Interdisciplinary Treatment of Patients with Chronic Pain and its Application to Traumatic Brain Injury

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Objectives

- **Understand clinical, epidemiologic & evaluation aspects of chronic pain**
- **Distinguish acute from chronic pain**
- **Contrast various treatments for patients with chronic pain and the treatment outcomes**
- **Understand Cognitive-Behavioral treatment and functional restoration treatment for chronic pain**

Why do this at a Brain Injury Conference?

- **Many BI patients experience chronic pain**
- **Both disorders are complex and life disrupting**
- **Both require a "team" to help achieve goals**
- **Methodologies of treatment are similar using an interdisciplinary team and cognitive-behavioral methods**

Why do this at a Brain Injury Conference?

- **Outlook for both should be to maximize function and minimize disabilities despite many pressures to the contrary**
- **Demedicalizing and minimizing medications is often vital to achieve goals of maximum independence.**

Incidence of TBI

- **1.7 million TBI's 2012**
- **75% classified as "mild"**

Prevalence of chronic pain after TBI: A systematic review

Nampiaparampil DE JAMA 2008

- **Overall prevalence of chronic pain in TBI was 51%**
- **With mild TBI in civilians was 75%**
- **Veterans with TBI had 43% prevalence**

Incidence of Low Back Pain

A paradigm of chronic pain

Low Back Pain Epidemiology

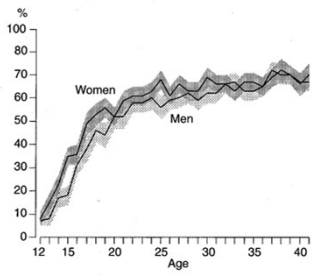


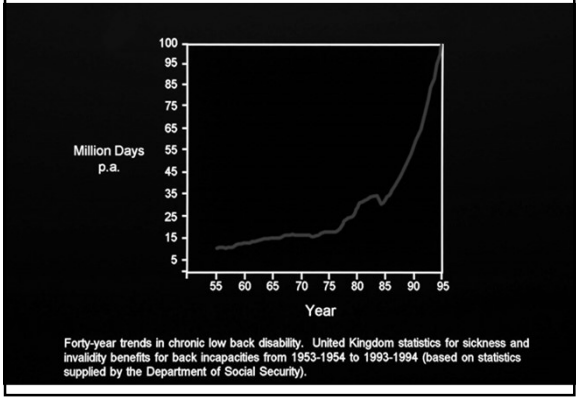
Figure 1. The lifetime cumulative incidence of low back pain for men and women aged 12–41 years.

CONCLUSION

Chronic Pain and Back Pain are Ubiquitous In Human Beings.

"Go ahead, stand up straight, but you'll spend the rest of your life having backaches."

Disability from Low Back Pain



Forty-year trends in chronic low back disability. United Kingdom statistics for sickness and invalidity benefits for back incapacities from 1953-1954 to 1993-1994 (based on statistics supplied by the Department of Social Security).

Conclusion

Although back pain is ubiquitous in Humans and its frequency remains unchanged, disability from back pain has increased exponentially over the last several decades

Why the remarkable increase in disability?

Less precise testing?

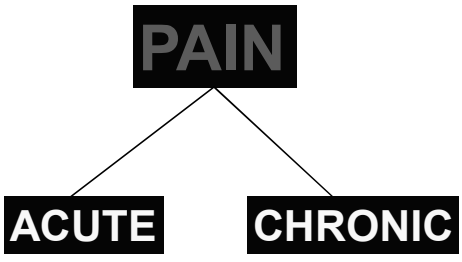
Poorer available treatments?

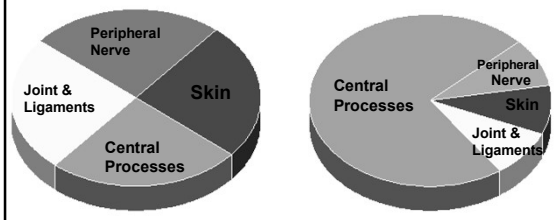
Where is the problem?

What happens once disability occurs?

