Pain Management for the Orthopaedic Patient: Closing the Practice Gap

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Conflict of Interest
I hereby certify that, to the best of my knowledge, no aspect of my current personal or professional situation might reasonably be expected to affect significantly my views on the subject on which I am presenting other than the following:

Speakers Bureau & Consultant for Pacira & Mallinckrodt

Learner Outcome
As a result of this learning activity, the participant will gain confidence and apply knowledge and skills to practice in the care of the Orthopaedic patient experiencing pain

Objectives
1. State the four processes in the pain pathway
2. List the components of a comprehensive pain assessment
3. Define “Multimodal Analgesia”
4. State the importance of an individualized pain regimen in complex pain patients
First you must know how pain works to know how to treat it appropriately……

1. Peripheral tissues
2. Spinal cord
3. Brain
4. Descending modulation

Pain Pathway:
- Transduction
- Transmission
- Perception
- Modulation

Site of Action of Selected Analgesics

Types of Pain
- Nociceptive
  - Somatic
  - Visceral
- Neuropathic
- Mixed

NSAIDS
COX-2s

TCAs, SNRIs
Anticonvulsants
Acetaminophen

Opioids

Nerve Blocks
Anticonvulsants

Ascending pathway
Descending pathway

Modulation
Transmission
Perception

Nociceptive - Somatic

- Well-localized
- Sharp, tender, achy in quality
- Usually musculoskeletal in origin
- Usually responsive to opioids
- May also respond to NSAIDs, steroids, muscle relaxants, some antidepressants
- Examples: Post-op/Incisional, Arthritis pain, Muscle strains, Sprains, Broken bones, Bone pain/metastasis in cancer patients

Nociceptive - Visceral

- Involves solid organs
- Poorly localized
- Dull, tight, pressure, crampy in nature
- May refer to other areas
- Usually responds to opioids
- May respond to NSAIDs, steroids, antispasmodics
- Examples: Cancer in the liver or brain, Pancreatitis, Constipation-related pain, Bowel obstruction

Neuropathic

- Results from damage to nerves
- Numb, shooting, stabbing, burning in nature
- Poorly responsive to opioids
- May respond to TCAs, anticonvulsants, systemic local anesthetics, topical local anesthetics,
- Examples: Peripheral neuropathy from diabetes, chemotherapy, Post-herpetic neuralgia, Sciatica, Pain from strokes, Trigeminal neuralgia, Phantom limb pain

Comprehensive Assessment of Acute Pain

- Detailed histories
  — Pain/pain treatment
  — Medical/Psychosocial
- Physical examination
- Diagnostic tests
- Observable physiologic signs
- The most important tool:
  — Patients Self Report
Pain Assessment - WILDA

- Words (words to describe pain)
- Intensity (intensity level of pain)
- Location (where it hurts)
- Duration (does it come and go or hurt all the time)
- Aggravating and alleviating factors (what makes it better, what makes it worse)


Components of a Pain Assessment

- WILDA
- Associated signs and symptoms of pain
- Patient’s Pain Goal
- Functional Goal

Multimodal Analgesia - Defined

- The simultaneous use of different analgesic agents or forms of analgesic delivery that suppress pain transmission in the peripheral and CNS.
- Can be designed to:
  - Inhibit the release of noxious mediators
  - Block conduction in sensory nerves
  - Suppress pain perception in the CNS

Multimodal Therapy Guidelines

- The American Society of Anesthesiologists (ASA) has published Practice Guidelines for Acute Pain Management in the perioperative Setting.
- Clinicians should employ multimodal pain therapy
  - Optimize efficacy while minimizing AEs
  - Opiate-sparing drugs and local anesthetics are emphasized
  - Literature supports multimodal therapy for superior analgesic effects while reducing AEs from opioids
Does your institution promote multimodal analgesia?

