

Challenges in Managing Acute Pain in Patients with Chronic Pain

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Objectives

- Identify particular challenges related to acute pain management in patients with chronic pain.
- Describe assessment of acute pain in patients with chronic pain.
- Identify nonpharmacological and pharmacological multimodal therapies to manage acute pain in patients with chronic pain.

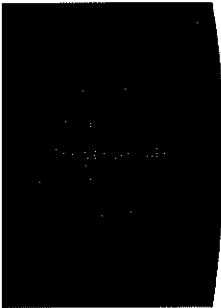
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Opioid-tolerant vs. matched controls

- Increased Pain Sensitivity
- Higher pain scores
- Require more post-op opioid analgesia ("greater than a mere replacement dose")
- Fewer side effects (except sedation)
- Required more anxiolytics

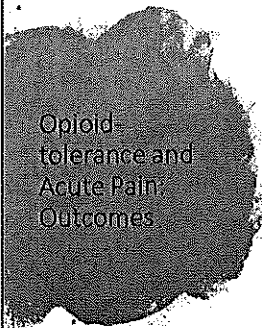
"Opioid tolerant, pain intolerant"
Peng et al 2005

Arzoo et al. 2009; Ross, S. C., Reade, L. B., & Haskins, M. L. (2005). Acute pain management in patients with prior opioid consumption: a case-control retrospective review. *Pain, 115*(2), 293-301.
2005; Ross, S. C., Reade, L. B., & Haskins, M. L. (2005). Acute pain management in patients with prior opioid consumption: a case-control retrospective review. *Pain, 115*(2), 293-301.



- Increased length of stay
- Higher postop complications
- Higher Readmission Rates

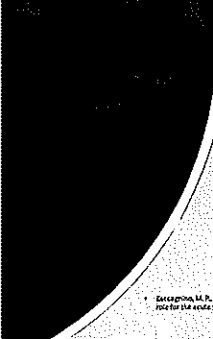
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Opioid tolerance and Acute Pain: Outcomes

- Opioid tolerant patients compared to controls
- Study at Mass General, 6 mos., 4 risk adjusted groups based on expected LOS (<2d, 2-4.99d, 5-10d, >10d)
- N= 2,096 opioid tolerant vs controls
 - Longer lengths of stay;
 - 7.02 d vs 5.66d (p< 0.01 except 4th group).
 - Greater 30 day all-cause readmissions
 - 16.3% vs 9% (p<0.01 except 4th group)

© 2018 P. Williams, L. Chaturvedi, S. Young, et al. JAMA. 2018;319(12):1211-1218. doi:10.1001/jama.2018.12111



- Preop Assessment is ideal
- Baseline pain and character
- Medication history verified?
- Co-morbidities, psych hx
- Psych history
- SUD history
- Discuss fears and expectations
- Set goals—what is realistic?
- Develop a plan for perop pain management

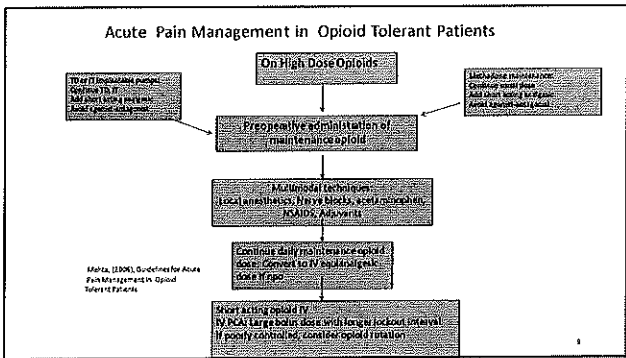
© 2018 M. P. et al. JAMA. 2018;319(12):1211-1218. doi:10.1001/jama.2018.12111

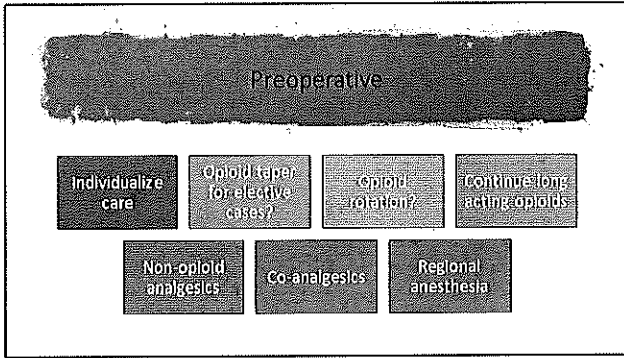
What if the Patient with Chronic Pain Requires Surgery?

