Pain Management for TKA and THA in 2016

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Patient's number 1 fear:

Pain.

Pain

- “Paena” Latin
- “Punishment from God”

- THA much less painful than TKA
- Principles and protocols the same

Acute pain due to:

- Mechanical, thermal and chemical damage leading to cellular damage
- This leads to release of various chemical and substance mediators (histamine, prostaglandins, bradykinins, etc)
- Leads to nocioceptors sensitization (Carr, et al Lancet, 353,1999)
- Multiple opportunities to intervene in pain pathway

Pain Control Post-Operatively

- Failure to control post-op pain can induce pathophysiologic responses:
  - Increased Post-Operative Morbidity
  - Delayed Rehabilitation
  - Increased Patient Anxiety
  - Decreased Overall Patient Satisfaction
  - Sleep Disturbance

We can do better

Regional Anesthesia

Mutimodal anesthesia

Preemptive anesthesia

Advantages of Regional Anesthetics

- Many studies show enhanced post-operative analgesia
- Lower neuro-endocrine response to surgical stress
- These blocks act earlier in the pain pathway: they may “block” the brain from ever seeing the pain.
  - They stop the pain from advancing above the spinal level
- Systemic analgesic drugs act on the brain receptors

Anesthesia May 2013

- 528,495 patients undergoing primary TJR
- 11% neuraxial; 14% neuraxial/GA; 74% GA
- Age, comorbidities about the same
- Results: Neuraxial had lower:
  - 30 day mortality -fewer complications
  - Shorter length of stay -lower cost
- Most favorable complication risk profile

Multimodal Analgesia

- Concept a decade old
- Rationale: sufficient analgesia due to additive or synergistic effects of different drugs
- Allows reduction of dosage of drugs and fewer adverse effects

Current Protocol

- Multimodal approach
- COX 2 started 48 hours ahead of time
- Continuous Tyelenol
- Pre-emptive narcotics
  - Long acting and short acting (limited)
- Peri-capsular injections (the key)

Current Protocol

- Dexamethasone 4 mg Iv q 8 hours x 3
  - Can use Solucortef
  - Anti nausea, pain potentiator
  - Mood stabilizer
  - No increase in risk of infection
  - Avoid in Diabetics
- Cryocuff regularly

TXA now an integral part of pain and rapid rehab protocol

Current Multimodal Recipe

- Celebrex 200-400 mg 2 days before surgery and continued for 4 weeks
- Tyelenol 1000mg TID
- Oxycodone 5 mg 1-2 tabs q 4 hours
- Toradol 30 mg IM/IV prn for 1 day
- Ultram 50-100 mg po q6 hours prn
- Neorontin 300 mg at HS. Can increase as needed
- Solucortef 100mg IV q8 for 24 hours

Goal of Medications

- Avoid parenteral narcotics
- Control nausea (Scopalamine patch, Emend, Zofran)
- Avoid dehydration
- Add anti anxiety if needed (Xanax)
- Address depression with PCP
- Add sleep aid if needed

