Outpatient Knee Arthroplasty

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Framing the Scenario

• Total knee arthroplasty (TKA) has traditionally been thought of as an inpatient surgical procedure
• Most resistance to outpatient surgery is because of fear of pain control after surgery, limited mobility of the patients, and increased risk of complications
• Length of stay in the hospital after TKA has declined without any increase in perioperative complications
42 y/o female
Distal Femoral AVN
Tibia and meniscii good
Patella will need PFA in future

If we do this type of case as outpt, why not knee arthroplasty too?

CMS Removed TKA from IOL–
Inpatient-only List

• CMS said removing the procedure from the inpatient-only list does not prohibit providers from performing it in an inpatient setting
• Simply allows for Medicare coverage and payment for the procedure when performed in either the inpatient or outpatient setting
• 2018!!!

Cost Burden on Health Care System
2010 CDC Data

• 719,000 TKAs
• 332,000 THAs
• Cost ~ $178

• Expected by 2030
• 3.5 million TKAs
• 600,000 THAs

Need to Find Cost Effective Solutions
Cost

• Progressed from hospital to ASC already
• Arthroscopy
• ACL reconstruction
• Rotator cuff
• Spine
• Unicompartmental knee

Cost: ASC versus Hospital

• Typically 45-60% less in an ASC
• Colonoscopy: $625 vs $1,383
• Cataract: $964 vs $1,670

Recent OIG report: Billions could be saved if outpatient procedures reimbursed at ASC rates
Wive’s Tale: Quality

- Is the Hospital setting safer?
  - Recent Journal of Public Safety: “more than 400,000 premature deaths per year in the United States are associated with preventable hospital errors”
  - Global Trigger Tool – James
    - 4200 hospital records reviewed: 21% serious adverse events; 1.4% lethal adverse events

Quality - ASC

- Specialized team
- Physician control
- More accountability
- More resources
  - PT
  - Meds (e.g., liposomal bupivacaine)

Quality – Outpatient UKA

- Gondusky, et al., JOA 2014
  - 160 outpt UKAs
    - High patient satisfaction, no readmissions
- Dervin, et al., JOA 2012
  - 24 outpt UKAs
    - High patient satisfaction, no readmissions
Quality – outpatient TKA

- Lovald, et al., JOA 2013
  - Compared with outpatient surgery, inpatient care was associated with a higher risk of infection and greater risk of knee pain and stiffness
- Kolisek, et al., CORR 2009
  - No increase in complication rates for outpatient (23 hr stay) vs inpatient surgery

Insurance

- Private Payors
  - Need appropriate coverage for the ASC
  - Look at contract specifics including implant reimbursement
  - May need carve-outs for TJA codes
  - Look at bundled payment options

Outpatient Knee Arthroplasty

- As the movement toward outpatient TKA occurs, the focus must be on the patient's rapid recovery
- Starts with defined protocols
  - Patient selection
  - Patient education
  - Perioperative medical management
  - Careful pain control
  - Well-coordinated postoperative care by surgeons and other medical providers
Selection & Education

- Patient Selection
  - Orthopaedic evaluation and scheduling for surgery
  - Preoperative medical history and physical examination, including laboratory testing

- Patient Education
  - Educational materials are provided
  - Physical therapy evaluation and instruction
  - Preoperative educational class or video focused on outpatient total knee arthroplasty

Patient Education

- Patients provided educational materials before surgery
- Most questions the patients have should be answered by the provided readings
- Patients encouraged to view the facility and meet staff providing postoperative care
- Physical therapist can teach the patients how to use walkers or crutches and help patients and family anticipate how to manage activities of daily living after discharge
- Nurses explain proper wound care and how to assess for signs of complications
- Focus on educating the patient that outpatient TKA can be performed safely and with low risk of complications

Patient Portal

- Surgical Technique: Partial Knee Replacement with the Arthrex® Ilotrac® URA

On average when did patients report having less pain with this treatment option?
Pain Management

- **Night before surgery**
  - Acetaminophen 1 g orally

- **Day of surgery**
  - Acetaminophen 1 g orally
  - Celecoxib 400 mg orally (not used if cardiac history)
  - Dexamethasone 10 mg IV
  - Scopolamine 1.5-mg patch (not used if h/o BPH or glaucoma)
  - Pregabalin/gabapentin 600 mg orally (300 mg for patients > 65 years)

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Pain Management

- A multimodal approach to pain control must be used, starting before surgery and including after the patient is discharged home.
- Goal is to minimize pain, sedation, and nausea, while promoting early mobilization and safe discharge.

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Pain Management

- Peripheral pain from surgical trauma separated into two categories: neurogenic and inflammatory.
- After incision, a cascade of nociceptive signals will cause the neurogenic pain and secondary inflammation will follow.
- Any multimodal approach should start with preemptive administration of analgesic and anti-inflammatory medications to reduce perception of pain from reaching the CNS.
- Preemptive blocking of the nociceptive signals before painful stimulus has been proposed to decrease the intensity of postoperative pain.