"A clear strategy for pain management should be established before surgery."

7/16/2008

Wong J, et al. JAMA. 2008;300:11-18. doi:10.1001/jama.300.0118





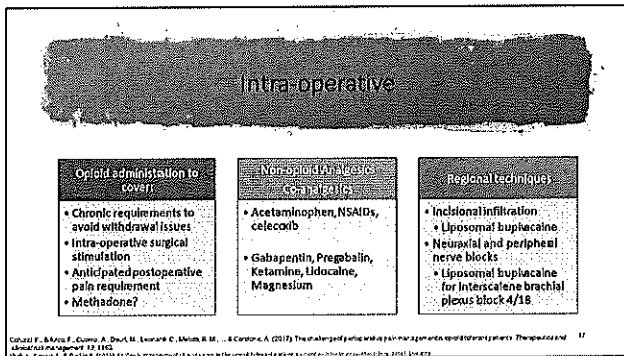
Taper in Total Joint Arthroplasty

- Taper by 50% vs chronic opioid use (>4 wks) vs opioid naïve (n=41/group)
- Tapered group had > functional outcomes than non-tapered, but not as high as opioid naïve.

Taper in Spine Surgery-preliminary report and cases series (n=5)

- Outpt biopsychosocial interdisciplinary opioid reduction program 6-7 weeks
- MEDD decreased 238.2mg at start to 139.1mg preop to 139.1mg 1mo postop
- Opioid dose, pain interference scores decreased
- Depression, anxiety, fatigue, function, sleep, social interactions improved

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Postoperative

Multimodal analgesics	Nonpharmacological approaches	Scheduled, not PRN, analgesics	Anticipate higher pain score, greater frequency and greater opioid use than usual for this type of surgery
Consider analolytic	Monitor renal/hepatic as required	Patient combination can be overwhelmed by a goal of opioid free	Assess renal/hepatic as well as respiratory

Coates T, Mills F, Clark A, Clark R, Baroni C, Moran R, et al. (2017) The effectiveness of multimodal analgesia in acute postoperative pain management. *Thrombosis and Haemostasis*, 117, 1113-1125. DOI: 10.1111/1365-3113.12625

Multimodal Approach:

“the concurrent use of separate therapeutic interventions with different mechanisms of action within one discipline aimed at different pain mechanisms” (IASR 2017).

Multimodal Agents

Opioids	Local Anesthetics	Acetaminophen, NSAIDs, COX-2 Inhibitors	Alpha 2-agonists
Aniliconalsants	NMDA receptor antagonists	Adjuncts (muscle relaxants, benzodiazepines)	

*These guidelines for chronic pain management are updated reports by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine. *Anesth Analg*, 117, 1001-1011.

Requirement 30-100% higher than opioid naïve;
30-50% higher than baseline. Longer duration of
therapy.

Resume long acting if po

PCA demand doses, expect higher doses,
adjustments in lockout

PCA Basal 1/3-1/2 baseline po or IV if in closely
monitored setting**

2014 Pain, Palliat & Support Care 22(4):303-313
10.1016/j.pain.2014.05.011
Doherty, S., Pagan, S., & Quinn, B. (2015). Analgesic management of acute pain in the operating room. *Current Opinion in Anaesthesiology*, 29(1), 39-43.

