providing care in jurisdictions experiencing an increased incidence of overdose from high potency opioids.

Pertinent Assessment Findings

- The primary clinical indication for the use of opioid medications is analgesia.
- In the opioid overdose scenario, signs and symptoms include:
    - Miosis (pinpoint pupils).
    - Respiratory depression.
    - Decreased mental status.
- Additional assessment precautions:
    - The risk of respiratory arrest with subsequent cardiac arrest from an opioid overdose as well as hypoxia (pulse oximetry less than 94%), hypercarbia, and aspiration may be increased when other substances such as alcohol, benzodiazepines, or other medications have also been taken by the patient.
    - **Pediatric Considerations:** The signs and symptoms of an opioid overdose may also be seen in newborns who have been delivered from a mother with recent or chronic opioid use. Neonates who have been administered naloxone for respiratory depression due to presumed intrauterine opioid exposure may be narcotic dependent and should be monitored closely for seizures.

Quality Improvement

Associated NEMSIS Protocol(s) (eProtocol.01)

- 9914219—Medical-Opioid Poisoning/Overdose

Key Documentation Elements

- Rapid and accurate identification of signs and symptoms of opioid poisoning
- Pulse oximetry (oxygen saturation) and, if available, capnometry or capnography
- Blood glucose assessment
- Naloxone dose and route of administration
- Clinical response to medication administration
- Number of doses of naloxone to achieve a clinical response

Performance Measures

- Clinical improvement after prehospital administration of naloxone
- Frequency of patients who develop adverse effects or complications (recurrent respiratory depression or decreased mental status, aspiration pneumonia or pulmonary edema)
- Number of patients who refuse transport following naloxone administration

References

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