Interdisciplinary Pain Rehabilitation – When Pills, Potions, & Procedures are Inadequate

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Treatments Options

- Pharmacological
- Surgical
- Neuroaugmentative (e.g., nerve block, spinal cord stimulation, implantable pumps)
- Physical modalities (e.g., exercise, TENS, ultrasound)
- Complementary (e.g., acupuncture, chiropractic)
- Psychological (e.g., biofeedback, cognitive-behavior therapy, hypnosis, relaxation)
- Multidisciplinary / Interdisciplinary
Treatments for Pain - What’s changed over the past 3,500 years?

Historical

Current

Future
What’s the Evidence for Treatment Efficacy?
Monotherapies Only Modestly Successful

- **Injury prevention** programs for back pain have had minimal effects.
- **Medications** (opioids, NSAIDS, anti-depressants, anti-convulsants, muscle relaxants, topical agents) reduce pain by ~30%–40% and in fewer than 50% of patients, and often with little if any improvement in physical functioning\(^1\)\(^-\)\(^5\)
- In **opioid** (putatively the most potent drugs) studies, from 19% to 50% of patients terminate prematurely in clinical trials due to lack of efficacy or unacceptable adverse effects\(^2\),\(^5\)

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Monotherapies Only Modestly Successful

- **Injections** (epidural steroids, trigger point, nerve blocks) are the most commonly performed pain management procedures yet there is no evidence of positive short-term effects of injection therapies and the long-term effects are unknown\(^1\)-\(^4\)

- Although the numbers are increasing, a substantial proportion of patients who receive **spinal surgery** continue to report significant pain, functional impairment, and complications\(^5\) and for orthopedic conditions, **sham surgery** as effective as true surgery\(^6\)

- **Implantable devices** are expensive and even carefully selected patients are **not pain-free** and have **modest improvements** in physical functioning\(^7\)

Monotherapies Only Modestly Successful

- Although psychological factors have been shown to predicting disability;¹ influencing perceptions and experience of noxious sensations;² directly affecting physiological processes (CNS, hormonal, peripheral);³-⁵ affect emotional responses to pain;⁶ affect behavioral responses to pain;⁷ influence responses by significant others;⁸ and influence response to treatments…⁹-¹¹

Monotherapies Only Modestly Successful

Psychological treatments alone result in modest benefits in pain and physical and emotional functioning and for select disorders.¹⁻¹⁵ However, evidence for long-term effects is inadequate, and evidence is somewhat contradictory for effects on vocationally relevant outcomes¹¹⁻¹⁴

Assessment of 1,016 Cochrane review articles
- 44% of the pain treatment interventions likely beneficial
- 7% harmful
- 49% inconclusive as to benefit or harm

Majority of patients in drug trials have sufficient pain at the end of the trial to make them eligible for another trial (pain > 4/10)!

Rehabilitation Programs may be reasonable options; however, long-term benefits of any of the current treatments are largely unknown

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Outdated Biomedical Perspective on Chronic Pain

- Pain viewed as solely a **signal of injury** directly related to **objective physical pathology**
- Continual quest to find **THE structural cause**
- Attempt a **“mechanical fix”**
- Provide purely **symptomatic treatments**
- **Active provider** takes over responsibility and control from the **passive patient**
Some Challenges to the Biomedical Perspective

- Patients with **minimal objective evidence of pathology** often complain of intense pain – **False Negatives** (*Disease Deficit Disorder?*)

- **Asymptomatic** people often reveal objective evidence of structural abnormalities using various imaging procedures – **False Positives**
  
5. Jensen et al. NEJM 1994;331: 69-73;  
Some More Challenges to the Biomedical Perspective

- Patients with the **same** extent of tissue pathology, treated with **identical interventions**, respond in **widely different ways**
- **Surgical procedures** designed to inhibit symptoms by severing neurological pathways believed to be the **generator(s) of pain** may **fail** to eliminate or even **alleviate it substantially**
- Often, even when spine surgery is a **technical success**, it is simultaneously a **clinical failure** -- patients continue to experience pain and disability despite correction of underlying pathophysiology
Even More Challenges to the Biomedical Perspective

- There are only modest correlations among physical impairments, pain reports, disability, and response to treatment\(^1-^8\)

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1. Hilselberger & Witten, J Neurosurg 1968;24:204-8
No single treatment eliminates all symptoms for all people with chronic pain even if they have the same diagnosis.

