

# The Comprehensive Approach to Pain Management

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# My Background

- Osteopathic Physician, practicing for the past 9 years
- Board Certified in Physical Medicine & Rehabilitation
- Fellowship trained in Interventional Physiatry
- Patient panel is varied – MCR, WC, Oncology, Spasticity, etc

# Acute vs Chronic Pain

- Acute pain – typically lasts for <3 months; directly related to tissue injury
- Chronic pain – Any pain lasting >3 months; recurs intermittently; persists long after the injuries heal
  - Centrally-mediated; the “pain” signal has become encoded on the neuroaxis

# Neuropathic vs Nociceptive Pain

- Neuropathic pain – pain that is from direct injury to neural tissue (peripheral nerve, central nervous system, sympathetic system)
- Nociceptive Pain – pain that is from injury to tissue other than neural tissue (bone, muscle, tendon, etc)

# The Primary Care Conundrum

- I can't give this patient narcotics. They've had physical therapy. The surgeon says not operable. The pain specialist just wants to do injections, and the patient has already been through injections.
- What do I do now?

# Ex: Low Back Pain Plan of Care

- Medications
- Osteopathic Evaluation and Manual Treatment
- Therapy / Exercise
- Injections / Interventional Procedures
- Orthotics
- Imaging
- Labs
- Electrodiagnostics
- Activity Restrictions
- Consultation
- Counseling

# Osteopathic Evaluation and Manual Tx

- Cochrane reviews support the use of manual therapies in the treatment of low back pain
- Osteopathic literature is replete with studies that corroborate the effectiveness of OMT
- My preference is for patients to see colleagues who specialize in OMT as a primary component of their practice
- I receive OMT intermittently for my neck and low back, to good effect

# Medications

- Opioids / Opiates
- Anticonvulsants
- Antidepressants
- Antiinflammatories (steroidal, nonsteroidal)
- Analgesics (ASA, acetaminophen)



# Medications – Opioids

- Opiate – derived from the poppy plant (heroin, morphine, codeine)
- Opioid – synthetically derived (oxycodone, hydrocodone, fentanyl)
- These medications have very strong analgesic effects at the level of the central nervous system. Mu receptors in the brain and spinal cord are the target for the analgesic effects of opioids
  - \* Mu antagonists, marketed for opioid-induced constipation, have an effect on the Mu receptors throughout the whole body, except across the blood-brain barrier

# Medications – Opioids

- For years, physicians were taught that there was no ceiling to opioid use, as long as functional ability was documented and side effects were minimal
- This was largely fueled by the pharmaceutical industry. There was a huge market for opioid sales, and the companies were more than willing to fill this market
- “oxy-cotton belt” – Kentucky, West Virginia, Tennessee

# Medications – Opioids

- Tolerance – the need for more medication as the body adapts to what it is currently receiving
- Dependence – if the medication is withdrawn, the patient will go through withdrawal (physiologic and/or psychologic)
- Abuse – Lyin', cheatin', and stealin' to get your medication; i.e., aberrant behavior in an effort to get a fix

# Medications – Opioid-induced hyperalgesia

- As the dose of opioid increases, there is an upregulation in the number of Mu receptors in the body
- Eventually, more pain medication means more pain
- This is thought to occur over a dose of 120 mmEq Morphine per day
- By weaning off of the medication and going on a drug holiday, the opioid-induced hyperalgesia can be overcome

# Medications – Opioid side effects

- CNS effects – lower cognitive ability; poor reaction time; decreased ability for rational judgement and decision making
- Respiratory effects – lowers respiratory drive, causing brain hypoxia, can eventually lead to respiratory arrest. This can occur even in a patient who has been consistent and well-controlled on their dose, without any escalations for years
- GI – opioid-induced constipation
- Opioid-induced osteoporosis
- Opioid-induced hypogonadism

# Medications – Opioids

- Three schools of thought at this point:
  - #1 – Opioids are never appropriate for any chronic pain condition, and should be discontinued after 3 months
  - #2 – Opioids, at a dose of less than 90-120 mmEQ, and monitored by a provider for proper use, functional improvement, side effects, etc., are appropriate for the right patient
  - #3 – The opioid crisis is overblown. The way we have been doing it for years is correct. You can escalate opioids as high as is clinically determined, based on functional outcomes and minimizing side effects.

# Medications – Neuropathic pain agents

- Anticonvulsants – gabapentin, lyrica, Savella, Topamax
- Antidepressants – TCAs, duloxetine, SSRIs
- Start low and titrate up. Avoid substituting if ineffective; instead, add an additional agent

# Medications – Steroidal, NSAIDs

- Steroids – oral steroid burst, at a rate of 3-4x per year, can help reduce pain due to an inflammatory condition
- NSAIDs – can be very effective in reducing pain due to a chronic inflammatory condition; cautious with GI, renal, cardiac issues
- “Urgent Care Prescription” – Prednisone taper, toradol injection



# Medications

- Aspirin – Analgesic effects are relatively immediate; anti-platelet effects are delayed 3-5 days
- Acetaminophen – can be very helpful for analgesic effects, particularly in conjunction with opioids
  - The rate of liver failure in patients using an acetaminophen-based opioid product, is NO DIFFERENT than the rate of liver failure in patients using an opioid product alone

# Therapy / Exercise

- Passive PT
  - Manual physical therapy, modalities, dry needling, grastin technique, passive stretching
- Active PT
  - Active exercise program – stretching, strengthening, conditioning

