

Modern Pain Management for Joint Replacements

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History of Joint Replacement



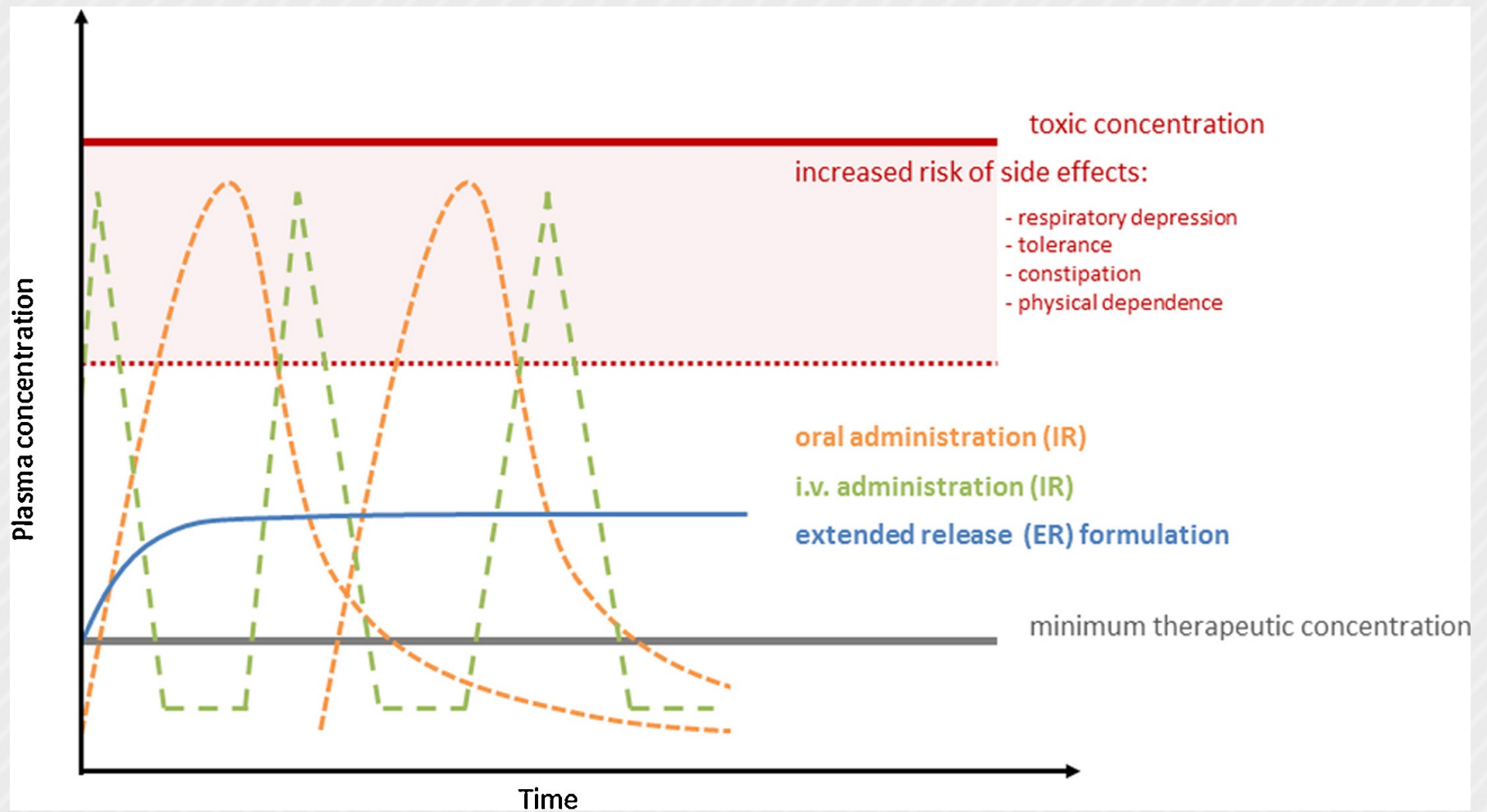
- 2000's
- Prolonged hospital stays
 - 3-5 days in hospital
 - 21 days in SNF
- Limited mobility
- Poor pain control