Non-opioid Analgesics

- Provide acetaminophen and/or NSAIDs as part of a multimodal analgesia plan, unless contraindicated (strong recommendation, high quality evidence)
 - Less pain, less opioid consumption
 - Combination of APAP/NSAIDs more effective than either agent alone
- Give a preoperative dose of celecoxib to adults without contraindications (strong rec, mod evidence)
 - 200-400mg 30-60 min preop
- Celecoxib 400mg preop vs placebo: reduced time to 1st postop rescue dose (6.6h vs 2.3h), reduced need for rescue meds (63% vs 91%), no change in ADEs

Journal of Pain and Palliative Care Pharmacotherapy
Volume 28, Number 3, June 2014

Acetaminophen

- > 50kg: 1Gm IVPB q6hrs

IV Ketorolac

- 15-30 mg (7.5-15 mg) IV every 6 hrs (8 hrs) x 5 d max

IV Ibuprofen

- 400-800 mg over 30 min every 6 hrs

IV Diclofenac

- 37.5mg IV q6hrs

Gabapentin/Pregabalin

- Gabapentin or pregabalin as component of multimodal analgesia (strong rec, mod quality evidence)
- Preop (1-2 hrs): gabapentin 600-1200mg
pregabalin 150-300mg
- Postop: gabapentin 600mg as single dose or multiple doses
pregabalin 150mg or 300mg after 12 hrs
- Reduced dose in renal disease
- May cause sedation, dizziness, ataxia

Paul J. & Mathias, O. (2019) Advances in Pain Management
1(1): 22-27
© 2019 Society ASA & Pain Medicine, ASA 2019 Guidelines
DOI: 10.1016/j.aspm.2019.01.001

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Gabapentin: Recent controversy

Gabapentin may have a limited if any role in acute postoperative pain management of opioid-naïve patients undergoing total knee arthroplasty and should not be recommended as a standard of care.

• Luo, T.H., Husted, H., Larson, M.B., Harren, D., ReVeith, R. Analgesic and sedative effects of perioperative gabapentin in total knee arthroplasty: a randomized, double-blind, placebo-controlled dose-finding study. *Pain* 2015; 156:3418-45

Meta-analysis of prophylactic gabapentin for postoperative pain relief in total knee arthroplasty.

• Han, C., Li, X. D., Jiang, H. Q., Ma, J. X., & Ma, X. L. (2015). The use of gabapentin in the management of postoperative pain after total knee arthroplasty: A PRISMA-compliant meta-analysis of randomized controlled trials. *Medicine*, 95(13).

Alpha₂ Agonists: Clonidine, Dexmedetomidine

- Blunt the signs of withdrawal: HTN, tachycardia, anxiety, agitation, and generalized pain
- Clonidine: intrathecal, epidural, transdermal, oral (start 0.1mg po daily-TID). Titrate
- Dexmedetomidine: 1mcg/kg; 0.2-0.7 mcg/kg/h
 - SE: excessive sedation, hypotension, bradycardia, dry mouth. Use cautiously in older adults.
- Less post op pain, lower morphine, less s/e

Methadone

Powerful synthetic opioid and NMDA receptor antagonist

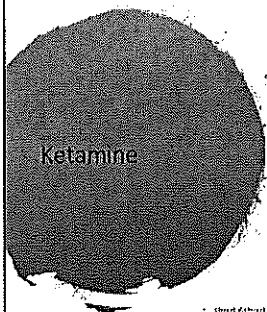
Very effective analgesic

Long half life, excellent bioavailability, low cost

Multiple sites of action may enhance efficacy

Shin J, Kayser S, & Bucher B. (2015). Analgesic management of pain in the spinal anesthesia and Central nervous system. *EAHA*, 33(4):432

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Ketamine

- NMDA antagonist, reduces opioid requirement, may reduce hypotension
- Analgesic (opioid equivalent 1:1)
- AKI hypotension
- Analgesia is double that of morphine
- IV administration
 - rapid onset - 30 seconds
 - peak effect within one minute
 - short duration up to 60 minutes
 - half-life of 2-3 hours
 - infusion: 2-7 mcg/kg/min

• Ghoshal A, Choudhury R, Prasad A, et al. (2018). Ketamine. *EAHA*, 36(1):110-117

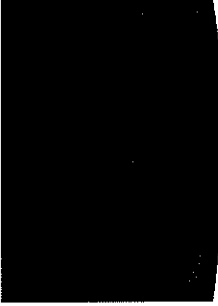
Intravenous Lidocaine Infusion

- Bolus and infusion may be initiated intraoperatively
 - 1.5mg/kg bolus
 - 1.5mg/kg/hr infusion
- Efficacy for acute postop pain and neuropathic pain
- Particularly beneficial after abdominal surgeries
- Reductions in postoperative pain and opioid requirement; reduced ileus, LOS, and nausea/vomiting