# Core Exercise Program

- Isometric exercises

# Injections

- Lumbar Epidural Steroid Injections
- Medial Branch Blocks
- Radiofrequency ablation
- Selective Nerve Root Blocks
- Intradiscal injections
- MILD / Vertiflex
- Spinal Cord Stimulation
- Intrathecal drug delivery (pain pumps)

# Epidural Steroid Injections

- Corticosteroid medication delivered to the epidural space by fluoroscopic guidance
- Interlaminar, transforaminal, caudal
- Delivers short to medium term relief
- Used in conjunction with a physical therapy or home exercise program

# Medial Branch Blocks / RF Ablation

- Anesthetize the medial branch nerve, which innervates the posterior facet joint
- Two medial branch nerves innervate one facet joint
- RF Ablation then heats and destroys the nerve, severing the connection to the joint

# Selective Nerve Root Blocks

- Delivers anesthetic +/- corticosteroid to a specific nerve root for purposes of confirming or ruling out specific nerves as the etiology for the pain
- Used in conjunction with the history, physical exam, MRI findings, and electrodiagnostic testing

# Intradiscal Injections

- Delivering medication and/or biologic material directly to the degenerated disc
- Future potential for PRP (platelet rich plasma) and/or stem cell transfer



# MILD / Vertiflex

- Minimally-invasive techniques to treat conditions that would usually be considered surgical, but patients may not be able to undergo surgery
- MILD = Minimally Invasive Laminectomy / Decompression
  - Uses trochars and fluoroscopic guidance to shave the lamina and thin the ligamentum flavum
  - Indicated for symptomatic spinal stenosis
- Vertiflex = hoists the spinous processes to prevent compression of a vertebral disc

# Spinal Cord Stimulation

- Conventional, dorsal column SCS systems
  - Provide paresthesia and paresthesia-free options for low back and leg pain
- Peripheral nerve stimulation
  - Subcutaneous systems that block peripheral innervation to painful structures
- Dorsal Root Ganglion stimulation
  - Stimulation at the DRG for painful radicular conditions, CRPS

# Intrathecal Drug Delivery

- Implanted pumps for delivering medication directly to the intrathecal space
  - Chronic pain
  - Spasticity
  - Cancer pain
- Pump is refilled by a clinical provider at regular intervals
- The medication delivered can be cocktailed to address specific needs (off label use)

# Restorative / Regenerative Therapies

- In my practice lifetime, there should be a point at which we are no longer injecting corticosteroids or ablating nerves
- Platelet-Rich Plasma (PRP) and mesenchymal stem cells are offering anecdotal and case-series proven results for tendons, discs, and joints
- Be careful with the purchase of products on the market being sold as “stem cells”; most have absolute zero stem cells
- Harvesting Bone Marrow stem cells from the patient directly may be the only FDA compliant method

# CBD

- Medical marijuana is outside the scope of this talk
  - I'm just scratching the surface on research in this area
- Patient reports on CBD have been promising
- I have designed a prospective, double-blind crossover study to compare CBD to placebo, including monitoring urine drug tests (THC)
- No CBD company has yet to take me up on the offer

# Orthotics – Back Braces

- When are lumbar orthoses appropriate?
  - When there is a neurologic deficit resulting in poor truncal stability, requiring the lumbar orthosis for maintaining an upright position
  - When there is a fracture with potential for catastrophic neurologic compromise without the use of an orthosis
  - To prevent cascading fractures in a severely osteoporotic patient
- NEVER for chronic low back pain

# Labs

- Rheumatologic panel if autoimmune disease is suspected
- Vitamin D, thyroid panel, testosterone panel, BMP
- Sleep Study

# Electrodiagnostics

- EMG / NCS
  - Common conditions to evaluate – radiculopathy, compression neuropathy (carpal tunnel syndrome, etc), peripheral polyneuropathy
  - Rare conditions to evaluate – muscular dystrophy, Guillan-Barre, congenital neuropathy, mononeuropathy multiplex
  - Conditions EMG does not evaluate – Post-polio syndrome, steroid-induced myopathy, proximal neuropathies, back pain in the absence of neurologic compression



# Activity Restrictions

- Guarded, relative rest can be of some benefit
- Be careful to advise on what someone can and cannot do, particularly in the workers compensation arena
- Make sure to resume activities as soon as deemed safe

# Consultation – When to refer?

- Is it a rheumatologic disorder?
- Is it a surgical condition?
- Is a rare neurologic disorder suspected?
- Is this predominantly psychological?

# Counseling

- Most Back Pain is self-limiting
- If an underlying psychological disorder is suspected, refer to mental health professional
- Sometimes, patients just need to be listened to for a couple minutes

# What is Fibromyalgia?

- A.) A rheumatologic disorder, characterized by tender points in a discrete pattern, best treated as an autoimmune disorder
  
- B.) A malingering syndrome, whereby a patient either doesn't want to work and/or is using their condition as a cry for help
  
- C.) A neuropsychological condition, where aberrant pain processing pathways have occurred at the level of the brain, usually as a result of devastating trauma

# Fibromyalgia Prescription

- Sub-maximal, Aerobic Exercise
- FDA-approved medications for Fibromyalgia (Lyrica, Cymbalta, Savella)
- Counseling for underlying psychiatric disorders
- Reassurance
- Vitamin D; get outside
- Check Thyroid
- STOP THE WORRY

# Does this cure Fibromyalgia?

- Nope
- But in my experience, it can be quite helpful, if done with tact, patience, and empathy

# How to Stop Worrying and Start Living

- By Dale Carnegie