ACPE UAN 107-000-11-029-L01-P 0.1 CEU/1.0 Hr
Activity Type: Knowledge-Based

Program Objectives for Pharmacists: Upon completion of this program, participants should be able to:
1. Identify interventional modalities that are used in the management of back pain.
2. Describe cognitive behavioral therapies used in the management of chronic pain.
3. List physical rehabilitative therapies that are used in the management of chronic pain.
4. Evaluate available complementary therapies in the management of chronic pain.

Speaker: Lee Kral, PharmD, BCPS, received her BS and PharmD degrees from the University of Iowa College of Pharmacy and completed a pharmacy practice residency at the University of Iowa Hospitals and Clinics (UIHC). She previously worked in the primary care setting at the VA Medical Center and was an assistant professor at North Dakota State University in Fargo, ND for several years but returned to Iowa 10 years ago and is currently on the faculty at the University of Iowa Center for Pain Medicine. She is a board certified pharmacotherapy specialist and holds adjunct professor status at the college of pharmacy and the college of medicine at the University of Iowa. She serves as a preceptor for both pharmacy residents and students, as well as anesthesia residents and pain fellows. She provides direct patient care in the inpatient and outpatient settings with both the Pain Service and the Palliative Care Service.

Speaker Disclosure: Lee Kral reports she has no actual or potential conflicts of interest in relation to this program. The speaker have indicated that off-label use of medications will not be discussed during this presentation.
The Complete Patient:
Nonpharmacologic Pain Management

Lee Kral, Pharm.D., BCPS
The University of Iowa
Center for Pain Medicine

Outline

1. Interventional modalities for back pain
2. Cognitive behavioral therapies
3. Physical rehabilitative therapies
4. Complementary therapies

Kral Recipe for Pain Management

| 10% | Pharmacologic |
| 10% | Interventional |
| 20% | Cognitive behavioral therapy (CBT) |
| 20% | Physical rehabilitation |
| 40% | Patient commitment |

Clinical practice guidelines for interdisciplinary rehabilitation of chronic non-malignant pain

1. Improve physical function
2. Improve general functional status
3. Increase self-management of pain
4. Improve vocational/disability status
5. Reduce/discontinue opioids and sedatives
6. Reduce healthcare utilization
7. Reduce pain level

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Pre-Test Question

Which of the following interventions might be considered for JP’s localized “achy” (axial) pain?

a) Facet joint injection
b) Epidural steroid injection
c) Stellate ganglion block
d) Spinal cord stimulator

JP

48 yr old male with low back, left leg pain
Described as “aching” in low back with pain that goes down the leg into the toes
Diffuse tenderness in low back, specifically over the left L4-5 facet joints
Several trigger points palpated
Activity makes pain worse
Sleep: 3 hours at night
Social: doesn’t go out or socialize very much used to golf but isn’t able to play now due to pain
Employed: no, but is a plumber
Back Pain

• Back pain is commonly multi-factorial
  □ Musculoskeletal
    • Facet joint arthritis
    • Muscle strain/spasm
    • Myofascial pain
  □ Neuropathic/radicular
    • Disc degeneration

Interventional Goal
Reduce pain enough to allow physical rehabilitation or to prolong need for surgery

Musculoskeletal pain
Intra-articular (IA) Injections

The Spine

Osteoarthritis in the Spine

Intra-articular (IA) Injections
Are IA injections effective?

- Most studies are small and results are equivocal
- IA injections for knee osteoarthritis provide pain reduction for at least 1 week compared to placebo
- Multiple studies have shown no short or long-term benefit of facet joint injections vs. placebo or home stretching.
- APS states evidence not strong enough to recommend facet joint injections
- SI injections with steroid showed some pain relief at 1 month
- ASA/ASRA states that facet joint injections are optional procedures for symptomatic relief


Pre-Test Question

JP has some generalized muscle tenderness and also trigger points noted on palpation. Which of the following can be recommended as an option for treating his myofascial pain?

a) Trigger point injections with local anesthetic
b) Massage
c) Hypnosis
d) Trigger point injections using botulinum toxin

Myofascial pain

Trigger points
- Taut bands of muscle
- Caused by prolonged static position or prolonged repetitive motion, post back surgery
- May reduce muscle motor activity
- Typically recur in the same anatomic locations

Myofascial Pain

Trigger Point Injections (TPI)
- Dry needle
- Local anesthetic
- +/- corticosteroid
- Botulinum toxin

- Dry needle = saline = local anesthetic
- No benefit from adding steroid


Are TPI’s effective?

- One study showed short-term benefit (3-4 months) with botulinum toxin
- ASA
  - Recommends against use of botulinum toxin in the treatment of myofascial pain due to poor evidence
  - Data is insufficient to recommend trigger point injections for treating myofascial pain
- APS
  - Poor quality of evidence for botulinum toxin so cannot reliably evaluate


Discogenic Pain
JP has pain that radiates from his low back down his left leg to his toes

- Caused by irritation or impingement of spinal nerve/root
  - Spondylolisthesis
  - Herniated disc
  - Spinal stenosis

**Pre-Test Question**

Would JP be a candidate for an epidural steroid injection?

a) Yes  

b) No

**Epidural Steroid Injections**

- Indications
  - Radicular pain
  - Discogenic pain
  - Spinal stenosis
- Medications
  - Local Anesthetic
  - Corticosteroid

**Are they effective?**

- Up to 90% of herniated discs get better on their own
- Some studies show epidural steroid no better than saline
- 1 study showed some improvement in leg pain but none show improvement in back pain
- APS
  - Moderately effective for short-term relief of radiculopathy due to herniated disc
  - No benefit with non-radicular back pain or FBSS
- ASA
  - May offer some temporary relief for pts with radicular low back pain