Erpeneck M, Wang Q, Li M, Anagnostis S, et al. (2018). Lidocaine. *EAHA*, 36(1):118-124

McCarthy D, et al. (2018). Impact of intravenous lidocaine infusion on postoperative analgesia and recovery from surgery. *EAHA*, 36(1):125-131

Lee Y, et al. (2018). Postoperative analgesia and opioid consumption after intravenous lidocaine infusion in patients with acute abdominal pain. *EAHA*, 36(1):132-138




- Single dose IV 1-2 h preop or Intraop shown to reduce 24h postop opioid requirement and pain scores in a variety of surgical conditions.
- Reduces Inflammatory response
- Varied dosing practices; bolus ranges 8-20mg (0.2mg/kg)
- Postop dosing in some studies







Special Challenges
 OUD, Medication Assisted
 Treatment and Acute Pain

Active OUD and Acute Pain

- Multimodal Analgesia
- Will require opioid therapy- pain management/avoid withdrawal
- Use of PCA to quantify requirements
- Scheduled, not PRN opioids
- Clonidine/anxiolytics
- Close monitoring: Respiratory Depression can still happen!
- Wean off opioids prior to discharge
- Refer to medication assisted treatment



-  Maintenance opioid agonist confers analgesia
-  Use of μ opioids to treat pain may cause addiction relapse
-  μ opioids will cause respiratory depression
-  Pain complaint may be manipulation to get more medications


APR 6, 2018, JAMA ARCHIVES OF INTERNAL MEDICINE, 2018; 248(12):1327-1334

Medication Assisted Treatment


Medication	Action	Dose	Where is it obtained?	Comments
Metadone	Full mu-opioid agonist - can reduce craving for 24 hours	Usual 60-120 mg PO once daily - patients on the opioid treatment program take daily for observed dosing	Must be administered through a full-fledged Opioid Treatment Program	Provides analgesia for 6-12 hrs, more than once daily dosing necessary for pain management. Stop drug drug interactions. Observe QTc. Prescribing in apt doses (every 8 or 12 hours). If morphine administered used higher doses. Implants can be removed prior to six months, less drug/drug interactions than methadone
Buprenorphine/buprenorphine (prescription) Buprenorphine implants	Partial mu-agonist occupies mu receptors reduces craving/withdrawal decreases effect if injected	6-24 mg sublingual transdermal once daily 0.5 mg implant every 6 months	Can be prescribed by physicians, nurse practitioners and physician assistants who have received special DEA number subdermal implant office procedure	
Naltrexone	Full mu-receptor antagonist	Strong orally daily 360 mg monthly intramuscular depot injection	Injection administered by any clinician who is prescriber	Also used for Alcohol Use Disorder. Will block the effects of opioids.

Source: JAMA Archives of Internal Medicine, 2018; 248(12):1327-1334


Acute Pain & Medication Assisted Treatment




Verify treatment (methadone, buprenorphine, naltrexone) with prescriber



Use multimodal analgesia



May need to supplement with IV PCA or immediate release opioids at higher doses



Scheduled doses rather than PRN analgesia

Methadone Maintenance and Acute Pain

- Continue with daily dose of methadone unless increased somnolence
 - po: IV 1:0.7
 - Divided doses until confirmed
- Supplement with immediate release opioids – if not able to take oral utilize IV PCA
- Multimodal analgesia part of regimen
- Monitoring for respiratory depression

Buprenorphine and Pain: Elective Surgery

- Expected Minimal to no pain (i.e. cataract surgery):
 - Continue buprenorphine, same dose as preop
 - Avoid supplemental opioids
 - Use non-opioid analgesics if no contraindications: NSAIDs, gabapentin, acetaminophen, local/regional anesthetics when appropriate
- Expected Moderate to severe pain (i.e. joint replacement)
 - Discontinue buprenorphine as below (postpone surgery if necessary):

Buprenorphine dose	Discontinue
0 to 4 mg daily	Stop 24 hours prior to surgery
Greater than 4 to 8 mg daily	Stop 48 hours prior to surgery
Greater than 8 to 12 mg daily	Stop 72 hours prior to surgery
Greater than 12 mg daily	Requires preop management plan with buprenorphine provider

