Learn the latest treatment strategies and multidisciplinary management options for patients with acute and chronic pain.
Behavioral Comorbidities in Chronic Pain

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Chronic Pain
Chronic Pain Characteristics

• Enduring symptoms
• Elusive causes
• Exhausting treatments
• External normalcy
• Existential quandary
Chronic Pain Syndrome Characteristics

- Primary complain of persistent pain/symptoms
- Pain behaviors in excess of physical findings
- Deconditioned physical state
- Disturbed sleep
- Depressive symptoms
- Disability or impaired job performance
- Abuse of alcohol or prescription medications
- Compensation- seeking behavior
- Over-utilization of health care resources
The Psychological Set-up

- Chronic pain is invisible and incurable
- The behavioral consequences begin early and often escalate
- Social and environmental influences can be significant
- Behavioral issues worsen by physical factors – medications, de-conditioning etc
Psychological Approaches

- Traditional approach - unresolved, intrapsychic conflict
- Psychosomatics
- Somatization
- Psychophysioologic
Limits of Psychological Approaches to Chronic Pain

- Psychotherapy alone doesn’t work
- Psychotropics have limited efficacy in isolation
- Poor patient acceptability
- ‘Pigeonholes’ patient’s problems
Primary Psychological Approach

- Behavioral-cognitive
- Focus on environmental forces, learning theory
- Attention on cognitive factors like, catastrophizing, anxiety, depression
Biopsychosocial Model

Psychosocial Variables

- Mood
- Attributions (beliefs) about pain
- Attention on pain
- Anxiety
- Social/Family support
- Employment status

- Disability compensation
- Family models of chronic pain
- Abuse history
- Somatization
Additional Psychological Factors

- Anxiety - Fear of pain, fear of injury
- Conditioned Responses
- Chemical Dependency
- Depression
Pain and Behavioral Reinforcers

\[ \text{Pain} \quad \text{R+} \quad \infty \quad \text{R-} \quad \text{Time} \]
Central Sensitization
Peripheral Upregulation

- Skin
- Gut
- Muscle
- Bones
- Joints
- Vascular

- Nerves
- Balance
- Taste
- Smell
- Vision
- Hearing
Central Sensitization

• Somatosensory Cortex

• Consequence: More sensitive to...
  • Pain          Fatigue
  • Dizziness     Nausea
  • Touch         Light
  • Sound         Smell
  • Temperature   Taste
Central Sensitization

- Motor Cortex
- Consequence: More prone to...
  - Imbalance Weakness
  - Tremor Abnormal Gait
  - Spasms Muscle ‘Jerks’
  - Spells Seizure-Like
  - Difficulty starting and maintaining movements
Reactive and Maintaining Factors

• Physical
• Behavioral
• Emotional
• Chemical
Cycles of Pain

- Overlapping events/responses to symptoms
- Physical – Increasing Central Sensitization
- Behavioral – Increasing behavioral morbidities
- Emotional – Increasing emotional distress
Cycle of Pain: Physical Aspects

Injury-Illness

- Worsened Sensitization
- Alternative Medicine
- Increased Diagnostic/Treatment Focus ‘The Specialist’

Seek Medical Attention/Treatment

- Symptoms
- Improvement in Symptoms

PAIN

Increased Pain/Return of Symptoms
# ABC Versions of a Chronic Pain Patient

- **A-Pre-Pain**
  - Active
  - Productive
  - Social
  - Motivated
  - Independent

- **B-Pain**
  - Depressed
  - Deconditioned
  - Discouraged
  - Dependent
  - Drugged

- **C-Post PRC**
  - More active
  - More productive
  - Stable
  - Moderation
  - More Independent
ABC Versions of a Chronic Pain Patient

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Assumptions of CBT for Pain Management

- Person’s distressing pain and mood are modified/ exacerbated by maladaptive thoughts, and behaviors

- Structured techniques are used to identify and change maladaptive thoughts and behaviors
  - increasing focus on what can control

- Emphasis on teaching skills for patient to practice and apply
Goals of Chronic Pain Rehabilitation

• Increase physical conditioning
  • Endurance, strength, flexibility, aerobic conditioning

• Increase activities of daily living
  • Moderation, modification, time management
  • Goal setting/activity scheduling

• Medication issues
  • Chemical health awareness
  • Withdrawal off opioids
Treatment Goals

Reduce the frequency of pain behaviors

Increase the patient’s capabilities and activities to a level considered normal for his/her age and sex

Eliminate the patient’s reliance on pain-relieving medications

Reduce the patient’s utilization of medical care resources for the purposes of pain relief