Joint Replacement



Past Solutions





Effect of Opioid vs Nonopioid Medications on Pain-Related Function in Patients With Chronic Back Pain or Hip or Knee Osteoarthritis Pain

The SPACE Randomized Clinical Trial

Erin E. Krebs, MD, MPH; Amy Gravelly, MA; Sean Nugent, BA; Agnes C. Jensen, MPH; Beth DeRonne, PharmD; Elizabeth S. Goldsmith, MD, MS; Kurt Kroenke, MD; Matthew J. Bair; Siamak Noorbaloochi, PhD

- RCT of 240 patients with chronic back, hip, or knee pain
- No pain related functional difference
- Lower pain intensity in nonopioid group
- More medication related side effects in opioid group

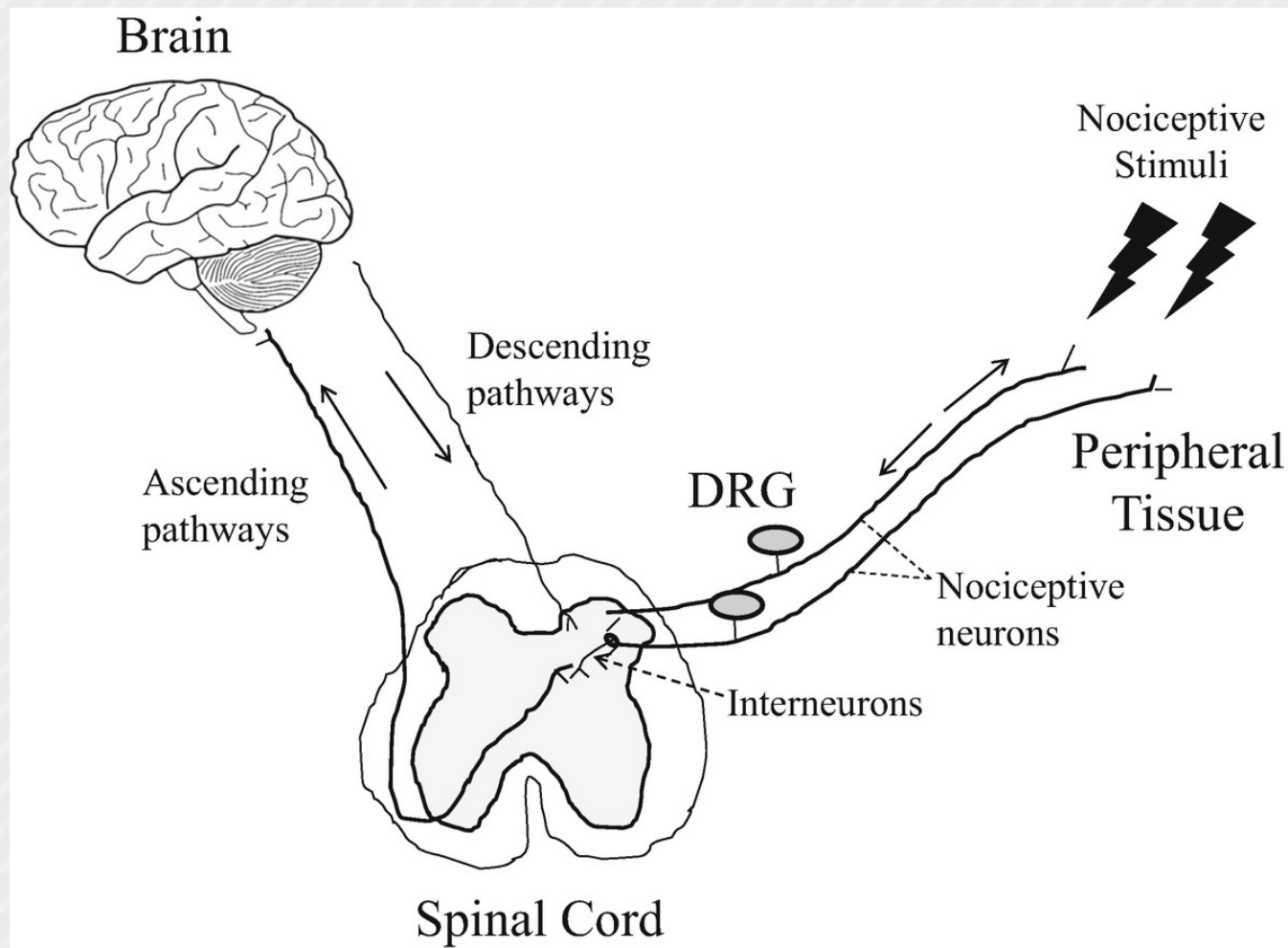
“High Pain Tolerance”