Thus, to improve outcomes we should be considering combinations of treatments for patients with chronic pain -- psychological as well as pharmacological and physical. A place for Interdisciplinary Pain Rehabilitation.

Sometimes 1 + 1 does = 3

Multi/Interdisciplinary Pain Rehabilitation Programs (IPRPs)

- Psychological treatment are frequently incorporated within IPRPs
- Despite the recalcitrance of the pain problems of the patients treated at IPRPs, there are a growing number of studies, reviews, and meta-analyses that support the clinical efficacy of IPRPs1-6
- but not all7-8

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs.)</td>
<td>44.93</td>
<td>34.5 – 56.0</td>
</tr>
<tr>
<td>Duration of Pain (mos.)</td>
<td>85.43</td>
<td>13 – 756</td>
</tr>
<tr>
<td>% Working</td>
<td>34.17</td>
<td>0 – 100</td>
</tr>
<tr>
<td>% with Litigation/Compensation</td>
<td>20.53 /</td>
<td>0 – 63 /</td>
</tr>
<tr>
<td>% &gt;1 Surgery</td>
<td>54.40</td>
<td>28 – 100</td>
</tr>
<tr>
<td>Mean # Surgeries</td>
<td>1.76</td>
<td>.4 – 4.60</td>
</tr>
<tr>
<td>% Taking Pain Medications</td>
<td>84.54</td>
<td>53 – 100</td>
</tr>
</tbody>
</table>

Multi/Interdisciplinary is a generic phrase, there is a great deal of variation in the specific aspects of the treatments offered and the formats.

Thus, there is no standards but there are some general characteristics that they share:

- Several disciplines involved (e.g., physician, nurse, PT/OT, psychologists)
- Rehabilitation not cure
- Elimination/reduction of opioids
- Emphasis is on self-management and activity
- Physical conditioning and functional improvements
- Behavioral treatments (e.g., coping skills, work to exercise quota vs. pain)
Typical Pattern of Treatment Response

- Pre-treatment
- Post-treatment
- Short-term Follow-up
- Long-term Follow-up

Negative Behavior/Symptom/Functional limitations

N

OOPs!
How Can Maintenance Be Facilitated?

**Controlled Processing** -- increased attention, thought guide behavior
- When first learn new skills
- Circumstances novel
- Situation demanding

**Automatic Processing** -- decreased attention, thought guide behavior
- Routine
- Habitual
- Self-reinforcing

For example,
- Playing an instrument
- Driving in heavy traffic, inclement weather, unfamiliar area

**vs.**

For example,
- Buckling seat belts
- Flossing teeth
- Weekly weight check
Is Maintenance Enhancement Possible?

- Longer treatment?
- Different emphases and proportions of time?
- Take in to consideration patient preference?
- Incorporate patient goals?
- Treatment matching?
- Involve significant others?
- Make use of advanced technologies?
- Transfer into natural environment?
- Booster sessions?
- **Anticipate and be proactive!**
Comments About Pain Rehabilitation Programs

- Attention needs to be given to attempting to identify characteristics of responders so that treatment may be prescribed to improve the likely outcomes.
- Long-term follow-ups are required to demonstrate maintenance of benefits over time and generalization of outcomes beyond the clinical context.
- It is important to acknowledge that they do not offer cures -- not going to eliminate all pain for all patients.
- We should not be naïve to assume that the major lifestyle changes required will continue without some long-term continuity of care and reinforcement of skills learned and encouragement for persistence and resilience in the face of a chronic, symptomatic disorder.
The **WRONG** question

“Is Tx A effective?”

What are the right questions?