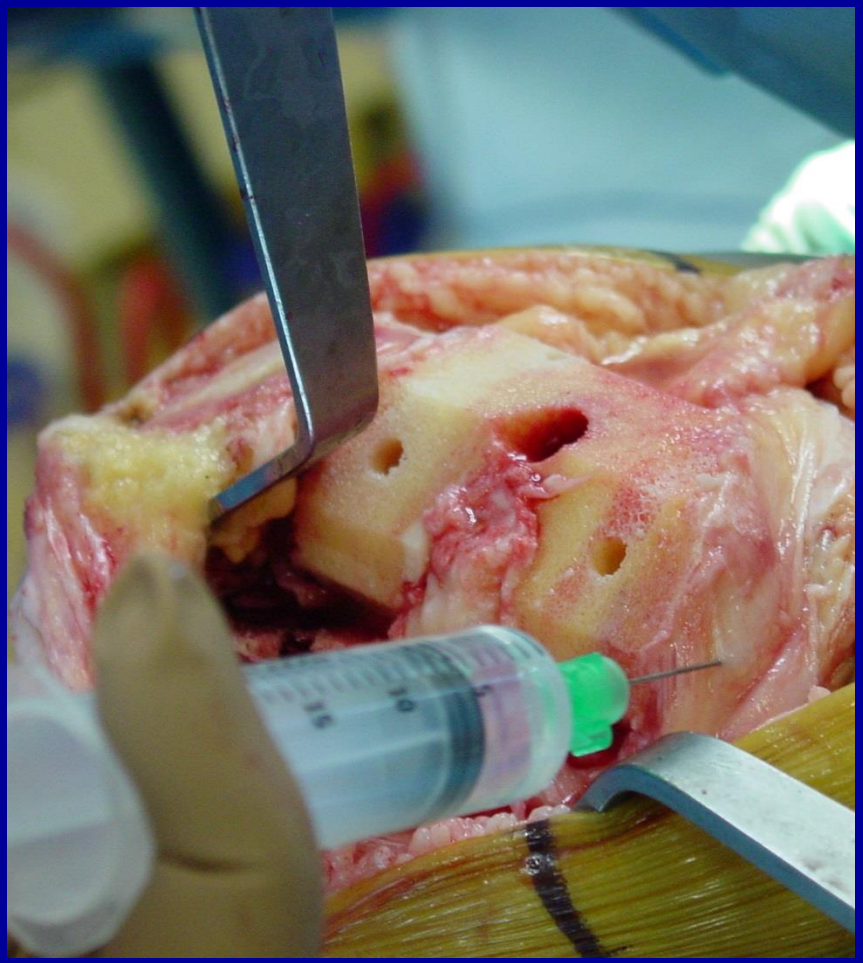
Adjuncts to Multimodal Meds

- Two major current popular modalities:
- Peripheral Nerve Blocks (PNB)
- Local Infiltrative Analgesia (LIA)

- Both very effective and predictable pain relief

LIA Superior

- LIA superior due to:
  - Simpler Delivery
  - Quicker Mobility
  - Lower Cost
- Should be the standard

