Pain Treatment in Opioid Addiction

with special attention to

*Patients on Medication-Assisted Treatment*

Seddon R Savage MD, MS

Medical Director, Chronic Pain & Addiction Center
Silver Hill Hospital, New Canaan, CT

Director, Dartmouth Center on Addiction, Recovery & Education
Geisel School of Medicine Adjunct Faculty
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  – American Academy Addiction Psychiatry (PCSS-O)
  – International Association for the Study of Pain
  – Boston University (Scope of Pain REMS project)
  – American Medical Association
  – NY Society of Addiction Medicine
  – American Society of Addiction Medicine
  – University of South Alabama
  – American Pain Society
• Phenomenology of pain & opioid dependence
• Principles of treatment of pain in opioid dependence
• Practical considerations in acute, chronic and terminal pain in patient on MAT
- Phenomenology of pain & opioid dependence
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Pain is an unpleasant sensory and emotional experience associated with actual or threatened tissue damage or described in terms of such damage.

*International Association for the Study of Pain (IASP)*

1979 to present
Pain
Nociceptive & Neuropathic

Afferent nociceptive pathway
Afferent non-nociceptive sensory pathway

Lateral and Anterolateral Spinothalamic tracts

Nociceptors:
- Polymodal, high threshold
  - A-delta, c-fibers
  - Mixed fiber neurons

Sensitized by:
- kinins
- H+
- norEpi
- hypoxia
- prostaglandins

Spinal modulation
- norEpi, serotonin
- glutamate, NDMA

Mixed fiber neurons

Dorsal Horn

To Brain
- Multiple synapses
- Rich interconnections
- Modulation by
  - Meaning
  - Thoughts
  - Feelings
  - Memories

Transmission Modulation

Transduction Modulation

Perception Modulation

To Brain

- Multiple synapses
- Rich interconnections
- Modulation by
  - Meaning
  - Thoughts
  - Feelings
  - Memories
“A builder aged 29 came to the accident and emergency department having jumped down on to a 15 cm nail. As the smallest movement of the nail was painful he was sedated with fentanyl and midazolam. The nail was then pulled out from below.”

“When his boot was removed a miraculous cure appeared to have taken place. Despite entering proximal to the steel toecap the nail had penetrated between the toes: the foot was entirely uninjured.”

Courtesy of Robert Edwards, PhD,
Pain Inhibitor

Anzio Beachhead, 1944,

Observed:
- 75% of men badly wounded in battle declined morphine
- Similarly injured accident pts in Boston required high doses

Pain in Men Wounded in Battle, Annals of Surgery, January 1946
Henry Knowles Beecher, Harvard Surgeon & Anesthesiologist

Going Home.
"Strong emotions can block pain…the wound ….releases him from an exceedingly dangerous environment …to the safety of hospital…his troubles are over he believes…and becomes euphoric"
Relationship of Pathology and Pain

% of pain-free adults with lumbar disc bulge or protrusion on MRI

The New England Journal of Medicine

MAGNETIC RESONANCE IMAGING OF THE LUMBAR SPINE IN PEOPLE WITHOUT BACK PAIN

MAUREEN C. JENSEN, M.D., MICHAEL N. BRANT-ZAWADZKI, M.D., NANCY OBUCHOWSKY, PH.D., MICHAEL T. MORK, M.D., DESNE MALKASIAN, M.D., PH.D., AND JEFFREY S. ROSS, M.D.

© Mayfield Clinic

Courtesy of Rob Edwards, PhD
Physiologic Stimulus

Nociceptive → Neuropathic

Biopsychosocial Context of the Individual

Experience of Pain

- Biogenetics
- Sleep
- Culture
- Engagement
- Social Context
- Incentives
- Acceptance
- Conditioning
- Mood
- Experiences
- Meaning
- Self-Efficacy
- Coping
- Personality
- Engagement
Persistent Pain

- Secondary Physical Problems
- Sleep Disturbance
- Substance Misuse
- Anxiety Depression
- Functional Disabilities
- Cognitive Distortions
- Increased Stresses
Addiction

Secondary Physical Problems

Sleep Disturbance

Substance Misuse

Anxiety

Functional Disabilities

Depression

Increased Stresses

Cognitive Distortions
Prevalence of Pain
Addiction Treatment Patients

- Methadone maintenance patients
  - 61.3% (Jamison, 2000)
  - 80% (Rosenblum et al, 2003)
    - 37% severe

- Rx opioid addiction seeking buprenorphine Tx
  - 79% pain past 30 days (Potter et al, 2010)
  - 53% moderate-to-severe pain

- Substance abuse treatment inpatients
  - 78% (Rosenblum et al, 2003)
• Phenomenology of pain & opioid dependence
• Principles of treatment of pain in opioid dependence
• Practical considerations in acute, chronic and terminal pain in patient on MAT
Pain Treatment Goals & Options