To answer, need to consider some background
Snapshot vs. Motion Picture
Longitudinal (Motion Picture) vs. Cross-sectional (Snap Shot) Perspective

Premorbid characteristics
- Genes
- Learning Hx
- Culture

Age at pain onset
- Pathology

Current age
- Change in pathology

Life Expectancy
- Change in pathology

Resources
- Interpersonal support
- Economic

0 ➔ 37 ➔ 44 ➔ 76+

Socioeconomic Context
There are two kinds of people in the world...

those who think there are two kinds of people and those who don’t.

The first group can be labeled splitters, the latter lumpers.
Tendency to treat patients with the same diagnosis as a homogeneous group
Patient Uniformity Myth

- Ignoring patient heterogeneity
- Treating all patients the same
- Inconsistent results

Little understanding of what treatment(s) works and for whom
New Way of Thinking About People with Chronic Pain

Must assess and address:

- The biologic basis of impairment and pain
- Individual’s history
- The patient’s attitudes and beliefs, emotions, and behavior not just pathology
- Coping, social supports, and financial resources available
- Responses by significant others
- Context in which a person/patient resides
- Social, work, and economic influences and impact
Some of the **RIGHT Questions**

- Is Treatment A more **clinically** effective than Treatment B?
- On **what criteria** (symptoms, functioning, health care utilization, satisfaction)?
- **Measured how and by whom** (e.g., self-report, performance, electronic records)?
- With what **adverse effects**?
- Are the effects **maintained** if not by what means can they be **augmented**?
- Initiated **when**, **by whom**, **how**, and at **what “dose”**?
- For **whom**?
- What are the **necessary and sufficient components**?
- Is Treatment A more **cost** effective than Treatment B?
Some Challenges and Opportunities

- Chronic pain - huge and growing with aging population
- Majority of pain management occurs within primary care, yet disproportionate research attention given this effective means to early intervention, the prevention of disability, and maintenance over long periods of time
- Lack of adequate biomarkers of pain
- Limited understanding of associations of subjective and performance-based measures of function
Some Challenges and Opportunities

- No significant advances for “cures” on the horizon
- Development and evaluation of early intervention strategies to prevent disability within primary care needed
- Traditional biomedical model is inadequate
- Wide variability in response to existing treatments
- Monotherapies provide modest benefits, develop and evaluate treatment combinations
Some Challenges and Opportunities

- Maximizing patient acceptance of treatments and treatment demands (e.g., exercise, home practice, self-management, side-effects)
- Individualization of strategies to facilitate the motivation, self-management, and resilience of those impacted
- Maintenance enhancement of benefits over time and generalization of outcomes beyond the clinical context relatively untapped area
- Since symptoms will persist, long-term monitoring and support for those effected will be required by health care providers and significant others
Some Challenges and Opportunities

- Development and evaluation of strategies to promote and reinforce adherence and maintenance
- Identification of strategies for identifying “slips” and interventions prior to total full-blown relapse
- Availability of effective treatments and treatment components may be limited and costs may be prohibitive
Some Central Questions

- **What treatments** should be implemented for which problems?
- **What best format** (individual, group, technology-augmented for treatment and maintenance enhancement)?
- **What combinations** of treatment components optimal [additive, synergistic, iatrogenic (too much diminishes treatment effect; decrease engagement & adherence as requirements increase, negative effects of excessive demands)]?
- **Is treatment acceptable to patients** (enrollment, engagement, motivation, side-effects, persistence, long-term adherence, attrition)?
Some Central Questions

- What are the physical and psychosocial mechanisms underlying successful outcomes (moderators)?
- How should treatment success be determined (e.g., symptom severity, physical function, work performance)?
- Who should determine the success of treatments (patient, provider, third-party payer compensation provider)?
- Are initial benefits maintained & generalized outside hospital, clinic, clinicians’ office?
Some Central Questions

- What are the **economic trade-offs** of treatment components?
- Is more treatment better? – **dose-response** [how much optimal, necessary, sufficient to maximize acceptance, outcomes, and maintenance]?
- Can treatments be **matched** to patient characteristics lead to improved acceptance, outcomes, and maintenance?
Lots of challenges and opportunities but progress has been slow and needs to accelerate because the need is great and growing!

Need for a National Pain Strategy