Opioid Initiative Wave I –
Treating Pain in Patients with Opioid-Use Disorder
Presenter

Andrew A. Herring, MD
Opioid monotherapy has been largely replaced with a multimodal approach.
Multimodal analgesia

NSAIDs
Acetaminophen
Low dose ketamine
Intravenous lidocaine
Regional Anesthesia
Opioid induced pain

Morphine

M6G

M3G

Kappa opioid Receptor

Mu opioid receptor

GABA receptor

Dynorphin Release

Microglia Activation

Dynamion

Neuroexcitatory inflammatory cytokines

NMDA Hyperalgesia

Mu opioid + GABA Analgesia

Subjective pain experience

Pain Anxiety Distress

Analgesia Relaxation Relief

Homeostatic pain balance
Opioid induced pain

Mu opioid analgesic peaks (feeling good)

Unmasked hyperalgesic state (in crisis)
We are committed to using the most effective and safest possible drugs to treat your pain.
(This is how we do it)

<table>
<thead>
<tr>
<th>We start with the safest &amp; most effective options</th>
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<tbody>
<tr>
<td>Position your injury in comfort</td>
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<tr>
<td>Ice, elevate, apply a splint</td>
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<tr>
<td>Acetaminophen</td>
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<table>
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<tr>
<th>Still uncomfortable?</th>
<th>We may use these drugs</th>
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<tbody>
<tr>
<td>Ibuprofen</td>
<td>Lidocaine</td>
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<tr>
<td>Ketorolac</td>
<td>Magnesium</td>
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<tr>
<td>Gabapentin</td>
<td>Clonidine</td>
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<tr>
<td>Nerve block or injection</td>
<td>Dexamethasone</td>
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<td>Buprenorphine</td>
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Oral Agents for Opioid tolerant acute pain

- Ibuprofen 400mg PO
- Acetaminophen 1000 mg
- Gabapentin 600-1200mg
- Clonidine 0.1-.2 PO
Parenteral Agents for Opioid tolerant acute pain

- Ketamine (0.1-0.3 mg / kg over 15 minutes)
- IV lidocaine (1 mg / kg bolus then 1.5 mg/kg/hr)
- Magnesium (Mag 30-50 mg/kg bolus then 10mg/kg/hr)
- Others (dexmedetomidine, haloperidol et al.)
Regional anesthesia

Guidelines for Emergency Regional Anesthesia for Trauma Orthopedic Injuries

Block OK
- Shoulder dislocation
- Clavicle fracture
- Proximal humerus fracture
- Low energy distal radius fracture
- Hand and digit injuries
- Hip fracture and dislocation
- Low energy foot and ankle fractures

Contact orthopedic surgery as soon as possible for any patients to be admitted or patients who will require in ED consultation, but do not delay block placement.

Block after Consultation
- Humeral shaft fracture
- Elbow fracture
- Both bone forearm fracture
- Femoral shaft fracture

Perform and document detailed neurologic exam and consult with orthopedic service before block is placed.

No Block

High risk for compartment syndrome
- Tibial fracture
- High emergency forearm fracture
- High Energy foot fracture
- Any injury with evidence of neurovascular injury or clinical concern for a possible compartment syndrome

Perform block only after requested by Trauma and Orthopedic service attending.

Universal precautions
- Appropriate splinting, protection, icing of any injured extremity.
- Appropriate anesthetic administration.
- Block placement should not delay other time sensitive interventions.
- Appropriate consideration of and patient discussion of the risks and benefits of any block.
- Documentation of consent.
- Thorough, detailed, and appropriately documented neurologic exam before block is performed.
- Thorough, detailed, and appropriately documented compartment exam before block is performed.
- Safe and sterile procedural technique appropriately documented including but not limited to: pre-procedure timeout with confirmation correct patient, indication, and side; appropriate patient monitoring; use of real-time ultrasound-guidance with avoidance of needle to nerve contact and vascular puncture; aspiration and small volume (3-5mL) injection of appropriately dosed local anesthetic.
- Presence of necessary resuscitation equipment and intralipid in case of local anesthetic toxicity reaction.
- Clear marking of blocked extremity and documentation of block details in the medical record.
- Verbal communication of block details with participating clinical teams prior to discharge or transfer from ED.
- Appropriate post block care of weakened or insensitive extremity to prevent falls and limb injury.
Perioperative and Acute Pain Management for Patients on Buprenorphine

• Buprenorphine combined with full mu opioid receptor agonists can manage acute, perioperative pain\textsuperscript{3,4}

• Avoids ill consequences such as relapse, re-induction and system failures.
**Commentary**

**The clinical analgesic efficacy of buprenorphine**

R. J. Rollin*; M. H. Orlofsky*; M. H. Hawer; D. A. Georgiann; M. A. Koblan; R. R. Hoffman; S. T. Li; J. H. Orlofsky; D. E. Paulus; H. Cher; J. A. Sappen; M. J. Neller; R. J. Rollin; J. V. Fomel; J. R. Raffa

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Department of Anaesthesiology, George Washington University School of Medicine, Washington, DC; and Department of Pharmacy, Temple University School of Medicine, Philadelphia, PA, USA

- Buprenorphine is at least 30 to 40 times more potent than morphine
- Clinically significant analgesia begins at 5-10% receptor occupancy
- Analgesic effect seen over the 0.1 to 10 mg range IV
Effects of Buprenorphine Maintenance Dose on \( \mu \)-Opioid Receptor Availability, Plasma Concentrations, and Antagonist Blockade in Heroin-Dependent Volunteers

Mark K Greenwald\(^1\), Chris-Ellyn Johanson\(^1\), David E Moody\(^3\), James H Woods\(^3\), Michael R Kilbourn\(^3\), Robert A Koepp\(^3\), Charles R Schuster\(^3\) and Jon-Kar Zubieta\(^3\)
From: Patients Maintained on Buprenorphine for Opioid Use Disorder Should Continue Buprenorphine Through the Perioperative Period

Pain Med. Published online February 14, 2018. doi:10.1093/pm/pny019

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Perioperative Buprenorphine—Day of Surgery

- High affinity, full mu opioid receptor agonists (Eg- fentanyl)
- Regional anesthesia
- NSAIDs
- Acetaminophen
- Gabapentinoids, Sodium channel blockers, NMDA inhibitors
- CAM (eg- acupuncture)
- Coping skills, breathing exercises, psychoeducation, family/friends

NOTE: Naloxone will require higher dose for opioid toxicity
Perioperative and Acute Pain Management for Patients on Buprenorphine

- Resume original buprenorphine dose as soon as possible
- Consider three times per day dosing to optimize analgesia
- Continue multimodal, non-opioid strategies
- Continue high affinity, full mu receptor agonists
- Do not provide greater than 7 days of full mu receptor agonist
- Close f/up with surgical team as well as buprenorphine provider
- NOTE: Naloxone will require higher dose for opioid toxicity
For More Information

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  - equal@acep.org

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    dsharma@acep.org
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