Emergency Report Outline

Drug Overdose – Opioids (heroin, fentanyl) and prescription drugs (oxycontin)

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Etiology/Pathophysiology

- Opioids: a class of drugs categorized as "depressants" and belong to the class of *narcotic analgesics*.
  - Opioids can originate from the opium poppy (morphine), semisynthetics (heroin), and/or synthetic compounds (fentanyl). This drug group is typically used for pain management, both chronic and/or acute, cough suppression, and to provide some level of sedation.
  - The effects of opioids analgesics are produced by binding to opioid receptors in the CNS. This relationship produces slowed transmission of nociceptive input from the periphery to the spinal cord, altered limbic system activity, and activation of pathways that modulate transmission in the spinal cord. This complex cascade results in dopamine release and blockade of pain signals causing a sensation of euphoria.
    - An overdose occurs when the concentration of an opioid in the bloodstream causes this effect to be too excessive for the CNS, especially, the medulla. This toxicity is considered a **medical emergency.**
    - Intoxication can rapidly progress to overdose depending on the half-life of the opioid used. If another depressant such as ETOH or benzodiazepines were also used, the risk increases.

- Toxicity/Overdose:
  - Tolerance occurs rapidly with opioids. Toxicity does *not* depend on the dosage of the opioid used, but on the tolerance of the individual at the time of ingestion.
  - Classic signs of overdose are known as the "opioid overdose triad"
    - **Respiratory depression** *<12 breaths/min & stupor = most specific sign*
    - Depressed consciousness
    - Miosis (pinpoint pupils)

- Possible causes of opioid overdose:
  - Complications of substance abuse
  - Unintentional or intentional overdose
  - Therapeutic drug error

- Risk Factors:
  - Those taking escalating doses
  - Returning to use after cessation (reduction in tolerance)
  - Depression
  - HIV
  - Lung/liver disease
  - Combination use of opioids and sedatives
  - Males

- Ages 20-40
- White non-Hispanic race

Majority of deaths caused by overdose have been related to the use of an opioid alone or in conjunction with another substance.

- **Complications**
  - **Integumentary**: needle track marks if IV opiates, itching, flushed skin, urticaria.
  - **Pulmonary:** respiratory distress and hypoxia may appear along with pupillary dilation. Shallow breathing, hypopnea, bradypnea with a RR of 4-6 and shallow breaths. Dyspnea, wheezing and frothy sputum may result from bronchoconstriction.
  - **Cardiovascular:** peripheral vasodilation may lead to severe hypotension.
  - **Gastrointestinal:** nausea/vomiting caused by slowed gastric motility.
  - **Psychiatric:** anxiety, agitation, depression, dysphoria, hallucinations, nightmares, paranoia.
  - **Neurological:** seizures, possible hearing loss which is reversible.
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- Waves of Opioid Overdose Deaths
  - From 2019 to 2020 the number of overdose deaths have increased by nearly 30% and has quintupled since the year 1999. In 2020 there were 91,799 drug overdoses which nearly 75% involved an opioid. Three distinct waves have been used to outline the rise in opioid overdose deaths.
    - The first wave began in the 1990s when the number of opioids being prescribed (natural and semi-synthetic opioids and methadone) had increased significantly. Overdose deaths involving these prescriptions have been climbing since 1999.
    - The second wave began in 2010, when heroin had became the ultimate culprit of overdose deaths.
    - The third wave began in 2013, where synthetic opioids involving illicitly manufactured fentanyl had caused significant increases in overdose death. Illicit fentanyl may be found in combination with heroin, counterfeit pills, and cocaine in our present day.

<u>On-Scene Treatment</u>

- **Conduct a "Scene Size-up"**
  - Ensure scene is safe including patient's behavioral status non-violent or threatening to emergency personnel. May need to call for police back-up early to prevent violent acts.
  - Note any presence of potential weapons as well as needles that may have been used by the patient to inject opioids.
  - Use standard precautions and find a potential mechanism of injury that could have caused injury to the patient- as alcoholics and drug abusers are at higher risk of

- Inspect area immediately around the patient as well as their pockets for any evidence of drug use: empty or partially filled prescription bottles/boxes, syringes, prescriptions, hospital discharge papers, or physicians notes to identify the opioid taken. Medical ID tags should be identified and kept with the patient for reference at the Emergency Department.

