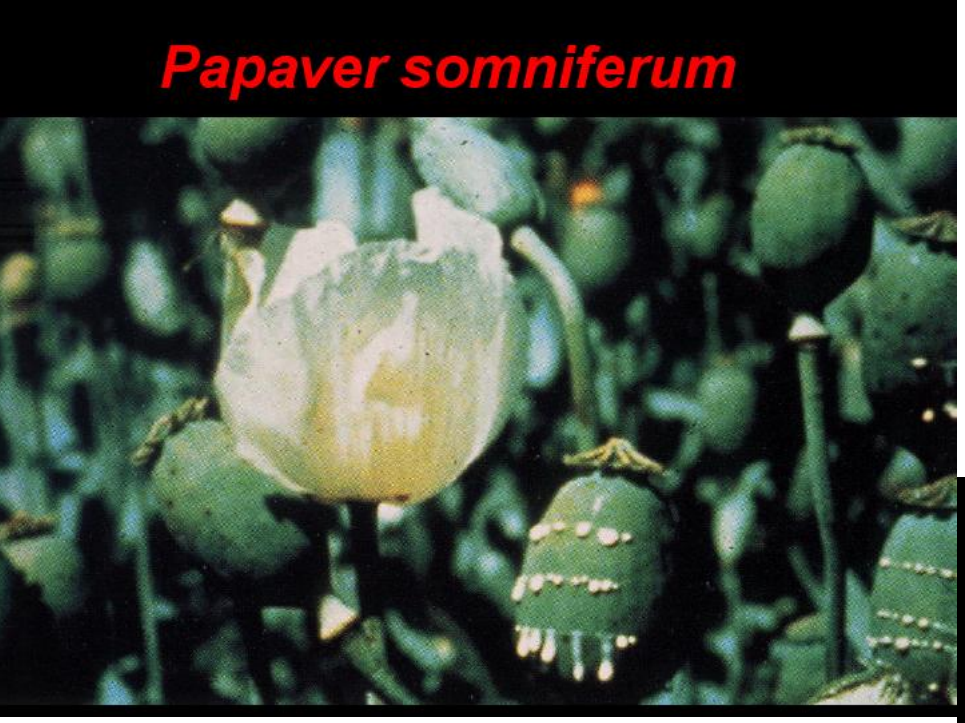
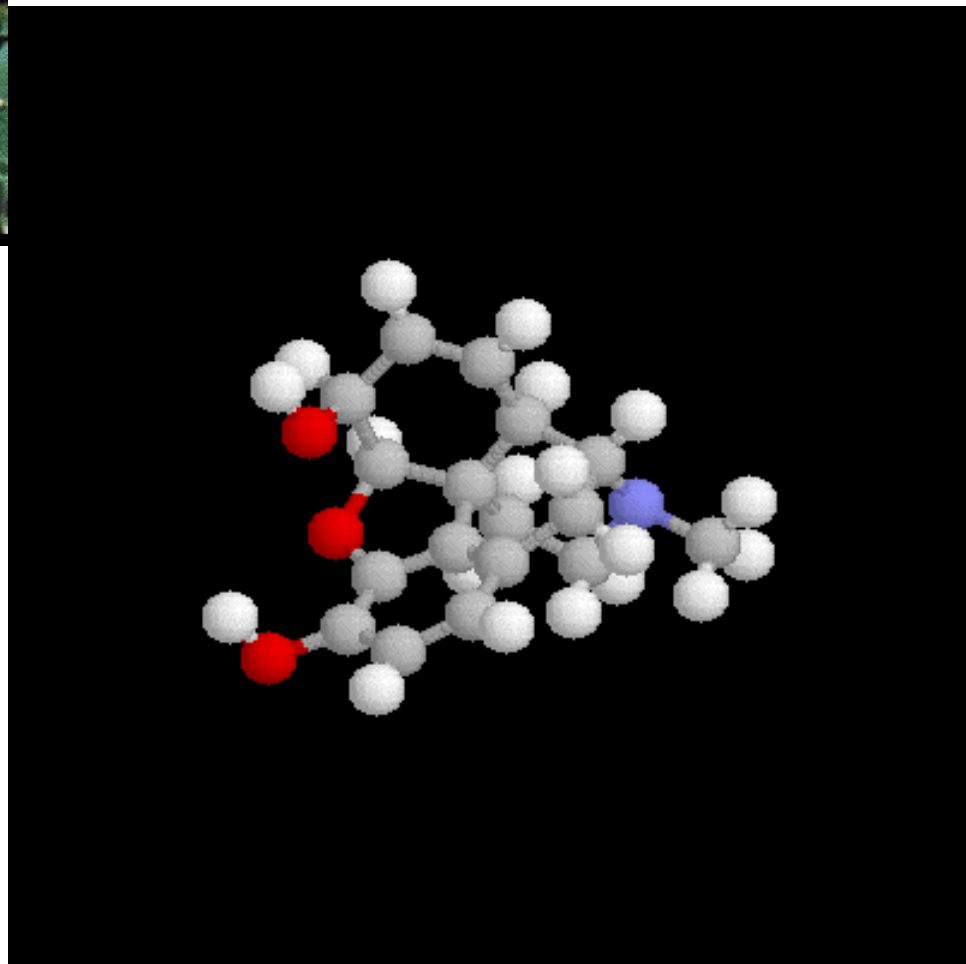
Morphine Sulfate