I have high pain tolerance



What is Pain?



Primary Hip & Knee Arthroplasty

Resilience and Depression Influence Clinical Outcomes Following Primary Total Joint Arthroplasty

Jonathan Q. Trinh, BS ^a, Christopher N. Carender, MD ^a, Qiang An, MS ^a,
Nicolas O. Noiseux, MD ^a, Jesse E. Otero, MD, PhD ^b, Timothy S. Brown, MD ^{a,*}

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Association Between Preoperative Depression and Readmission Rate Following Primary Total Joint Arthroplasty: A Systematic Review and Meta-Analysis

Harin Kim, MD ^a, Chul-Ho Kim, MD, PhD ^{b,*}

^a Department of Psychiatry, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Republic of Korea

^b Department of Orthopedic Surgery, Chung-Ang University Hospital, Chung-Ang University College of Medicine, Seoul, Republic of Korea

Depression and Anxiety Are Risk Factors for Postoperative Pain-Related Symptoms and Complications in Patients Undergoing Primary Total Knee Arthroplasty in the United States

Xin Pan, MD ^{a,b}, Jian Wang, MD, PhD ^a, Zeming Lin, MD, PhD ^a, Wenli Dai, MD, PhD ^a,
Zhanjun Shi, MD, PhD ^{a,*}

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Modern Joint Replacement





FLORIDA
ORTHOPAEDIC
INSTITUTE

Keeping you active.

Modern Pain Management

- Pain control begins before surgery
- Treating the whole person
- Use of regional anesthesia
- Postoperative multi modal medication regimen
- Emphasis on non-opioid medications



Preoperative Risk Stratification

- Pain Catastrophizing score
- Recent narcotic use
- History of prior narcotic use

0 – not at all 1 – to a slight degree 2 – to a moderate degree 3 – to a great degree 4 – all the time

When I'm in pain ...

₁ I worry all the time about whether the pain will end.

₂ I feel I can't go on.

₃ It's terrible and I think it's never going to get any better.

₄ It's awful and I feel that it overwhelms me.

₅ I feel I can't stand it anymore.

₆ I become afraid that the pain will get worse.

₇ I keep thinking of other painful events.

₈ I anxiously want the pain to go away.

₉ I can't seem to keep it out of my mind.

₁₀ I keep thinking about how much it hurts.

₁₁ I keep thinking about how badly I want the pain to stop.

₁₂ There's nothing I can do to reduce the intensity of the pain.

₁₃ I wonder whether something serious may happen.

