Opioids for Pain Treatment in Persons with Addiction

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Potential Conflicts

No commercial relationships

Employment
• Silver Hill Hospital Chronic Pain and Recovery Center
• Dartmouth College and Geisel School of Medicine

Expenses/stipends/expense reimbursement received
• American Academy Addiction Psychiatry (PCSS-O)
• Boston University (REMS webinar project)
• American Medical Association
• PCM Healthcare Ltd
• NY Society of Addiction Medicine
• American Society of Addiction Medicine
• University of Southern Alabama
• American Pain Society
Goals for Understanding

- Complex and variable nature of pain
- Synergy of co-occurring pain and addiction
- Principles pain treatment in addiction
- Pain treatment in opioid addiction
  - Acute pain
  - Pain associated with terminal or aggressive pathology
  - Chronic non-terminal pain
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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
Key Points IASP Definition

- Physical and emotional: has affective component
- An experience: subjective and unique to each person
- A protective mechanism signaling harm (nociception)
- BUT can exist in the absence of active tissue threat or injury (neuropathic pain)
In nociception, high intensity stimulation transduces a pain signal in receptors which transmits along nerves across synapses in the spinal dorsal horn to the brain where it has rich synaptic interconnections and moves on to perception. Along the way modulation (physical, psychological, behavioral) can amplify or inhibit the signal.
Neuropathic pain occurs due to aberrant, sometimes spontaneous conduction along nociceptive pathways with or without active tissue injury.
“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.” Fisher JP et al. BMJ 1995;310:70
Some Injuries are so Severe they always Require Intensive Pain Treatment
(Or do they?)

As a medic at Anzio Beachhead Italy in WWII, Harvard surgeon Henry Knowles Beecher speculated why three quarters of men badly wounded in battle declined morphine while similarly injured accident patients in Boston required high doses. He perceived the meaning of injury modulated the pain "Strong emotions can block pain...For the soldier...the wound ....releases him from an exceedingly dangerous environment ...to the safety of hospital...his troubles are over he believes...and becomes euphoric"

Henry Knowles Beecher
Pain in Men Wounded in Battle, Annals of Surgery, January 1946
Pathology Does not always Correlate with Pain

% of 100 pain-free adults with lumbar disc bulge or protrusion on MRI

 стремление 20 40 60 80 100
20s 30s 40s 50s 60 +

Courtesy of Rob Edwards, PhD
Physiologic Stimulus
Nociceptive → Neuropathic

Biopsychosocial Context
of the Individual

Experience of Pain

Illness
Sleep
Culture
Social Context
Incentives
Expectations
Acceptance

Biogenetics
Conditioning
Mood
Experiences
Meaning
Self-Efficacy
Coping
Personality

Medications
Secondary Physical Problems

Sleep Disturbance

Substance Use/Misuse

Functional Disabilities (In work, relationships, recreation etc.)

Increased Stresses

Cognitive Distortions

Anxiety Depression

Persistent Pain

Whatever it’s cause, when pain persists, it often causes secondary problems that can in turn facilitate distress and pain. Need to address the whole person.
Goals for Understanding

• Complex and variable nature of pain
• **Synergy** of co-occurring pain and addiction
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Spectrum of Misuse
(Of alcohol, illicit drugs, prescribed opioids or others)

- Self medication (chemical coping)
  - Mood
  - Sleep
  - Traumatic memories
- Prevent withdrawal
- Reward (to get high)
- Addiction
- Diversion for profit

Medication or substance misuse by persons with pain may occur for diverse reasons. Helps to identify and address the driver of misuse. Misuse may be self-limited or lead to adverse consequences or addiction in vulnerable people.
As a chronic condition, addiction shares similar challenges as persistent pain.
When addiction and pain co-occur they may reinforce one another. Need to address both to successfully treat pain.
Other Addiction Challenges to Effective Pain Treatment

- Addicted (hijacked) brain may amplify pain to justify a substance it craves
- Alternating withdrawal and intoxication can physiologically drive pain (sympathetic and psychomotor activation)
- Intoxication may mask pain and permit recurrent injury or overuse
- Intoxication impair adherence to treatment plan
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Pain Treatment in Addiction