Department of Human Services
Emergency Medical Services
& Trauma Systems Section



Opium Poppy

Morphine Molecule



Morphine

- Class
  - Narcotic Analgesic; Schedule II
- Description
  - Central Nervous System (CNS) depressant
  - Potent analgesic
    - Hemodynamic properties
  - Greatest dependence liability

Names

- Drug Names
  - Avinza
  - Kadian
  - MS Contin
  - Morphine Sulfate
  - MSIR
  - Oramorph SR
  - Roxanol
- Street Names
  - "M"
  - “morph”
  - “Miss Emma

Mechanism of Action

- Acts on opiate receptors in the brain, Providing both analgesia and sedation
  - Increases peripheral vascular capacitance
  - Decreases venous return, sometimes called “chemical phlebotomy”
- Myocardial oxygen requirements decreased
  - Decreased PVR and sedative effects
  - Decreases apprehension and fear by the patient

Indications

- Symptomatic relief of moderately severe to severe pain
  - Isolated extremity fracture
  - Pain from isolated burns (IV Only)
  - Myocardial infarction
  - Kidney Stones

Indications

- Relief of pain associated with
  - Chest Pain
  - Pulmonary Edema, with or without associated chest pain
  - Relief of certain types of difficult or labored breathing

Contraindications

- Hypersensitivity to morphine, or narcotics generally
- Volume depleted or severely hypotensive
- Respiratory insufficiency or depression
- Severe CNS depression

Contraindications

- Attack of bronchial asthma
- Heart failure secondary to chronic lung disease
- Cardiac dysrhythmia
- Increased intracranial or cerebrospinal pressure

Contraindications

- Head injuries or suspected brain tumor
- Acute alcoholism or Delirium Tremens
- Convulsive disorders
- Suspected surgical abdomen
  - Gall Bladder or Appendicitis
  - After biliary tract surgery
  - Surgical anastomosis
- Concomitantly with MAO* inhibitors or within 14 days of such treatment

*MAO Inhibitors - Antidepressants

- Isocarboxazid
  - Marplan
- Phenelzine
  - Nardil
- Selegiline
  - Atapryl
  - Eldepryl
  - Selpak
- Tranylcypromine
  - Parnate

Caution

- Use extreme caution for patients presenting with
  - Respirations less than 12 breaths per minute
  - Oxygen saturation less than 90%
  - Significant respiratory depression for any cause

Side Effects

- MS can cause or contribute to
  - Nausea
  - Vomiting
  - Abdominal cramps
  - Blurred vision
  - Constricted or pinpoint pupils
  - Altered mental status
  - Headache
  - Respiratory depression
  - Respiratory Arrest

Interactions

- _ The CNS depression of MS can be enhanced if administered in conjunction with
  - Antihistamines
  - Antiemetics
  - Sedatives
  - Hypnotics
  - Barbiturates
  - Alcohol

Dosage

- _ Adult
  - IV or IO administration
    - _ Usually an initial dose of 2 to 10 mgs administered IV
    - _ The analgesic effect is then maintained with additional doses of 2 - 4 mg every 10 minutes until pain relief is achieved or respiratory depression occurs

- Pediatric
  - IV or IO administration
    - Usually an initial dose of 0.025 - 0.1 mg/kg IV every 3 to 4 hours
    - The analgesic effect is then maintained with additional doses of 0.025-0.1 mg/kg IV every 3 to 4 hours until pain relief is achieved or respiratory depression occurs

Overdose

- _ Manifested by
  - Respiratory depression
  - Somnolence progressing to stupor or coma
  - Skeletal muscle flaccidity
  - Cold and clammy skin
  - Constricted pupils
  - Bradycardia and hypotension

Antidote

- The pure opioid antagonist, naloxone, is a specific antidote against respiratory depression which results from opioid overdose
  - Usually 0.4 mg to 2.0mg (adult or pediatric)administered intravenously and the patient is carefully monitored
  - Repeat doses of naloxone may be necessary

Questions?

References

- Paramedic Emergency Care; Bledsoe,Porter, Shade
  - Brady Publishing Third edition
- ePocrates PDA application
  - Update 2/27/04
- Nurses Drug Guide;
  - Billie Wilson, Margaret Shannon, Carolyn Stang
    - Appleton & Lang