...Total

Preoperative Reduction of Opioid Use Before Total Joint Arthroplasty

Long-Co L. Nguyen, BA, BS ^a, David C. Sing, BS ^a, Kevin J. Bozic, MD, MBA ^{b, *}

^a *University of California San Francisco School of Medicine, San Francisco, California*

^b *Department of Surgery and Perioperative Care, Dell Medical School, University of Texas at Austin, Austin, Texas*

- Retrospective matched cohort study
- 3 groups
 - Opioid naive
 - 50% reduction in opioid consumption
 - Chronic opioid users with no reduction
- Patients who reduced consumption had greater post operative outcome improvement in disease specific and generic measures of health compared to chronic users
- These improvements were comparable to opioid naive patients

Preoperative Medication

- Goals:
 - Block inflammatory cascade
 - Prevent pain and nausea
- Tylenol 1000 mg po
- Celebrex 200 mg
- Lyrica 75 mg
- Dexamethasone 10 mg
- Scopolamine

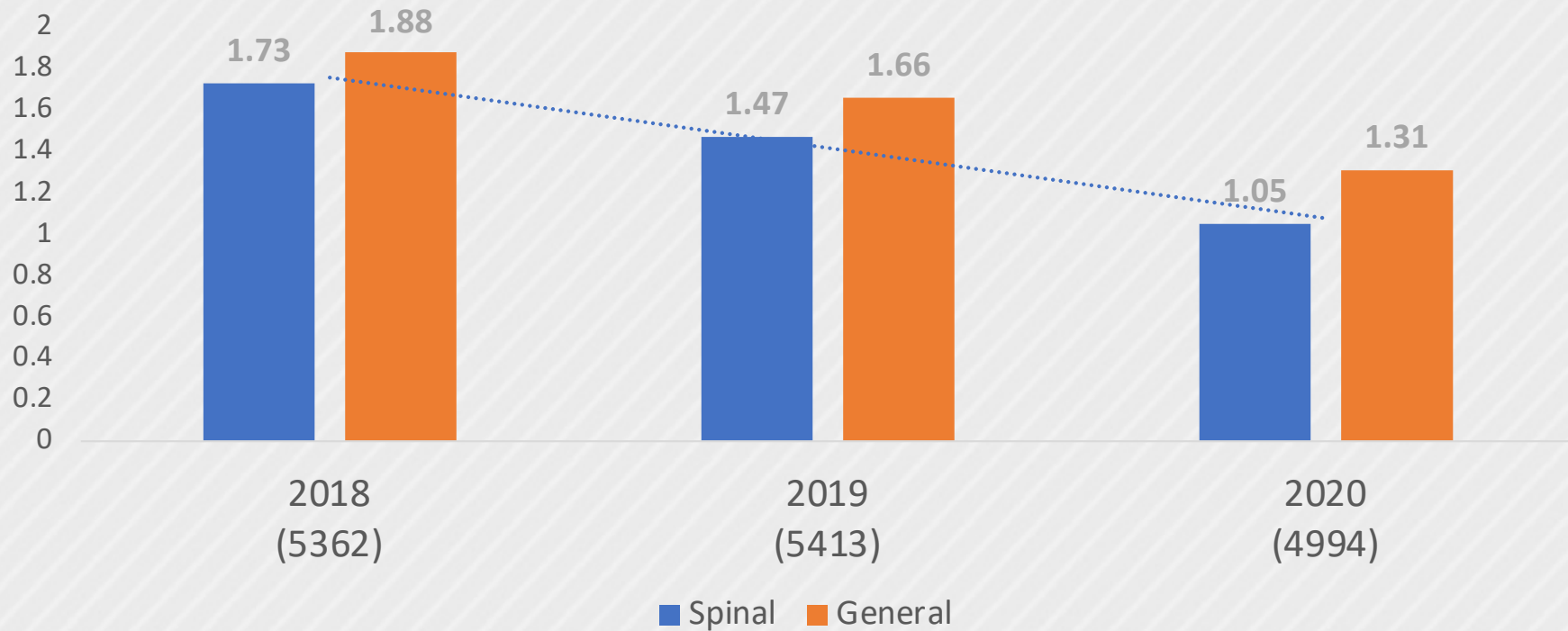


Neuraxial Anesthesia

- Peripheral nerve blocks
 - Adductor canal block
 - Fascia iliaca block
 - Less motor blockade
- Spinal anesthesia
 - Less nausea
 - Lower DVT rates
 - Shorter LOS
 - Less pain