**Goals**

- Effective pain treatment
- Support of addiction recovery (avoid relapse)
  - Opportunity for initiation or
  - Enrichment of usual recovery activities
- Avoid personal and public health consequences of opioid misuse
Pain Treatment in Addiction

General Principles

• Engage patient
• Treat pain effectively
• Address addiction
• Address pain facilitators
Listen to and Engage Patient

- Past experiences can shape treatment choices
- Perceptions and expectations of treatment efficacy impacts outcomes
- Investment in plan facilitates cooperation
- Plan treatment when pain anticipated
- Engagement in self-management critical to chronic pain treatment, helpful for all pain
Treat Pain Effectively

• Untreated pain may drive addiction, self medication and misuse

• Reduce or resolve causes when possible

• Provide appropriate pain relief
  – Non-medication approaches when effective, safe, easily available and acceptable to patient
  – Less-rewarding meds when safe and effective
  – Potentially rewarding medications when needed

• Plan treatment when pain anticipated (eg for elective procedures or surgery)
Treat Pain Effectively

Consider diverse and complementary options

Reduce pain

Physical
- Modalities: Cold, heat, TENS
- Orthotics
- Exercise
- Manual therapies

Procedural
- Nerve blocks
- Steroid injections
- TPIs
- Stimulators
- Pumps

Medication
- NSAIDs
- Anticonvulsants
- Antidepressants
- Topical agents
- Opioids and others

Psychobehavioral
- Cognitive behavioral
- Tx mood/trauma issues
- Address substance

Cultivate well-being

Improve quality of life

Restore function
Address Pain Facilitators

Commonly:
• 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 the challenge

• Assure not an obstacle to working for analgesia

• Encourage and support recovery
  – Discuss what has been valuable for patient
  – Identify or intensify psychosocial support
    ▪ Addiction counselor, self help groups, sponsor, faith-based interventions, etc.
  – Continue or offer pharmacologic support
Address Addiction

• Address physiologic issues of drug use
  – Treat withdrawal as appropriate
  – Accommodate usual opioid doses
    ▪ Whether maintenance opioid, street opioid or prescribed for pain
    ▪ Opioid debt / accustomed dose must be met
    ▪ Add additional for acute pain
  – Anticipate tolerance in opioid-dependent individuals
  – Be aware of opioid reward effects
Address Addiction
Consider 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, 1998; Gardner, 2011)

• Does not occur in all individuals

• Pain may attenuate reward (Zacny et al, 1996)
Opioid Reward Considerations
Routes of Administration

- IV administration
- IM/SC administration
- Oral administration

CNS side effects
(Reward, sedation, etc)

Plasma Concentration

Analgesia

Pain

Time

0
Opioid Reward Considerations
Schedules of Administration

- Intermittent Bolus Administration
- Long-acting, CR meds
- Patient controlled analgesia (PCA)

CNS side effects
(Reward, sedation, etc)

Pain
Withdrawal if opioid dependent

Plasma Concentration

Time

Analgesia
Address Addiction

Consider Opioid Reward Effects

• Strategies to minimize if desired
  – Slow onset drugs (methadone, levodromoran)
  – Stable blood levels (sustained release meds: oxycodone, morphine, fentanyl)
  – Small increments (PCA)
  – Kappa agonists (pentazocine, butorphanol) less reward
    ▪ Note mu antagonism, can’t use mu agonists
  – Partial mu agonists (buprenorphine or tramadol)

• In acute pain, focus on relief. Transient reward won’t likely affect long-term course of addiction
Goals for Understanding

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• Principles pain treatment in addiction
• **Pain treatment in opioid addiction**
  – Acute pain treatment
  – Pain associated with terminal or aggressive pathology
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Acute Pain Treatment
Opioid-Addicted Individuals

• Meet baseline opioid requirements

• Treat pain facilitating symptoms as indicated

• Non-opioid analgesia, if effective and available
  – NSAIDs, cold, TENS, splints as helpful
  – Epidural infusions or peripheral neural blockade
Acute Pain Treatment

Opioid-Addicted Individuals

• Use opioids effectively when required
  – Consider tolerance in determining doses
  – Scheduled or continuous often preferred
  – PRN only for adjusting schedule
  – Patient controlled analgesia (PCA) (note self-administration but small increments so no reward)
  – Close observation / control of meds