**Psychobehavioral**
- Cognitive behavioral
- Tx mood/trauma issues
- Address substances
- Meditation

**Procedures**
- Nerve blocks
- Steroid injections
- Trigger point injections (TPIs)
- Stimulators
- Pumps

**Physical**
- Exercise
- Modalities
- Manual therapies
- Orthotics
- Acupuncture

**Medication**
- Non-steroidal anti-inflammatory drugs (NSAIDs)
- Anticonvulsants
- Antidepressants
- Topical agents
- Opioids
- Others

Cultivate well-being

Reduce pain

Self Care

Provider Care

Improve quality of life

Restore function
Opioid Reward

• Some drugs and dosing regimens induce greater reward than others
  – Rapidity of increase in blood level
  – Magnitude of blood level
  – Specific receptor effects
  – Periodicity of effects
    • Intermittent vs stable (Kreek et al, 2000; Gardner, Principles of Addiction Medicine, 2003)

• Does not occur in all individuals

• Pain may attenuate reward (Zacny et al, 1996)
Schedules of Administration

Plasma Concentration

Time

CNS side effects

Analgesia

0

Intermittent administration
IM/SC administration
Oral administration

PCA

Long-acting, CR meds

Intermittent bolus administration

Pain/withdrawal

Analgesia

CNS side effects

Plasma Concentration

0

Time
Pain Treatment in Addiction

General Principles

- Engage patient
- Treat pain effectively
- Address pain facilitators
- Address addiction
Engage Patient

• Perceptions of likely treatment efficacy impacts pain experience
• Investment in plan facilitates cooperation
• Plan treatment when pain anticipated
• Self-management critical to chronic pain treatment
Treat Pain Effectively

- Untreated pain may drive addiction, self medication and misuse
- Reduce or resolve causes when possible
- Appropriate pain strategies
  - Non-medication approaches when effective, safe, easily available and acceptable to patient
  - Less-rewarding meds when safe and effective
  - Potentially rewarding medications when needed
Address Pain Facilitators

• Acute pain
  – Anxiety, sleep disturbance, substance issues

• Chronic non-cancer pain
  – Anxiety, sleep disturbance, substance issues, depression, functional losses

• Terminal pain
  – Anxiety, sleep disturbance, substance issues, depression, functional losses, spiritual challenges, grief over impending losses
Address Addiction

• Acknowledge, assure not an obstacle to analgesia
• Encourage and support recovery
  – Pharmacologic support
  – Intensify psychosocial support
  – Assure safety: limited access and supply of opioids
• Address physiologic issues of drug use
  – Treat withdrawal
  – Accommodate usual opioid doses
    • Whether maintenance, street or pain prescribed
    • Opioid debt / accustomed dose must be met
    • Additional analgesia for acute pain
  – Anticipate tolerance in opioid-dependent patients
  – Be aware of opioid reward effects
Summary of Key Principles

• Address both pain & addiction
• Attention to multidimensional nature of the pain experience
• Consider physiologic dependence and its implications for pharmacologic management
• Take measure to support control of medications
• Phenomenology of pain & opioid dependence
• Principles of treatment of pain in opioid dependence
• Practical considerations in acute, chronic and terminal pain in patients on MAT
Acute Pain Treatment

Opioid-Dependent Individuals

- Provide baseline opioid requirements
- Treat pain-associated symptoms as indicated
- Non-opioid analgesia, if effective and available
  - NSAIDs, cold, transcutaneous electrical nerve stimulation (TENS), splints as helpful
  - Epidural infusions or peripheral neural blockade
Acute Pain Treatment
Opioid-Dependent Individuals

• Use opioids effectively when required
  – Consider tolerance in determining doses
  – Scheduled or continuous basis
  – PRN only for adjusting schedule
  – Patient-Controlled Analgesia (PCA)
  – Close observation/control of meds

• Address addiction as appropriate
  – Institute recovery activities
  – Stabilize or withdraw opioid as pain ebbs
Acute Pain Treatment
Methadone-Maintained Patients

• Continue methadone orally or IV (50% oral dose)
• Confirm treatment dose
  – If impossible → divided doses every 6 hours
  OR ...
  max. 20–40 mg orally (10–20 IV) per day
• Provide additional treatment for pain (opioid or other)
• Consider opioid other than methadone for analgesia
  – Faster onset, shorter half-lives, more titratable
  – Differentiates pain control from addiction treatment
  – If methadone, give every 6–8 hours
• Assume some tolerance in dosing
Acute Pain Treatment

Buprenorphine-Maintained Patients

Buprenorphine - highly avid receptor binding
- May block or reverse μ opioid analgesia
- Best practices evolving & debated

Options
- Non-opioid therapies
- Buprenorphine as usual, add avidly binding opioid hydromorphone, fentanyl
- Continue buprenorphine in divided 6–8 h doses & titrate
- Discontinue buprenorphine 2–3 days before event
  • Increase recovery supports as indicated (may add methadone)
  • Assures efficacy of full agonist opioids
  • Requires re-induction post acute event