BayCare Total Joint Pathway LOS by Anesthesia Type 2018, 2019, & 2020



Periarticular Injection



- Reduces pain and opioid consumption
- Many different cocktails
 - Bupivacaine
 - Epinephrine
 - Clonidine
 - Ketorolac
 - Corticosteroids

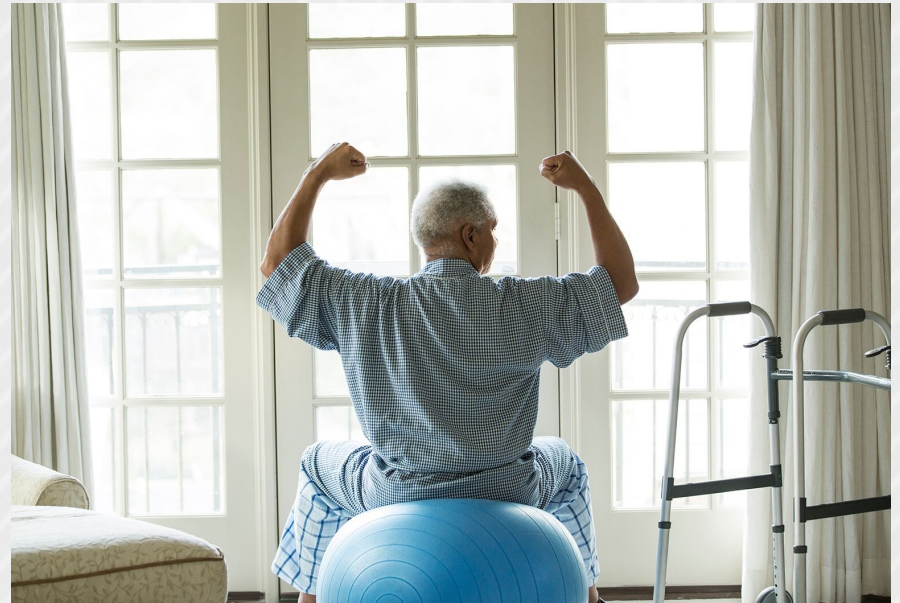
In Hospital Pain Control

- Ketorolac 15 mg IV
- Celebrex 200 mg po BID
- Tylenol 1000 mg po q8
- Tramadol 50 mg q 6 prn
- Oxycodone 5 mg q 4 prn
- ASA 81 mg po BID
- Limit IV opioids
- NO PCA