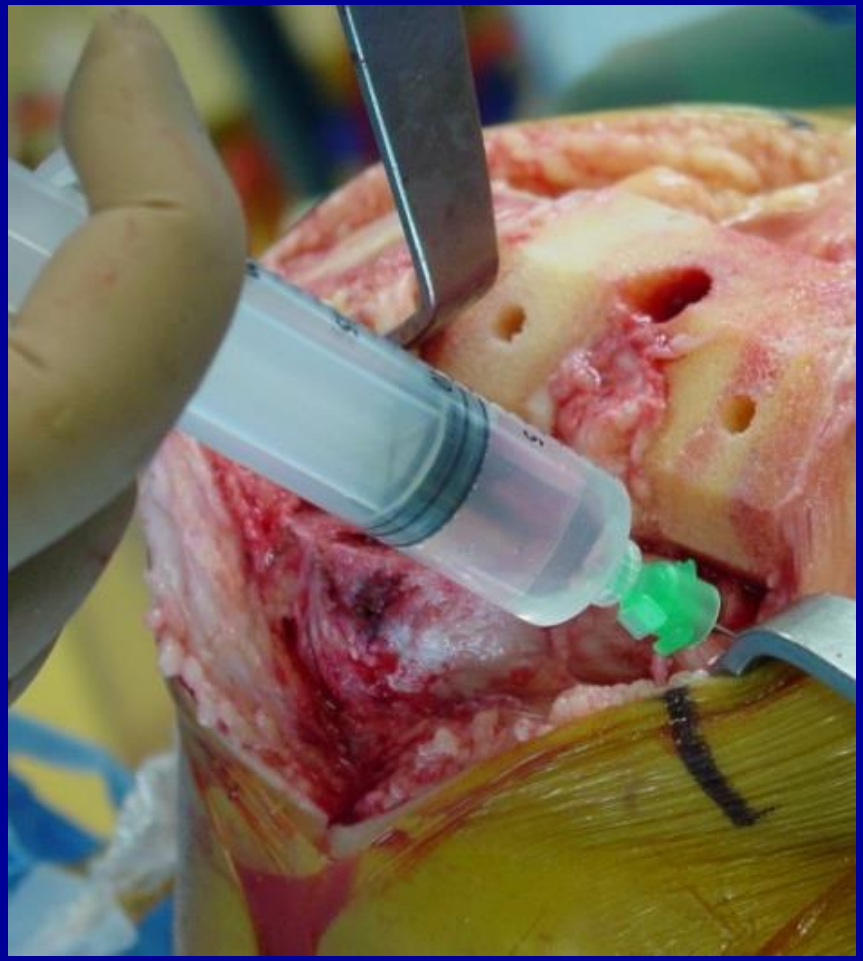


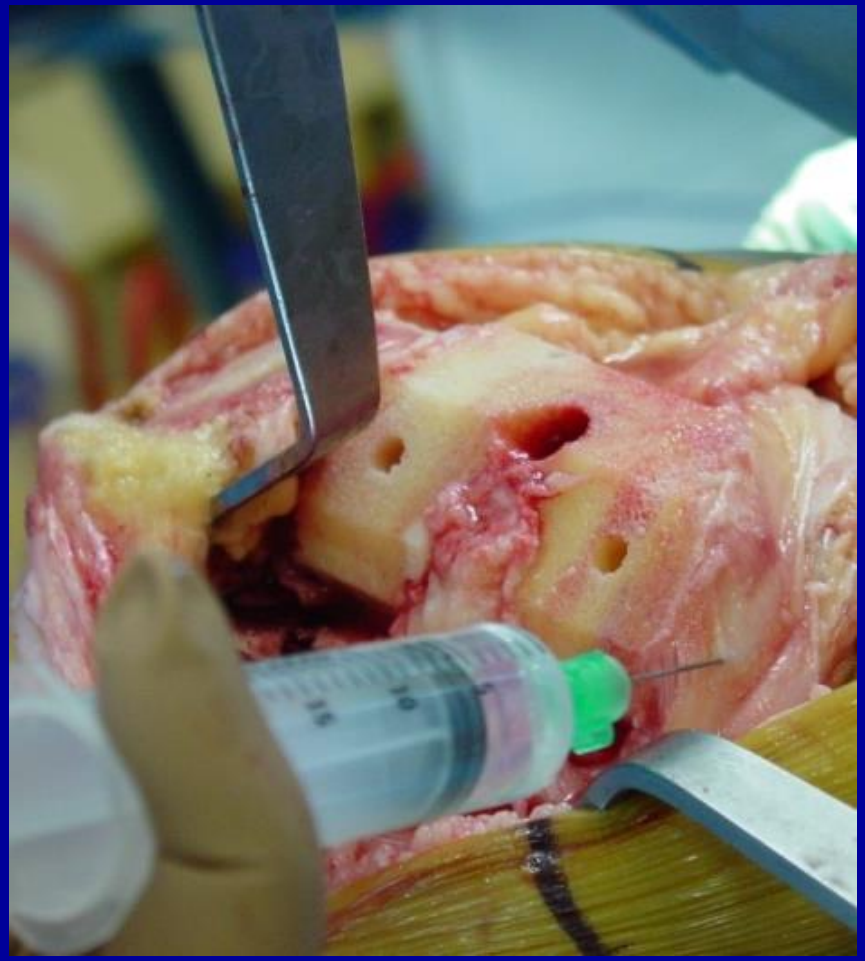
Pericapsular injection is the key

- Ropivicaine 0.5% 50cc mixed with .05% Epinephrine and 1 cc of Toradol 30 mg/cc Clonidine 80 mcg total of 100cc
  - Injected in 4 separate areas: posterior capsule, medial and lateral capsule (include periosteum) and in the incision.
- Pre-mixed by Pharmacy and delivered sterile to OR

