PAIN

(Last updated 02/08/2019; Reviewers: Matthew A. Warner, MD, Shalini Donthi MBBS)

PRESENTING COMPLAINT: Pain (depends on cause)

FINDINGS

- **A** Check airway (for risk of obstruction due to sedating agents)
- **B** ↑RR (usually)
- **C** ↑HR +/- ↑BP
- **D** Variable altered (V,P,U,D)*, agitated, altered confused
- **E** Findings depend on cause of pain
- **L_{PC}** Directed towards region or syndrome of pain (e.g. liver enzymes for abdominal pain, ABG for pain-sedation mismatch)
- **U_{PC}** Directed towards the region or syndrome of pain (e.g.cholelithiasis, nephrolithiasis)

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

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

OTHER HISTORY

Depends on the region involved

DIFFERENTIAL DIAGNOSIS

Depends on the region involved

Ex: Chest pain – aortic dissection, aortic aneurysm, esophagitis, esophageal spasm, pancreatitis, GERD, peptic ulcer disease, bronchospasm, pulmonary embolism, pleuritis, pericarditis, costochondritis, anxiety disorders, cocaine abuse.

OTHER INVESTIGATIONS

X-ray, CT scan, ECG, Echocardiogram (vary depending on the region involved)

THERAPEUTIC INTERVENTIONS

- **Treatment Considerations:**
  - **Goal: pain score ≤ tolerable level** as identified by patient (e.g. ≤ 5 out of 10)
  - **Caution** with **elderly patients**, renal and/or liver dysfunction, respiratory failure, high risk for airway obstruction
- **General Treatment:**
  - **Moderately severe acute pain:**

        - **Application: Oral/enteral** route preferred (exceptions: nausea/vomiting, severely altered mentation, bowel obstruction/ischemia/discontinuity) ; Analgesia improved by **multi-modal approach**
        - **Medications: Acetaminophen**: maximum 4 grams daily (divided in 4-6 doses), caution in liver disease; **NSAIDs** (excluding aspirin): caution if renal insufficiency, low urine output, dehydration/volume depletion, GI bleeding risk; use for short duration and low doses; **opioids** (e.g. oxycodone, hydromorphone, morphine) for more severe pain; consider **topical treatments** (heat/cold, massage, local anesthetic-lidocaine patch)
    - **<u>Acute/severe pain: IV opioids</u>**
        - **Application:** Bolus doses with titration, **patient-controlled analgesia (PCA); Basal rates discouraged**; reserve for intubated patients or highly opioid tolerant patients; **Adjust doses/intervals** to avoid over sedation and respiratory depression; **Monitor respiratory status** (frequent sedation and respiratory rate assessments, continuous pulse oximetry); If tolerance/addiction: higher doses may be required
        - **Medications: Fentanyl:** rapid onset; use for acutely distressing pain, safe in those with hemodynamic instability/bronchospasm, short-acting in low bolus doses (e.g. 25-50 mcg), accumulates with continuous infusions, may cause bradycardia at high doses; **Morphine and hydromorphone:** preferred for intermittent bolus therapy; avoid morphine in renal insufficiency (accumulation of active metabolites); Consider addition of **ketamine** as low dose bolus (e.g. 10 mg) or continuous infusion (0.1 – 0.3 mg/kg/hr); may help in setting of pain-sedation mismatch; opioid-sparing; may cause dysphoria/ hallucinations
        - Add **antiemetic therapy** if **nausea/vomiting**
- **<u>Specific treatment based on etiology:</u>**
    - **Abdominal pain:** Analgesia does not hinder the diagnostic process! Acetaminophen +/- NSAIDs +/- oxycodone +/- fentanyl/hydromorphone if severe
    - **Musculoskeletal back pain:** acetaminophen +/- NSAIDs +/- topical options +/- oxycodone
    - **Burns:** acetaminophen +/- oxycodone; fentanyl/hydromorphone +/- ketamine if severe
    - **Fractures and dislocation:** Immobilization of injured limbs, elevation; acetaminophen +/- NSAIDs +/- oxycodone +/- fentanyl/hydromorphone if severe; consider neuraxial analgesia and peripheral nerve block; sedation for reduction procedures
    - **Migraine:** NSAIDs +/- acetaminophen +/- fluids, antiemetics; triptans if taking chronically
    - **Invasive procedures:** consider anticipatory analgesia; local/regional anesthesia

ONGOING TREATMENT

- **Follow-up & further treatment:**
    - **Reassessment after 15-30 min:** effect of analgesia, adverse effects (more frequent assessment in the setting of bolus IV opioid doses or continuous opioid infusions)
    - **Add non-pharmacologic interventions:** Emotional and psychological support; minimization of irritating stimuli/positioning; massage therapy, acupuncture, meditation/relaxation
    - **Constipation prophylaxis**: add senna/docusate to opioids
    - **Advanced options:** neuropathic agents for painful neuropathy (e.g. gabapentin, pregabalin)

CAUTIONS

- **Opioids:** risk of **respiratory depression**; increased when used with other sedatives
- Elderly: increased risk for adverse medication side effects
- Consider liver/renal failure and need for dose adjustment
- Avoid benzodiazepines for pain (high delirium risk)

REFERENCES AND ACKNOWLEDGMENTS

Acknowledgement: *Benjamin Bonneton, MD; Reviewers: Rob Fowler, MD*

- Richmond Agitation Sedation Scale: http://www.iculiberation.org/SiteCollectionDocuments/Agitation-Richmond-Agitation-Sedation-Scale.pdf
- *Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit*, available at: http://www.learnicu.org/SiteCollectionDocuments/Pain,%20Agitation,%20Delirium.pdf