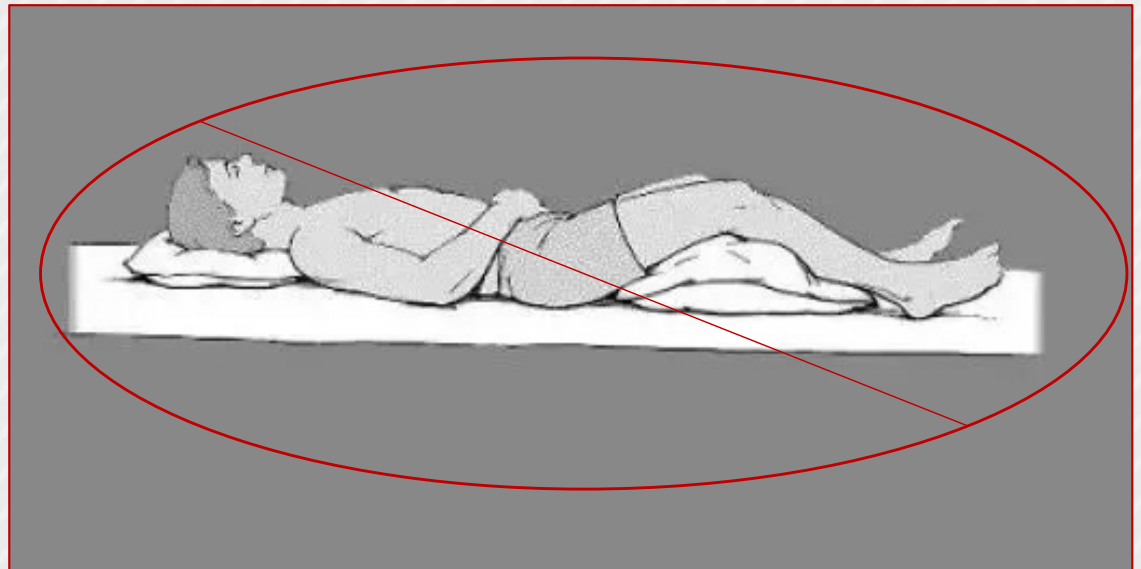
Post Discharge Pain Control

- Focus on limiting narcotics
- Celebrex 200 mg po BID
- Tylenol 1000 mg po q8
- Tramadol 50 mg q 6 prn
- Oxycodone 5 mg q 4 prn
- ASA 81 mg po BID