Epstein, Cur Opioid Anesthetics by 2014

Buprenorphine/Pain/Unplanned Admission

- Utilize multimodal analgesia
- Expected minimal pain (i.e. endoscopy, cataract)
 - Continue buprenorphine if pain is controlled
- Expected moderate to severe pain
 - Discontinue buprenorphine
 - Anticipate higher doses of mu-agonist opioids will be needed for 72 hours until buprenorphine cleared
 - Consider monitored setting: increased risk for respiratory depression once buprenorphine cleared

Epstein, Cur Opioid Anesthetics by 2014

Type of Surgery	Preoperative Management	Intraoperative Pain Management	Postoperative Pain Management
Elective orthopedic surgery with low risk of opioid dependence	Discontinue oral opioids 72 hours prior to surgery	Use low-dose multimodal analgesia (NSAIDs, acetaminophen, gabapentin) and avoid opioids if possible. Reserve opioids for breakthrough pain.	Use multimodal analgesia and avoid opioids if possible. Reserve opioids for breakthrough pain.
Elective orthopedic surgery with moderate risk of opioid dependence	Discontinue oral opioids 72 hours prior to surgery	Use multimodal analgesia (NSAIDs, acetaminophen, gabapentin) and low-dose opioids. Reserve opioids for breakthrough pain.	Use multimodal analgesia and low-dose opioids. Reserve opioids for breakthrough pain.
Elective orthopedic surgery with high risk of opioid dependence	Discontinue oral opioids 72 hours prior to surgery	Use multimodal analgesia (NSAIDs, acetaminophen, gabapentin) and low-dose opioids. Reserve opioids for breakthrough pain.	Use multimodal analgesia and low-dose opioids. Reserve opioids for breakthrough pain.
Emergency orthopedic surgery with moderate risk of opioid dependence	Discontinue oral opioids 72 hours prior to surgery	Use multimodal analgesia (NSAIDs, acetaminophen, gabapentin) and low-dose opioids. Reserve opioids for breakthrough pain.	Use multimodal analgesia and low-dose opioids. Reserve opioids for breakthrough pain.
Emergency orthopedic surgery with high risk of opioid dependence	Discontinue oral opioids 72 hours prior to surgery	Use multimodal analgesia (NSAIDs, acetaminophen, gabapentin) and low-dose opioids. Reserve opioids for breakthrough pain.	Use multimodal analgesia and low-dose opioids. Reserve opioids for breakthrough pain.

Jones A. B., Katz A. D., & Urick R. D. (2016). Perioperative Pain Management: Best Practice Guidelines Recommendations for Pain and Management Practice. Pain Medicine Society of American College of Surgeons. 2016, 16, 22.

Discontinue oral 72 hours prior to surgery

Discontinue IV naltrexone one month prior to surgery

If unplanned pain/surgery:

- MMA, including regional anesthesia
- If opioids needed, naltrexone blockade may be overcome with 10-20 times usual opioid dose
- ICU setting for monitoring

Increased opioid overdose risk if relapses after naltrexone discontinuation

Optimally – wean opioids prior to discharge

Discharge options:

- Patient returns to methadone maintenance
- If buprenorphine was discontinued, restart after mild withdrawal
- Must be opioid abstinent for 7 days to restart naltrexone
- Continue naltrexone treatment

Patient counseling about increased risk of overdose if relapse as may have decreased opioid tolerance

Pain Management after Discharge

- If opioids required after discharge
 - Consider possibility of transition to alternative level of care
 - If available co-management with addiction specialist with minimal supply of opioids after discharge
 - Consider use of abuse deterrent opioids although no long term evidence yet available
 - Utilize multimodal analgesia

Best practices

- Be open & forthright with patient
 - Provide reassurance to decrease anxiety
 - Enlist patient as active part of team
- Be aware of own biases and work to prevent them from interfering with care—process consultation helps
- For ambulatory or post-discharge planning, enlist clinical/community partners



Complex situations require complex solutions that are best crafted by a team of experts in their field.

Never worry alone

Seek out consultation for you and your patients