❖ **Primary Assessment**

- Focused assessment: airway!
- Quickly scan the patient for any obvious life-threatening injuries associated with opioid overdose such as an obstructed (secretions, vomitus) or impaired airway.
- Assess respiratory rate, work of breathing, and LOC.
  - BLS may be necessary if the patient is dyspneic or has slow, shallow respirations. Provide positive pressure ventilation with supplemental oxygen at 10-12L.
  - After airway is established, Naloxone should be administered promptly.
    - Naloxone (Narcan) may be given intranasally. One spray is equivalent to 4-8mg. Repeat q2-3min while alternating nostrils. If respiratory depression continues – administer 1mg per nostril q3-5min.
  - Once retained CO2 is exhaled via respiratory support the patient should begin to recover from episode of respiratory depression.
    - If no response after Naloxone administration and ventilation support, additional respiratory intervention may be required in the field with an endotracheal tube.
- Assess circulation by palpating the radial pulse. Opioid toxicity may cause tachycardia or bradycardia with a weak pulse. The skin may be cool, clammy, and pale.

❖ **Secondary Assessment/Physical Exam**

- Continually inspect response to airway intervention and Narcan administration
- Inspect pupils to identify pinpoint pupils vs. dilated pupils
- Assess mucous membranes for cyanosis
- Auscultate the lungs for abnormal sounds
- Obtain VS – most likely will be hypotensive, variable HR, hypothermic
- Attempt to gather a history from any relatives. Friends, or bystanders at the scene (gather information about what substance may have been ingested, current prescription medications, and attempt to establish a past medical history)
  - Questions indicated:
    - What was the opioid taken? What dose/route?
    - What was the time the opioid was taken?
    - Has Naloxone been administered before arrival?

- Goal= s**tabilization for transfer to emergency department.**

ED Treatment

- **Upon arrival**
  - Triage patient and obtain report/pertinent information from EMS.
  - Gain IV access to begin administration of isotonic fluids (NSS, Lactated Ringers)
    - Administer Naloxone via IV access if needed for persistent respiratory depression
      - IV: Initial dosage 0.02-0.2mg may be titrated to avoid pain, seizures, or withdrawal.
      - IV: may be used as a gtt based on effective dose used and duration of adequate response observed. A 2/3 dose of the initial effective bolus dose given may also be used hourly.
        - Adjust infusion rate PRN for adequate ventilation and avoidance of withdrawal symptoms
- **Diagnostics**
  - **Opioid Overdose Triad: r**espiratory depression, depressed LOC, miosis (pinpoint pupils)
  - **Labs:** urine toxicology, ABGs (CO2), electrolytes/glucose
  - **Imaging:** may use CXR if indicated to detect pulmonary edema or aspiration pneumonia
    - ECG monitoring may be necessary to detect arrhythmias and bradycardia associated with opioid overdose
- **Goal:** Secure airway!! & reverse opioid toxicity

Role of the ED Nurse

- Obtain and relay significant information from EMS/family members
- Maintain adequate airway
- Prioritize patient safety
- Enforce seizure precautions
- Maintain HOB or side-lying position
- Monitor VS (BP, pulse ox)
- Maintain ECG monitoring
  - Assess for arrhythmias
- Assess the need for additional O2
- Perform frequent neurological checks (GCS, LOC)
- Provide education to patient and family

Discharge/Prevention Instructions

- **Discharge instructions**
  - Provide written discharge instructions focused on prevention of opioid misuse, signs and symptoms of opioid overdose, and resources that may be utilize to aid in recovery.
  - Education detailing safe storage and disposal of prescription opioids
  - Information on detoxification programs in the area if applicable
  - Educational pamphlets/resources on Naloxone administration and how to obtain it
  - Local support groups/NA
  - Follow up with primary healthcare provider

- **Prevention**
  - Prescription drug monitoring programs
  - State prescription drug laws
  - Education to providers about opioid prescribing guidelines and thorough conversations with patients about pain management options as well as the risks and benefits of different medications

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