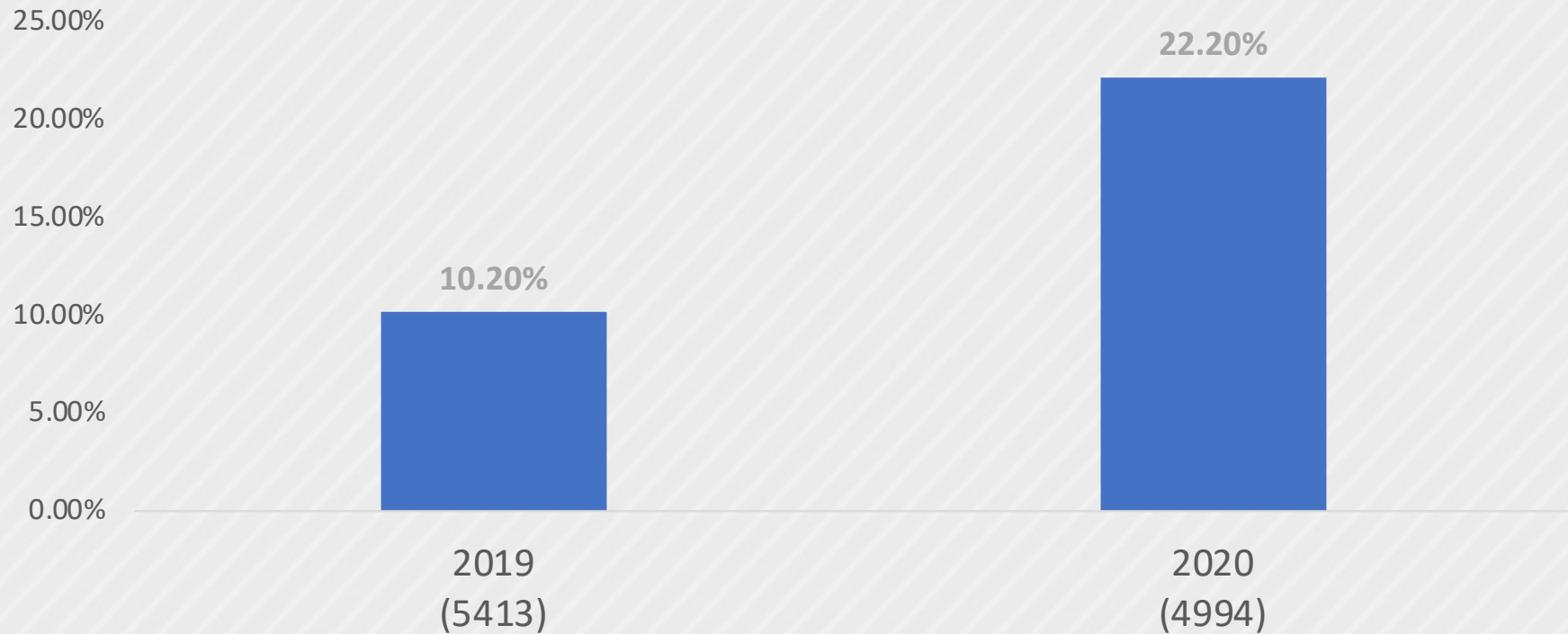


Ice and Elevation

- 6 times a day for 30 minutes
- Never put a pillow behind the knee



BayCare Total Joint Pathway Opioid Free Recoveries 2019 & 2020



Future Avenues

- Emphasis on psychological aspects of pain as a modifiable risk factor
- Cryoneurolysis



A Randomized Controlled Trial of Psychological Intervention to Improve Satisfaction for Patients with Depression Undergoing TKA

A 2-Year Follow-up

Xiao Geng, MD Xinguang Wang, MD Ge Zhou, MB Feng Li, MD Yang Li, MD
Minwei Zhao, MD Hongling Chu, PhD Jitao Li, PhD Tianmei Si, PhD, MD
Zhongjun Liu, MD Hua Tian, MD

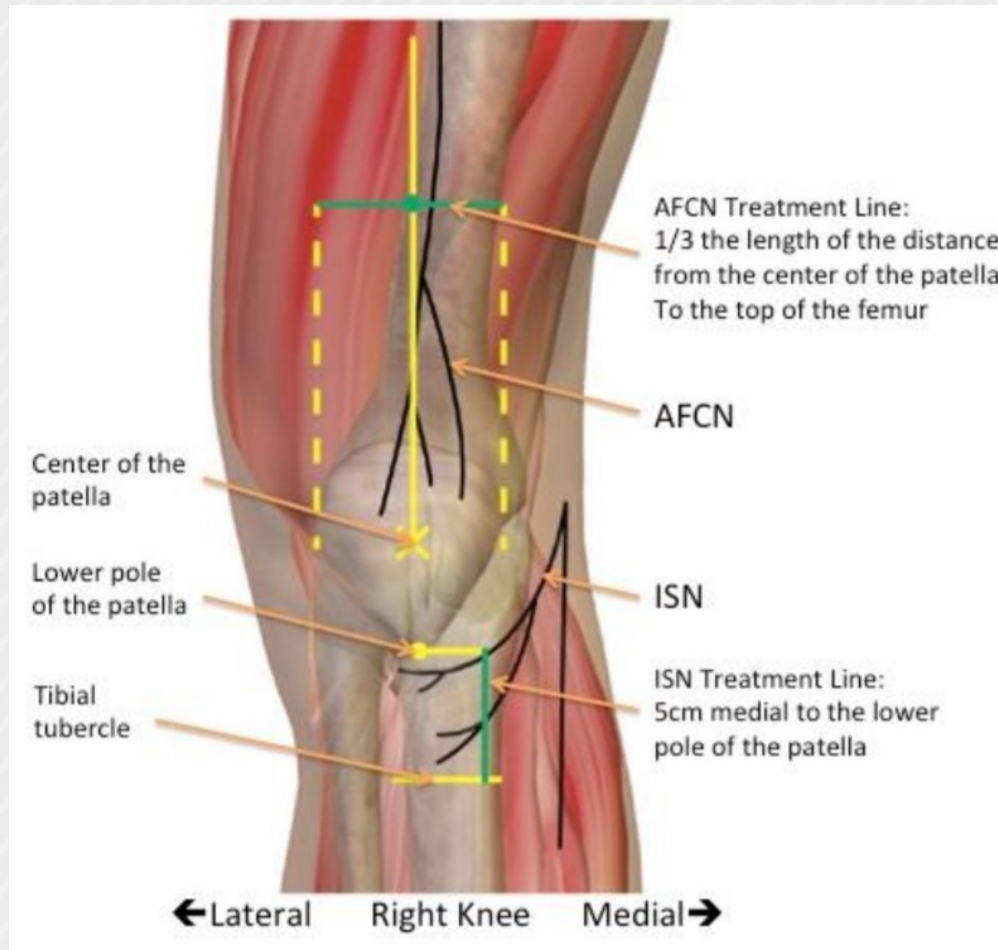
- 49 patients with preexisting clinical depression
- Treatment group received psychological treatment from psychiatrist
- Control group no intervention
- 6 months: 88% satisfaction treatment, 62.5% control
- Better clinical outcomes scores (WOMAC, HSS, max ROM) in treatment group