Educate family members/significant others in pain rehabilitation approach in order to maintain the gains achieved while in the program
For Pain Rehabilitation to work on the sensitized brain you have to be all in on all 4 factors

*Behavior, Physical, Emotional, Chemical*

Treatment Outcomes for PRC
Pain Severity (MPI)

Mean T-Scores

- Opioid
- Non-Opioid

Within Subjects

\( p < .001 \)

Rome, et al, 2004
Interference With Life (MPI)

Mean T-Scores

Opioid
Non-Opioid

Within Subjects
$p < .001$

Rome et al, 2004
General Activity (MPI)

Mean T-Scores

PRE POST

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Opioid

Non-Opioid

Within Subjects

$p < .001$

Rome et al, 2004
The graph shows the mean scores for CES-D before (PRE) and after (POST) treatment for Opioid and Non-Opioid groups. The slope of the lines indicates a decrease in mean scores post-treatment, with the Non-Opioid group showing a more pronounced decrease. The labels "ns" indicate that the differences are not statistically significant. The text "Within Subjects p < .001" suggests a significant difference between the pre- and post-treatment scores for both groups. The reference "Rome et al, 2004" provides context for the study's findings.
Catastrophizing (CSQ)

Mean Scores

PRE
POST

Opioid

Non-Opioid

$\rho = .03$ $\rho = .01$

Within Subjects $\rho < .001$

Rome et al, 2004
Economic Analysis of a Comprehensive Pain Rehabilitation Program

Study Background

• First of its kind collaboration between a major commercial health insurance company and an independent health care organization

• Blue Cross/Blue Shield of Florida (Florida Blue) provided economic costs for a sample of 53 patients

• These patients completed the Mayo Clinic Pain Rehabilitation Center (MCPRC).
Mayo/BCBS Florida Financial Outcomes of PRC
(Average Medical Cost in Dollars Spent)

Sletten, et al, 2015
## Key Findings

<table>
<thead>
<tr>
<th>Category</th>
<th>3 Months (pre/post)</th>
<th>6 Months (pre/post)</th>
<th>12 Months (pre/post)</th>
<th>18 Months *(pre/post)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Medical Cost</td>
<td>- 86%</td>
<td>- 68%</td>
<td>- 64%</td>
<td>- 90%</td>
</tr>
<tr>
<td>Total Pharmacy Cost</td>
<td>3%</td>
<td>- 24%</td>
<td>- 42%</td>
<td>- 72%</td>
</tr>
<tr>
<td>Specialty Care Visits</td>
<td>- 17%</td>
<td>- 34%</td>
<td>- 39%</td>
<td>- 51%</td>
</tr>
</tbody>
</table>

*only 10% of original sample was eligible for 18 Month analysis

Sletten, et al, 2015
A Physical Reconditioning Model for Chronic Pain: 
A Case Study

- The case is of a 33 year-old Caucasian female with a complex lower extremity injury following MVA in November 2006. She sustained LLE Pilon fracture initially treated with ORIF. She developed significant co-morbidities.

- Interventions including outpatient PT, pharmacotherapies and chiropractic care were ineffective in relieving pain or restoring function. From injury to PRC over 6 years, Pt. became increasingly sedentary due to pain. Treatment was largely ineffective in restoring patient to her previous functional level.

- Since PRC, pt. has continued to attend PRC Aftercare sessions. She participates in a regular fitness routine. She is active in volunteer activities with PRC graduates and current patients. She has also returned to teaching music.
6 Minute Walk Test Data

Distance in Feet

- Admission: 440 feet
- Dismissal: 1500 feet
- 2 year f/u: 1779 feet
Outcomes

ADMISSION TO PRC:
440 ft @ 0.8 mph
  Fall Risk, Cane
  OME = 240
  Limited Community Ambulator
  Sedentary, living with family, requires assistance

PRC DISCHARGE:
1500 ft @ 2.8 mph
  No Fall Risk, no A.D.
  OME = 0
  Community Ambulation
  Active lifestyle, living with family and no assistance

2 Year FOLLOW UP:
1779 ft @ 3.4 mph
  No fall risk, OME = 0
  Independent mobility
  Return to vocation
  Regular fitness routine, living independently
Conclusion

- 3-week PRC has a significant and enduring effect on direct medical costs
- Patients and health care systems are able to manage chronic medical conditions in a more conservative and cost-effective manner.
- The comprehensive nature of this treatment results in better independent functioning.
Philosophy of Pain Rehabilitation

The goal of a pain rehabilitation approach is to help the patient function better to feel better.
Questions & Discussion