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Pain Management

• Postoperatively
  • Hydromorphone 0.5 mg IV every 10 min as required up to 2 mg
  • Acetaminophen 1 g orally (4 h after first dose)
  • Oxycodone 5 mg orally for pain levels 1–3
  • Hydrocodone/acetaminophen 5/325 mg 1 pill for pain levels 1–3
  • Hydrocodone/acetaminophen 5/325 mg 2 pills for pain levels 4–10
  • Diazepam 2.5 mg IV as required for spasms

• Home Medications
  • Hydrocodone/acetaminophen 5/325 mg 1–2 pills every 4–6 h as required for pain
  • Oxycodone 5 mg orally 0–2 pills every 4–6 h as required for severe pain
  • Hydromorphone 2 mg 1 pill every 4–6 h as required for breakthrough pain
  • Celecoxib 200 mg orally daily for 2 weeks

Anesthesia

• Regional Anesthesia
  • Sciatic nerve block: 15 mL 0.1% ropivacaine or my preferred iPACK block by anesthesia (or surgeon interop) with Ranawat’s Solution
  • Adductor canal block: 15 mL 0.5% bupivacaine

• Intraoperatively
  • Pericapsular injection: 50 mL 0.5% ropivacaine, 0.5 mL 1:1000 epinephrine, 1 mL
  • 30 mg ketorolac (not used in patients with renal impairment)
  • Narcotics are titrated and used sparingly

iPACK Block

• Infiltration between Popliteal Artery and Capsule of Knee
  • Avoids issues with sciatic block
  • Administered via US guidance or surgeon via posterior capsular approach after bony cuts
  • Local anesthetic placed between posterior capsule of the knee and the popliteal artery
  • Only the terminal sensory branches of the tibial nerve innervate the posterior knee joint
  • Posterior articular nerve of the tibial nerve crosses the posterior capsule at the level of the oblique popliteal ligament and supplies the capsule and meniscal synovial junction, cruciate ligaments and the infrapatellar fat pad
Surgical Analgesia

• Local infiltration of the periarticular tissue with local anesthetics
• Long-acting narcotic added to local injections can reduce need for narcotics postoperatively, improve pain control and ROM
• Liposomal-bound bupivacaine can provide up to 72 hours of local effects
• Combination of these factors provides adequate pain control, while limiting side effects and complications, making outpatient TKA a reality

Blood Management

• Intravenous crystalloid hydration is started
• Tranexamic acid 1 g IV preoperatively (if no contraindications are present)
• Tranexamic acid 1 g IV 3 h after first dose (topical tranexamic acid is used in selected patient with increased risk of clot formation)
• No tourniquet use maintain normal physiologic blood flow throughout case
• Slow in (cautery and meticulous hemostasis) and Fast close

Discharge

• After patients have met all goals and are ready for discharge, they are provided with instructions and materials to help at home
• Outpatient (potentially home-based) physical therapy and rehabilitation is outlined
My Practice, Past 12 Months

- 480 cases per year
- 45:45:10, Knee/Shoulder/Hip
- ~ 220 knees
- 60 UKAs, 10:1 ratio Medial to Lateral, since February 2013
- 10 UKAs with ACLRs (2 Lateral)
- 2 UKA after iBalance HTO
- All as true outpatient surgery, preop femoral block, interop IPACK block, no tourniquet
- 45 min UKA, 75 min UKA/ACLR

Key Points

1. Insurance companies are pushing partial and total knee replacements into the outpatient setting
2. Anesthesia must be controlled well to send patients home the same day
3. Patient advocates are necessary to increase patient comfort and safety
4. Outpatient partial and total knees necessitate a strong relationship with a local hospital and anesthesia

The Way Forward

- Many studies have shown outcomes for outpatient arthroplasty to be successful
- Outpatient arthroplasty should not be attempted without preestablished protocols and multimodal approaches for proper patient care
- Easiest way for surgeons to transition to outpatient TKA is by implementing rapid recovery protocols in their current practice, which will provide a safety net of traditional pathways to fall back on until the rapid recovery protocols are refined

Outpatient Arthroplasty

Priorities for Healthcare Providers

Reduce Complications
Eliminate Re-Admissions
Reduce Length of Stay
Enhance Patient Satisfaction
Attract More Patients

Outpatient Arthroplasty – AAOS 2015

• Audience response data
  • 24% had performed outpt UKA
  • 12% had performed outpt TKA
  • 11% had performed outpt THA
  • 12% had performed outpt TKA
• You will not be the First or Last to board this sailing ship
• BUT – IT IS TIME to Jump on Board!!
• Safe, Cost effective

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Thank You
Questions?