**Stellate Ganglion Block**

- Indications:
  - Upper extremity CRPS
  - Headache
  - Vascular insufficiency
- Medications
  - Steroid
  - Local Anesthetic
  - Buprenorphine

**Neuropathic pain**

- Indication
  - Neuropathic pain in extremities unrelieved by other therapies
- Pre-requisites
  - Psych evaluation
  - Trial x 5 days

**Spinal Cord Stimulation**

- Indication
  - Neuropathic pain in extremities unrelieved by other therapies
- Pre-requisites
  - Psych evaluation
  - Trial x 5 days
Intrathecal Drug Delivery Systems

**Indication**
- Pts who get relief from opioids but can’t tolerate the adverse effects

**Medications**
- Opioids
- Clonidine
- Bupivacaine
- Ziconotide
- Baclofen

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**Pre-Test Question**
JP is sleeping poorly, unemployed, doesn’t socialize, is physically inactive due to pain. Cognitive Behavioral Therapy has been shown to improve which of the following?
- a) Mood
- b) Neuropathic pain
- c) Recurrence of pain

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**Chronic Pain and Psychiatric Disorders**
- Psychiatric disorders more common in pts with chronic pain¹
  - Depression twice as common
  - Anxiety 3 times as common
  - Sleep disorders more common
- The severity of depression is proportional to the severity of chronic pain. When one factor gets worse, the other does as well.


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**Cognitive Behavioral Therapy (CBT)**
- Assumes patient is actively involved in his/her environment
- Assumes patients are not helpless
- Focuses on patient perceptions and expectations, with variables such as
  - Catastrophizing
  - Negative thinking
  - Maladaptive coping
  - Pain behaviors (learned)
  - Mood

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**Modes of Therapy**
- Individual therapy
  - 1:1 therapy based on individual needs
  - Expensive and large time commitment
- Group therapy
  - Provides social interaction with others who experience similar pain, difficulties, frustrations
  - Allows vicarious learning
Education - Gate-Control Theory

CBT - Behavioral Aspects
- Relaxation and imagery
- Biofeedback
- Meditation
- Distraction
- Behavioral activation and pacing
- Goal setting
- Stress management

CBT - Cognitive Aspects
- Cognitive restructuring of distortions
  - All-or-nothing thinking
  - Overgeneralization
  - Disqualifying the positive
  - Magnification (catastrophizing)
- Problem solving
- Self-regulation

Is CBT Effective?
- Mild - mod effect size for chronic musculoskeletal pain
- Positive effects on pain intensity, pain-related interference, HRQOL, and depression
- Multidisciplinary tx had positive effects on pain interference and long-term effects on return to work
- Positive effects on disability and mood
- No association between response to CBT and age, sex, race, education, and pain duration

Physical Rehabilitation
Education
Self-management
Functional goal setting
Behavioral modification
Active modalities
Passive modalities
Ergonomics

Physical Rehabilitation
- Therapeutic Exercise
  - Correct biomechanical deficits
  - Targets muscle and joint deficiencies
- Goals of Exercise
  - Change sedentary behaviors to more active ones
  - Modify risk factors for disability
  - Maintain or improve exercise capacity
  - Enhance psychosocial function
Physical Rehabilitation

• Flexibility training
  ▫ Passive ROM
  ▫ Assisted active ROM
  ▫ Active ROM
• Strength training
  ▫ Static
  ▫ Dynamic

Focus on core strength

Is physical rehab effective?

• ASA
  ▫ RCT’s combining physical and restorative therapy show effective relief for low back pain
• APS
  ▫ Good evidence for moderate benefit in low back pain for exercise, spinal manipulation, interdisciplinary rehabilitation


Transcutaneous Electrical Nerve Stimulation (TENS)

• Low-frequency nerve stimulation increases local skin bloodflow and activates low-threshold sensory nerves that block pain message in the periphery
• May also activate mu opioid receptors
• Helpful for knee osteoarthritis but not low back pain

Complementary Medicine

May use instead of or concurrent with conventional therapy

• Massage
• Hypnosis
• Acupuncture

Pre-Test Question

Which of the following has evidence-based support for pain relief with acupuncture?

a) Low back pain
b) Knee pain
c) Headache
d) Fibromyalgia

Massage

• Provides symptomatic relief by increasing local circulation and stimulating Aβ fibers
• May be beneficial for chronic non-specific low back pain, especially when combined with exercise and education.
• Benefits may be long-lasting (up to 1 yr)
• Modest support for massage therapy in fibromyalgia

Hypnotherapy

• "Bypasses the critical thinking cognitive mind to access the unconscious processes"
• Makes the patient more open to suggestion
• Used for cancer, burns, GI problems, invasive procedures
• Several studies indicate significant pain relief for a wide variety of chronic pain syndromes
  ▫ Small sample sizes
  ▫ Very little standardization


Acupuncture

• Acupuncture increases endorphin-1, beta endorphin, encephalin, and serotonin in brain and plasma.
• Increases in these cause analgesia, sedation and recovery of motor function
• Estimated that 70-80% of acupuncture sites are also trigger points

Is Acupuncture Effective?

• Moderate evidence for improvement in neck pain at 1 and 3 months
• May improve disability scores for shoulder arthritis/tendonitis
• Good response (50% of pts had 50% improvement) for tension-type headaches
• No improvement for fibromyalgia
• No benefit for low back pain or knee pain
• Dry-needling effective for myofascial pain


Post-Test Question

Would JP be a candidate for an epidural steroid injection?

a) Yes
b) No

c) Stellate ganglion block
d) Spinal cord stimulator

d) Trigger point injections using botulinum toxin

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