• Address addiction when appropriate
  – Institute recovery activities
  – Taper analgesic opioids as pain ebbs
Acute Pain Treatment

**Methadone-Maintained Patients**

- Continue methadone orally or IV (50% oral dose)
- Confirm treatment dose with MMT clinic
  - If impossible → divided doses every 6 hours, observe
    OR ...
    max. 20–40 mg orally (10–20 IV) per day
- Provide additional analgesia for pain control (consider options of diverse types)
- If opioid used for pain, consider opioid other than methadone
  - Faster onset, shorter half-life opioids are more titratable
  - Clarifies what is for pain, what for maintenance
  - If methadone used, give every 6–8 hours
- Be aware of tolerance in dosing (start higher end of usual starting doses)
Acute Pain Treatment

*Buprenorphine-Maintained Patients*

• Buprenorphine highly avid receptor binding
  – May block or reverse mu opioid analgesia
  – Best practices for pain treatment are evolving and debated

• For acute pain, options:
  – Discontinue buprenorphine 2–3 days before (anticipated) event
    ▪ Increase recovery supports as indicated (can add methadone for craving/blocking/addiction treatment if needed)
    ▪ Assures efficacy of full agonist opioids
    ▪ Requires re-induction post acute event
  
  – Continue buprenorphine in divided 6–8 hour doses
    ▪ Titrate if possible for moderately severe pain
    ▪ Or use potent, avidly binding opioid titrated for acute pain (often fentanyl or hydromorphone)

Gourlay and Heit, 2008; Kornfeld and Manfredi, 2009
Acute Pain Treatment
*Naltrexone-Maintained Patients*

- **Opioid antagonist**
  - Binds tightly without activating mu receptor
  - Blocks other mu opioids
  - May sensitize responses to full mu agonists

- **Practice is evolving**
  - Non-opioid approaches if effective
  - Carefully monitored titration of opioid if needed
    - Resuscitation expertise available is recommended.
Acute Pain Treatment

Opioid-Addicted Individuals

- Inpatients: close supervision to deter misuse
  - Single room near nurses station
  - Limit visitors, no incoming packages (or inspect)
  - Obtain consent for room inspections
  - Frequent urine screens
  - Avoid leaving paraphernalia in room

- Outpatient: tighter control of opioids
  - Limited scripts
  - Consider dispensing
Opioid Therapy of Pain

In Opioid Addicted Persons with Terminal Illness

• Enrich psychosocial and spiritual recovery supports which may address both recovery and end of life issues

• Transition buprenorphine to methadone to permit titration of opioids as needed. Discontinue naltrexone

• Consider dispensing by trusted other

• Titrate analgesics as needed for pain, observing for overuse side effects. Adjust to favor quality of life.
Chronic Illness Paradigm

**Chronic Pain and Addiction**

- **Chronic pain as a chronic disease**
  - Implicit in work of early pain pioneers including Fordyce, Bonica, others and in interdisciplinary approach to care
  - 2011 Institute of Medicine report: "Chronic pain can be a disease in itself...changes in the nervous system than can worsen...psychologic and cognitive correlates"

- **Addiction as a chronic disease**
  - "Brain disease" Alan Leschner, then NIDA chief
  - **Chronic medical illness** similar to diabetes, hypertension and asthma

Lewis, McClellan, O’Brien & Kleber, 2000
Chronic Care Model


Self-Management Support

Community

Health System

Delivery System Design
EVB Decision Support
Clinical Information Systems

Productive Interactions

Informed Activated Patient
Prepared Practice Team

Self Management Fundamental to Improved Outcomes
Chronic Pain Treatment

*Psychobehavioral and physical approaches provide the axis for self-care*

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

**Procedural**
- Nerve blocks
- Steroid injections
- TPIs
- Stimulators
- Pumps

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

**Medication**
- NSAIDs
- Anticonvulsants
- Antidepressants
- Topical agents
- Opioids
- Others

**Self Care**
- Reduce pain

**Clinical Care**
- Improve quality of life
- Restore function
- Cultivate well-being
Chronic Pain and Addiction Treatment Menu

Shared and Unique Approaches

Pain
- Pain medications
- PT/manual treatments
- TENs, thermal, etc
- Interventionalistic txs

Addiction
- CBT
- Meditation
- Self help groups
- Exercise
- Addiction medications
- Stimulation/acupuncture
Cognitive Behavioral Therapy

Interplay of thoughts, feelings and behaviors shapes the experience of pain. Adjusting them can improve quality of life and often pain.