Pharmacologic Approaches

"Multimodal Analgesia"

- Non-opioids
- Adjuvants
- Opioids
- Advanced Techniques
  - Pre-emptive analgesia
  - Patient-controlled analgesia
  - Regional analgesia
- Nonpharmacologic

Example: Schedule Acetaminophen, NSAID, Anticonvulsant, ice packs - then if needed add in low dose opioid

Non-opioids

- Acetaminophen
- Aspirin
- NSAIDs/Cox-2

First-line for mild to moderate pain

"Unless contraindicated, any analgesic regimen should include a nonopioid drug, even if pain is severe enough to require the addition of an opioid"

Adjuvant Medications

- Do not directly provide analgesia
- Used more extensively in chronic pain than acute pain
- Help with suffering

- Antidepressants
- Anticonvulsants
- Corticosteroids
- Benzodiazepines
- Antispasmodics
- Muscle relaxants
- Misc. Agents

Caution can cause additional sedation and physical/psychological dependence
### Combination (Weak) Opioids
- Used for mild to moderate pain
- Doses are limited due to non-opioid component (acetaminophen, ASA)
- Codeine (Tylenol #3)
- Hydrocodone (Lortab, Vicodin, Norco)
- Oxycodone (Percocet, Percodan)
- Tramadol (Ultram, Ultracet)

### Single-Agent Opioids
- Used for moderate to severe pain
- No maximum dose
- Can be given by many different routes
- Long-acting forms available for chronic pain
- Morphine
- Hydromorphone
- Methadone
- Oxycodone
- Fentanyl
- Oxymorphone
- Tapentadol

### IV Opioids
- IV Bolus
- PCA
- Drip
- Medications
  - Fentanyl
  - Hydromorphone
  - Morphine
  - Methadone

### Epidural Analgesia
- Analgesics are delivered close to nerve targets
- Lower GI effects compared to systemic opioids
- Temporary is usually 2-4 days
- Delivery
  - Bolus (Morphine, Hydromorphone)
  - Continuous infusion (Fentanyl)
  - Patient-controlled analgesia (PCEA)
- Opioids and local anesthetics (bupivacaine, ropivacaine)
Regional/Perineural Analgesia

- Used in many surgeries as an adjunct to general anesthesia and as a post operative analgesia
- One time injection block during surgery usually last 6-12 hours
- Continuous nerve block, a nerve catheter is placed

Multimodal Pain Management throughout the perioperative period

- Plan ahead, preemptive analgesia
  - Acetaminophen, NSAIDs, COX-2, Gabapentin,
- Intraoperative interventions
  - Ketamine, Lidocaine, IV Acetaminophen, Liposomal Bupivacaine, IV Dexamethasone, Clonidine
- Standard opioid therapy – IVP, PO, PCA
- Block pathways
  - Regional analgesia, single blocks, continuous infiltration, spinal or epidural, PCEA

Example of TKA Protocol

- Preemptive
  - Acetaminophen 1000 mg po
  - Gabapentin 300 mg po
  - Celecoxib 400 mg
- Post-op
  - PNC- Peripheral Nerve Catheter
  - Acetaminophen 650 mg po q 6 hours scheduled
  - Celecoxib 200 mg po q 12 hours scheduled
  - Oxycodone 5-10 mg po q 3 hours prn
  - OxyContin 10 mg po q 12 hours

Does your institution have a TKA and/or THA postoperative pain protocol?
Chronic Opioid Therapy Patients

- Fear/anxiety related to unrelieved/perceived pain
- Bring a lot of anxiety to hospital r/t pain regimen
  - Prejudice toward opioid therapy
  - Protective of doses and medications
  - Do not make comments about doses ("that’s enough to kill an elephant", “If I took that much I would stop breathing”)
- Have usually had many providers, many opinions re: pain management

Treating Chronic Pain Patients

- Must take home dose of opioid day of surgery (leave transdermal patches in place)
- Always replace home pain regimen
  - 100%
  - 150%
- Non opioids and adjuvants may be most helpful
- Liberalize PRN medications for new acute pain
- Ask what has worked/not worked in the past
- Be prepared for the anxiety factor

Questions

References