Pain Management Optimization for SOF

New innovations in non-pharmacological approaches to pain management

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What is chronic pain? Why is it a SOF Problem?

• International Association for the Study of Pain definition:
  • “…an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”
  • Longer than 3 months

• Affects at least 116 million American adults
• Common Post-deployments Problem
• PREP Program in Tampa

Conflicting Views on Chronic Pain

Disabling beliefs

• Belief that objective evidence of disease/injury is required for pain to be “real”
• View of pain as the only problem
• Overconfidence in medical solutions
• Provider is the “expert” responsible for outcomes
• Pt. is helpless “victim” of underlying disease/injury

Modern View

• The brain is responsible for the experience of pain.
• Pain is therefore a perceptual experience
• The brain can decrease or increase pain.
• Chronic pain is learned, which involves neuroplastic changes.
• Chronic pain can be unlearned, utilizing neuroplastic approaches.
Chronic Pain and Prescription Opioids – 5th Vital Sign

• 11% of Americans experience daily (chronic) pain
• Opioids have been frequently prescribed for chronic pain
• Opioids were the standard of care for Chronic Pain
• 2017-1 in 4 military/retirees

Opioids Are Not The Default Chronic Pain Treatment

• They don’t address the physiologic mechanisms of pain
• They have not been shown to improve function
• They have not been studied in longer-term trials
• Studies suggest patients may have worse quality of life and higher pain levels
• Increased likelihood of long-term use when opioids used for acute pain

Opioid related Deaths
Need to Foster a Cultural Transformation

- Pain is a national challenge
  - All people are at risk for pain
  - Pain is a complex, individual, subjective experience

- Comprehensive and interdisciplinary (e.g., biopsychosocial) approaches are the most important and effective ways to treat pain

- A cultural transformation is needed to better prevent, assess, treat, and understand pain

Central Sensitization:
Why treating the “pain generator” is not always enough

- Due to repeated, prolonged, and/or intense nociception.

- Involves neuroplastic changes in the brain and spinal cord.

- Part of the mechanism for referred pain.

- Results in hypersensitivity (hyperalgesia)
Chronic Pain Syndrome – is it a disease process?
Multiple Dimensions of Central Sensitization

Chronic Pain is a Complex Condition to treat non-pharmacologically

Biologic
Social
Psychologic

Non-Pharmacological Chronic Pain Approaches
Research is Challenging

• Inability to mask treatments
• Variability in techniques and intensity of treatments
• Differences among the providers
• Psychological, TBI, Exposures comorbidities

• Should Function and not pain be the 5th Vital Sign?
Chronic Pain — Effects the Whole Body

- Depression/anxiety
- Fatigue
- Sleep disturbances
- Cognitive difficulties
- Irritability
- Moody
- Asocial

Collaborative Care Model – Holistic Approach

- Biopsychosocial, interdisciplinary team approach with cognitive-behavioral components
- Encouraging exercise and active participation of the patient in the plan of care

Involves an Interdisciplinary Team

Physical Rehabilitation

- Multiples methods to reach your goal
Therapeutic Exercises – Multiple Types

• Range of Motion exercises
• Posture exercises
• Breathing exercises
• Strengthening/power/speed exercises
• Relaxation exercises
• Stabilization exercises
• Balance/agility exercises
• Aerobic/anaerobic/metabolic exercises

Relaxation exercises

Overview of relaxation techniques:

- Bodily techniques:
  - Progressive relaxation
  - Breathing exercises
  - Physical exercise
  - Yoga
  - Tai Chi
  - Qigong
  - Mindfulness
  - Stretches and stretches

- Mind techniques:
  - Meditation
  - Guided imagery
  - Self-hypnosis
  - Hypnotherapy
  - Imagery techniques
  - Music
  - Water and soothing techniques
  - Aromatherapy
  - Music

- Spinal techniques:
  - Neck and shoulder
  - Lower back
  - Upper back

Strengthening exercises – Multiple Types

• Manual
• Isodynamic
• Isotonic concentric
• Isometric
• Isotonic eccentric
• Isokinetic
• Open and Closed Chain
• Multi-angle isometrics
Intervention Pain Techniques

- Nerve Blocks
- Sympathetic Blocks
- Epidurals
- Needle point
- Trigger Points
- Acupuncture
- Dry needling
- Prolotherapy
- Regional Analgesia
- Peripheral Nerve Blocks
- Sympathetic Blocks
- Epidural/intrathecal Analgesia

Dry Needling

- Part of acupuncture traditions.
- Within scope of practice of physicians and physical therapists.
- Described by Travell as equally effective as injection.
- Use acupuncture needles to minimize tissue trauma.
Battlefield Acupuncture

Auricular Acupuncture

Evidence Map of Acupuncture: Pain

- 59 Systematic reviews for 21 distinct pain indications
- Main criticism is that true acupuncture and sham acupuncture have similar outcomes, though both are superior to wait list controls
- However, closer examination shows significant heterogeneity of protocols
- Also, sham acupuncture cannot be considered inert.