Brief preoperative mind–body therapies for total joint arthroplasty patients: a randomized controlled trial

Hanley, Adam W.^{a,b}; Gililand, Jeremy^{c,d}; Erickson, Jill^c; Pelt, Christopher^c; Peters, Christopher^c; Rojas, Jamie^{a,b}; Garland, Eric L.^{a,b,d,*}

- 3 arms:
 - Mindfulness meditation (MM)
 - Hypnotic suggestion (HS)
 - Cognitive behavioral therapy (CBT)
- Single preoperative 15-minute intervention
- MM and HS led to less preop pain intensity, pain unpleasantness, and anxiety
- MM also lowered preop pain medication desire and increased postop physical function at 6 weeks

Cryoneurolysis



- Freezing of the anterior femoral cutaneous nerve and infrapatellar branch of saphenous nerve
- Performed 5 days prior to surgery

Percutaneous freezing of sensory nerves prior to total knee arthroplasty

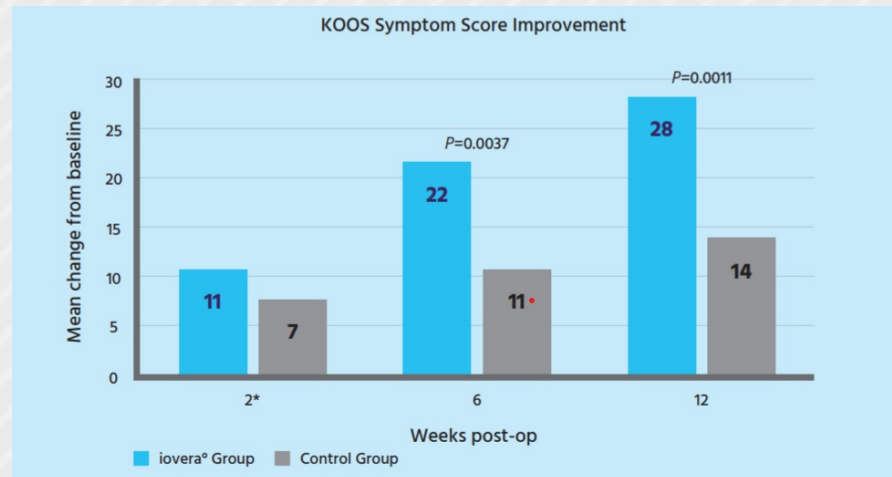
Vinod Dasa ^{a,*}, Gabriel Lensing ^b, Miles Parsons ^b, Justin Harris ^b, Julia Volaufova ^c, Ryan Bliss ^a

^a Department of Orthopaedics, LSUHSC School of Medicine, New Orleans, LA 70112, United States

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^c LSUHSC School of Public Health, 2020 Gravier Street, Office #256, New Orleans, LA 70112, United States

- The treatment group required 45% less opioids during the 12 weeks after surgery, based on prescription requests
- Compared with the control group, the treatment group demonstrated a significantly greater improvement in KOOS symptom scores at 6 weeks and 12 weeks
- The treatment group demonstrated within-group significant reductions in PROMIS[®] pain intensity and pain interference at 2- and 6-week follow-up, respectively ($P < 0.0001$)
- The most common side effect was local bruising at the site of treatment



Conclusion

- Less emphasis on narcotics
- Optimization of non-narcotic therapies
- More emphasis on mental health
- Less pain and earlier return to function
- **Happier patients**

Thank you!