Gourlay and Heit, 2008; Kornfeld & Manfredi, 2009
Acute Pain Treatment

Patients on Naltrexone

- Pain management practices evolving
- Opioid antagonist blocks mu opioid effects
- Similar principles to buprenorphine
  - Discontinue oral naltrexone for anticipated pain
  - Options for depot naltrexone or unanticipated pain
    - Non-opioid analgesia
    - Titration avid opioids
- Note: increased opioid responsiveness possible at nadir and immediately following treatment
Acute Pain Treatment with Opioids

Opioid-Addicted Individuals

• Inpatient supervision to deter medication misuse
  – Single room near nurses’ station
  – Limit visitors
  – Obtain consent for room inspections
  – No incoming packages (or inspect)
  – Avoid leaving paraphernalia in room

• Outpatients - dispensed or limited supply opioids

• Taper as condition heals
Approaches to Chronic Pain Recovery

Chronic Pain
- Pain medications
- PT/manual treatments
- TENs, thermal, etc
- Interventionalist Txs

Addiction
- CBT
- Meditation
- Group support
- Exercise

- Addiction medications
- Stimulation/acupuncture
Opioid Therapy of Chronic Pain
In Opioid Therapy of Addiction

• Options
  – Use maintenance medications for analgesia
    • Accommodate pain half-life: give methadone or buprenorphine every 6–8 hours
    • Titrate doses to analgesic doses
  – Provide additional opioids
    • Use maintenance methadone for baseline
    • Use short or long-acting medications for incident pain

• Challenges
  – Medication misuse
  – Systems issues
Opioid Therapy of Chronic Pain

In Opioid Therapy of Addiction

Intensive Best Practices critical

• Informed consent and written agreement
• Optimize medication schedule
  – Less reinforcing drugs when appropriate
  – Stable blood levels or time/activity contingent
• Support medication control with
  – Small scripts, clear indications for available PRNs, medication reviews, frequent DAUs
• Communication with co-support people
Opioid Therapy of Pain
In Terminal Illness

- Attention to psychosocial & spiritual recovery supports
- Transition buprenorphine to methadone if needed to permit titration of opioids
- Discontinue naltrexone
- Consider dispensing by trusted other
- Safeguard medications from multiple caretakers
- Titrate as needed for pain, observing for overuse side effects
Acute Pain Treatment

Case Study

- 46-year-old married, working man with two children
  - MMT for 4 years and abstinence from illicit drugs
- Hospitalized for 2 days following motor vehicle accident
  - Right tibia and three right rib fractures
  - Requires pain control in hospital
  - Requires a few days pain control as an outpatient
Pain Treatment Options & Goals

Psychobehavioral
- Cognitive behavioral
- Tx mood/trauma issues
- Address substances
- Meditation

Procedures
- Nerve blocks
- Steroid injections
- Trigger point injections (TPIs)
- Stimulators
- Pumps

Physical
- Exercise
- Modalities
- Manual therapies
- Orthotics
- Acupuncture

Medication
- Non-steroidal anti-inflammatory drugs (NSAIDs)
- Anticonvulsants
- Antidepressants
- Topical agents
- Opioids
- Others
Consider the following approaches to treat his acute pain as an outpatient...

1. Increase his methadone doses to provide pain control for acute pain
2. Stop his methadone & provide adequate doses of short-acting opioid as needed until his fractures have healed
3. Give no additional opioids: MMT should take care of the patient’s acute pain
4. Continue his usual methadone dose & provide a 3-day supply of short-acting opioid to be dispensed by his wife, evaluate for renewal if needed
Chronic Pain Management

Case Study

• Two years after accident: the patient remains in recovery
  – Rotated to 12 mg buprenorphine qd for opioid dependence a year ago

• Persistent severe pain in right leg and in his thoracic back: has become increasingly depressed

• Diagnosed with peroneal neuritis related to his tibial fracture plus DJD and muscle spasm in his back
Consider what might be the preferred first steps in addressing his pain...

1. Increase his buprenorphine to 16 mg & have him take it in divided doses 4 mg q 6h
2. Introduce gabapentin for neuritis & begin physical therapy for his back pain
3. Rotate him back to methadone for both maintenance and pain treatment
4. Refer him to a psychotherapist for treatment of the depression
Pain in Terminal Illness

• 5 years later: patient’s back pain has resolved and his neuritis is well controlled on gabapentin
  – Has been withdrawn from buprenorphine and transitioned to naltrexone

• 10 years later: he develops chest wall pain and pain in the left lower leg
  – Diagnosed with lung cancer invading the chest wall with tibial bone metastases
Opioids will likely be needed as one component of treatment of his cancer-related pain. Consider the best options for addiction treatment medications...

1. Discontinue naltrexone, begin buprenorphine for addiction treatment
2. Discontinue naltrexone, begin methadone for addiction & provide opioids as needed for pain
3. Discontinue naltrexone, give opioids for pain only, no maintenance opioids
4. Continue naltrexone for addiction treatment
Thank You!

Questions?