- Ropivicaine longer acting local anesthetic with decreased motor block propensity
- Can use up to 5 mcg/kg before toxicity issues
- Clonidine an alpha adrenergic agonist and functions locally and centrally
- Epinephrine vasoconstiction increases concentration
- Toradol acts at local sites

Injection



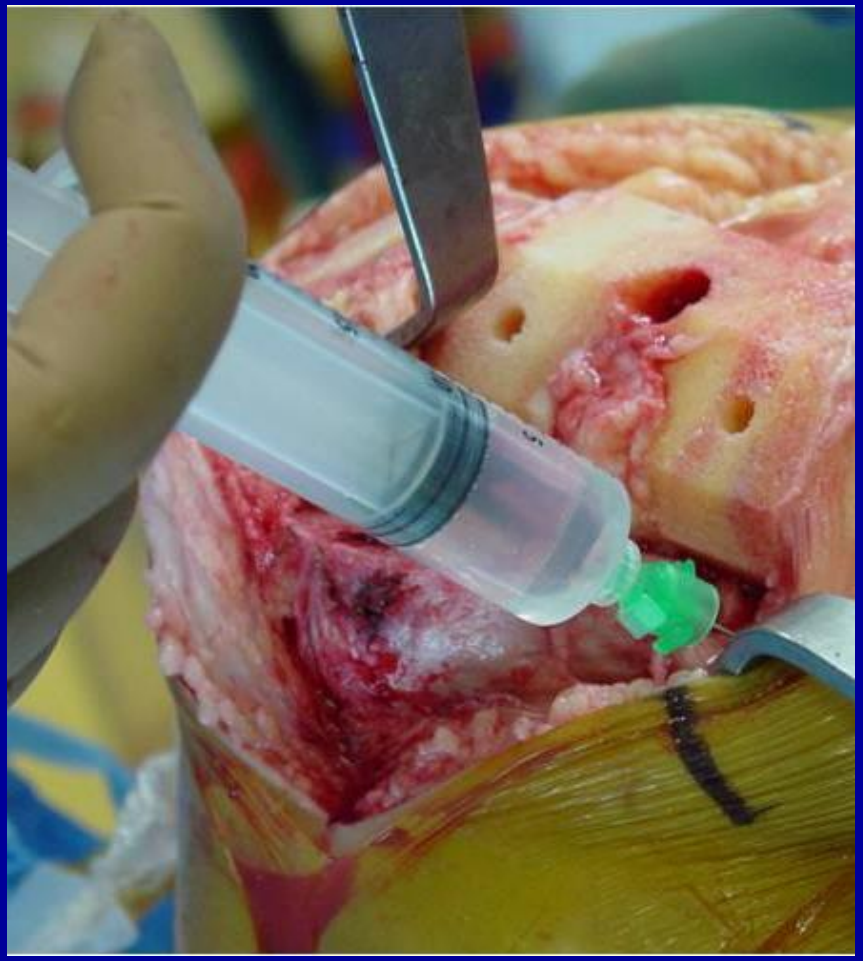


What to Inject?

- Many different cocktails. Much opinion, little science
- Exparel an intriguing option
  - Available
  - Expensive (4x)
  - Data thus far non superior to other cocktails

Areas for Improvement with LIA

- Where to inject?
  - Perisoteum, regions?
- What to inject?
  - Many choices
- How to inject?
  - 22 G and control syringes
- All make a difference
- Information coming



Rapid Rehab Protocol

- Average LOS now 1.2 days to home
- Anyone finished by 1500 leaves next day
- No readmissions for pain
- Critical aspects of early discharge:
  - Excellent pain control
  - Education of entire system (Nurses, Anesthesiologists, Therapists etc)
  - Early ambulation (DOS for everyone)
  - Pre-op education of patient is key

However

- Still a window at 36-48 hours of pain issues with TKR
- less clear injection areas around the hips
- Issues with production and storage
- Exparel: data lacking, expensive but available
- No good data on where to inject
- Controversy on cocktail ingredients

Summary

- Great progress in last few years
- Patients expect it; we should deliver it
- Exciting information on the way
- All contribute to enhanced recovery after TKR and THR

Thank you