



## 26. MORPHINE SULFATE

*(Optional Supplemental Protocol, which allows for jurisdictional selection of both fentanyl and morphine OR replacement of fentanyl by morphine as the opioid of choice)*

### Pharmacology

- (1) Decreases pain perception and anxiety
- (2) Relaxes respiratory effort
- (3) Causes peripheral dilation, which decreases preload
- (4) Decreases left ventricular afterload

### a) Pharmacokinetics

- (1) Binds with opiate receptors in the CNS, altering both perception and emotional response to pain
- (2) Onset of action is in less than 5 minutes after IV dose and effects last 4–5 hours.
- (3) Causes peripheral arterial and venous vasodilation

### b) Indications

- (1) The patient reports moderate to severe pain.
- (2) In the clinician's judgment the patient will benefit from treatment with an opioid analgesic, including patients who are MOLST and/or EMS/DNR patients or being pre-medicated for a procedure.
- (3) Pulmonary Edema/Congestive Heart Failure (Pediatric only)

### c) Contraindications

- (1) Hypersensitivity or known allergy to morphine
- (2) Uncorrected respiratory distress or hypoxemia refractory to supplemental oxygen
- (3) Uncorrected hypotension, defined as a persistent systolic pressure less than 90 mmHg

### d) Adverse Effects



- (1) Respiratory depression/arrest
- (2) Altered mental status (decreased level of consciousness)
- (3) Increased vagal tone due to suppression of sympathetic pathways (slowed heart rate)
- (4) Nausea and vomiting
- (5) Constricted pupils (pinpoint)
- (6) Increased cerebral blood flow



**e) Precautions**

- (1) Naloxone reverses all effects.
- (2) Should be administered slowly and titrated to effect.
- (3) Vital signs should be monitored frequently.
- (4) Hypotension is a greater possibility in volume-depleted patients.

**f) Dosage**

- (1) Adult: IV/IM
  - (a) Administer 0.1 mg/kg to a maximum initial dose of 20 mg.
  - (b) Reassess in 5–10 minutes. If pain remains moderate to severe, then administer a second dose of morphine 0.05 mg/kg to a maximum additional dose of 10 mg.
  - (c)  Obtain on-line medical direction for additional doses, if required.
- (2) Pediatric: IV/IM
  - (a) Administer 0.1 mg/kg to a maximum initial dose of 20 mg.
  - (b) Reassess in 5–10 minutes. If pain remains moderate to severe, then administer a second dose of morphine 0.05 mg/kg to a maximum additional dose of 10 mg.
  - (c)  Obtain on-line medical direction for additional doses, if required.
- (3) Pediatric Pulmonary Edema/CHF
  - (a) 0.1 mg/kg SLOW IVP/IO/IM (1–2 mg/min).  
Maximum dose 5 mg.