Modalities Products

- FDA approved
- Documentation of the use/trial and outcome of TENS unit
- Trial and outcome of other products
- Documentation to validate that the device has been tested
- Follow-up treatment plan after the device is issued to ensure proper usage and efficacy
Modalities – Ice, Heat and TENS

• Neurolumen – Combination of low level laser therapy, LED therapy and TENS
• Ultrasound
• Replexa – Shortwave diathermy short high energy pulses, depth of penetration is increased
• Alpha stim – Cranial electrotherapy stimulation and Microcurrent electrical therapy
• Implantable Bioness Stimer – Phantom Limb pain
• H-Wave

Other Options to Reduce Pain

Extracorporeal Shockwave therapy (ESWT)

• Non-surgical treatment delivers shock waves to musculoskeletal areas of the body
• Causes microtrauma to structures to induce healing
• Reduce healing and promoting healing
• 3-4 treatments per week, last less than 5 minutes

Prolotherapy

• Injection of hypertonic saline or dextrose into trigger points, myotendinous junctions, and ligaments.
• Believed to stimulate healing of soft tissues by promoting local inflammation, leading to regeneration of connective tissues.
• Recent studies showed significant clinical benefit for chronic knee pain.
Complementary & Alternative Medicine (CAM)

- Mind-body treatments
- Biologically based therapies
- Manipulative and body-based treatments
- Touch or Energy therapies
- Whole medical systems: Traditional Chinese Medicine

Touch Therapies

- Chiropractor
- Osteopathic
- Manual
- Massage
- Myofascial
- Reiki
- Healing Touch
- Joint mobilization
- Soft Tissue mobilization
- Trigger point release
- Mobilization with movement

Whole Health
Mind-Body Movement Therapies for the Self-Management of Chronic Pain Symptoms

• Mindful movement, coordinated with breath, generally low-impact.

• Positive effects on mood, balance, flexibility, strength, posture.

Movement Therapies - Mind-Body

• Patients can experience improvement in flexibility, ease of movement and overall well-being.

• Movement therapies such as yoga, tai chi, and qi gong can help facilitate the mind-body connection.

• Feldenkrais and Alexander technique are slow, gentle exercises to improve flexibility and coordination.

Behavioral Management

• Depression – 50% comorbidity
• Stress management
• Relaxation techniques
• Mindfulness-Based Stress Reduction
• Cognitive behavioral therapy
• Anger management
• Biofeedback
What is mindfulness?

• Mindfulness means paying attention, on purpose, to whatever is going on in the present moment without passing judgment on it.
• In mindfulness, you attend to a feeling, thought, or sensation without judging it, resisting it, or trying to change it.
• Increase sense of inner calm
• Experience both pleasant and unpleasant thoughts and feelings safely
• Move more balance, less emotional reactivity
• Develop self-acceptance and self-compassion

Cognitive-behavioral therapy (CBT)

• provides skills to cope with chronic pain and stress.
• Regular sleeping habits - critical for reducing pain and improving energy and mood.

Cognitive and Behavioral Effects of Art

• Avoidance
  • Valued activity to promote engagement
  • Art activities enjoyable enough to promote activity even in the presence of continuing pain
• Passive coping
  • Creating art requires action
  • Practice for other areas in life that require action
• Attention to pain
  • Focus away from pain
  • Reports of forgetting pain during art creation
Education Challenges
Finding
- Education is a central part of the necessary cultural transformation of the approach to pain
- The federal, state and local government and professional organizations are in a position to contribute to substantial improvements in patient and professional education

Self Treatment
- Tennis balls in a sock
- Body Back Buddy™
- Foam Roller

James A. Haley Veterans Hospital
Chronic Pain Rehabilitation Program (CPRP)
Older Therapies
Blue Brain Exercises, Aquatic Therapy (Aquamove)

Newer Therapies
Virtual Reality Therapies, KAATSU – Modulation of Blood Flow during exercise

FY 17: Patient Characteristics
- Pain Duration: 15 yrs
- Primary Diagnosis:
  - Low Back: 86 (52.8 %)
  - Neck: 14 (8.6 %)
  - HA: 7 (4.3 %)
  - Extremity: 19 (11.7 %)
  - Other: 37 (22.7 %)
- Medical Comorbidities: 126 (77.3 %)
- Participants using Opioids at Admission: 42 (25.8 %)
FY 17: Key Outcomes at completion of inpatient CPRP
(N=184 admitted; 92% of patients completed the program)

How much did patients improve? Discharge:

<table>
<thead>
<tr>
<th>Outcome Domains</th>
<th>Improvement</th>
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<tbody>
<tr>
<td>Pain</td>
<td>35.4%</td>
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<tr>
<td>Daily Activities</td>
<td>29.3%</td>
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<tr>
<td>Mobility</td>
<td>24.5%</td>
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<tr>
<td>Mood</td>
<td>16%</td>
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</table>

FY 17: Gains maintained at 1-month follow-up

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<tr>
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<tbody>
<tr>
<td>Pain</td>
<td>13.3%</td>
</tr>
<tr>
<td>Daily Activities</td>
<td>35.3%</td>
</tr>
<tr>
<td>Mobility</td>
<td>29.6%</td>
</tr>
<tr>
<td>Mood</td>
<td>18.2%</td>
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96% of patients remained off of opioids at follow-up

Summary

- Chronic pain can be a disease in itself
- Recognition of the dangers of opioids
- A biopsychosocial interdisciplinary team holistic approach is most effective
- Multiple new and old Non-Pharmacological approaches to pain
- Education is important
- More Research is needed

Focus more on function and not pain?
Summary