Thoughts

- If I move, I’ll hurt more
- I can’t work or support my family
- No one cares. No one can fix me.

Feelings

- Anxiety
- Demoralization and depression
- Anger and fear

Behaviors

- Avoid moving, deconditioned
- Withdrawn and disengaged
- Muscle tension, Irritable

Pain

Feelings

- Anxiety
- Demoralization and depression
- Anger and fear

Adjusting them can improve quality of life and often pain.
Meditation/Relaxation

- Varied techniques
  - Progressive muscle relaxation
  - Autogenic training
  - Hypnosis
  - Guided imagery
  - Meditation
    - Mindfulness
    - Mantra/focus-based

Brain Mechanisms Supporting Modulation of Pain by
Mindfulness Meditation

*J Neurosci*. 2011 April 6; 31(14): 5540–5548

F. Zeidan¹, K.T. Martucci¹, R.A. Kraft², N.S. Gordon³, J.G. McHaffie¹, and R.C. Coghill¹

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Meditation for Pain

15 subjects underwent four 20 min mindfulness meditation training sessions on sequential days. Induced thermal pain with rest (before) and meditation (after) training
- 40% decrease pain
- 57% decrease pain unpleasantness

Significant activation of contralateral somatosensory cortex during noxious heat stimulation when subjects not meditating. Significantly reduced with meditation.

Zeidan F et al, J Neuroscience, 2011

Brain Mechanisms of Pain Modulation by Mindfulness Meditation
Group Support

*Oriented to Positive Self-Management*

- Chronic pain support groups through American Chronic Pain Association (ACPA)
  - Positive messaging and great resources “Half the battle is won when you begin to help yourself”
  - Chronic Pain Anonymous
    - Spiritually-based, based on AA, NA
    - In person, web based and phone based
      - www.chronicpainanonymous.org
- AA and NA
  - For patients with SUDs
- Disease specific support groups
  - Variable in format and quality
Exercise Pain

- Pain reduction mechanisms
  - Improves circulation and healing
  - Restores movement through stretch
  - Reduces spasm through toning
  - Mobilizes joints reducing mechanical stress
  - Possible impact pain modulation thru endorphin system


- Possible “dysfunctional endogenous analgesia” in some pain syndromes (including FM)
  - Exercise without increasing pain Nijs J, Pain Physician. 2012

- Go slow and easy, breath and relax, tiny steps over time.
Exercise

*Addiction and Pain*

- Actions in addiction treatment and recovery (likely in pain)
  - Induction of positive mood states through changes in endogenous opioid and dopamine activity.
  - Reduces depression
  - Alleviates sleep disturbances
  - Improves cognitive function
  - Improved self-efficacy
  - Decreases stress reactivity

Brown et al, 2014; Brown RA et al, 2010; Smith MA et al
Opioid Therapy of Chronic Pain

In Opioid Addiction

- Safety served by opioid agonist treatment paradigm
- Options
  - Use maintenance medications for analgesia
    - Accommodate pain half-life:
      - Buprenorphine every 6–8 hours
      - MMT – split dosing BID or 6-8 hours when take homes available or increase qd dosing to provide late dose analgesia
    - Titrate doses to analgesic doses
  - Provide additional opioids
    - Maintenance methadone to block craving and for baseline pain
    - Consider short-acting medications for incident pain
      - very tight exogenous controls to support safety
      - Clear communication between addiction and pain providers
Opioid Therapy of Chronic Pain

In Opioid Therapy of Addiction

- 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 prns, medication counts, frequent urine tox screens
- Communication between providers
In Summary

_Treatment of Pain in Opioid Addiction_

- Address both pain and addiction recovery
- Attention to the multidimensional experience of pain
- Consider physiologic dependence and its implications for pharmacologic management
- Take measure to support control of medications
Please Click the Link Below to Access the Post Test for the Online Module

• Upon completion of the Post Test:

• You will receive an email detailing correct answers, explanations, and references for each question.

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