Conclusion – 2

- **Pain and disability often vary independently. Therefore:**
  - **Most individuals with pain are not disabled**
  - **There must be other factors more important than pain that cause the disability**
  - **If the treatment is only for pain relief the disability or function will not be improved**

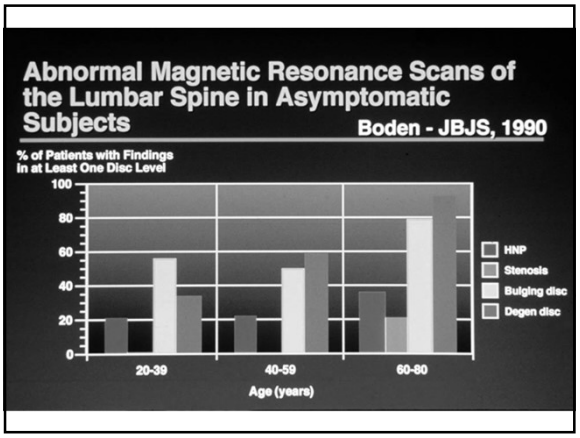




(A) Acute Pain

(B) Chronic Pain

IMAGING TECHNIQUES THE FACTS AND THE PITFALLS



CONCLUSION

Imaging Is Only Of Value When There Is Clear Clinical Correlation That Corresponds To The Imaging Abnormality

Imaging in mild TBI

- **CT and MRI – poor sensitivity for Diffuse Axonal Injury (DIA), Poor correlation with symptoms.**
- **New technique of Diffusion Tensor Imaging (DTI). Better correlation, still not well correlated with all symptoms. Studies still ongoing.**

VOLTAIRE

"Doctors are men who prescribe medicine, of which they know little to cure disease, of which they know less, in human beings of which they know nothing"

For each ailment that doctors cure with medications (as I am told they occasionally succeed in doing) they produce ten others in healthy individuals by inoculating them with the pathogenic agent a thousand times more virulent than all the microbes in the world — the idea that they are ill

Marcel Proust, Guermante's Way

Treatment Options

- **Medication** – opioids – NSAIDS – Anti Convulsants or anti depressants
- Injections – epidural, SI, Trigger Point, Facet
- **Interventional procedures**
  - Spinal Cord Stimulators (SCS)
  - Inter-spinal drug delivery systems (IDDS)
- **Surgery**
- **Alternative/Complementary Medicine**
- **Cognitive-Behavioral Programs** (FRP or PRP)

Systematic Review:
Opioid Rx for Chronic Back Pain:
Prevalence, Efficacy, and Association with Addiction

Martell Ann Int Med 2007

Conclusion

- **Opioids in chronic LBP may be efficacious for short term pain relief.**
- **Long term pain relief is unclear.**
- **Substance abuse disorders are common in patients taking opioids for back pain and aberrant medication behaviors occur in up to 24%**

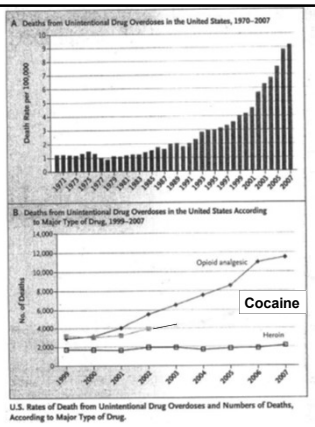
Narcotic Medications - Opioids

Problems with Opioid treatment

- ❑ **turn off our endorphin system**
- ❑ **Limited in neuropathic pain**
- ❑ **Wrong Treatment for most non-malignant chronic pain (nmcp)**
- ■ **Significant Cognitive/mental effects**
- ❑ **Not shown to increase function in "nmcp"**
- ❑ **Many other Unwanted Effects (side effects)**
- ❑ **Higher incidence of death than "street drugs"**

A flood of opioids, a rising tide of deaths

Susan Okie, NEJM 2011



U.S. Rates of Death from Unintentional Drug Overdoses and Numbers of Deaths, According to Major Type of Drug.

Clinical Effectiveness
and
Cost-Effectiveness of Treatments
for
Patients With Chronic Pain

Dennis C. Turk, The Clinical Journal of Pain V. 18 pp 355-365

FIG. 2

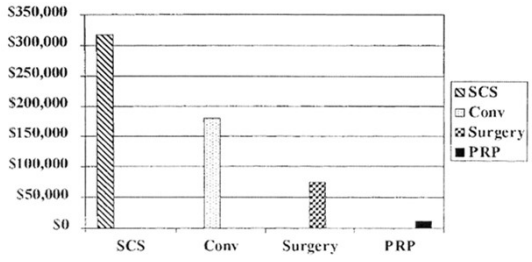


FIG. 2. Cost to return one treatment patient to work.
From: Turk: Clin J Pain, Volume 18(6).November/December 2002.355-365

Summary Regarding Treatment for Chronic Pain

- **Opioids - very limited effectiveness for Chronic pain – no influence on function**
- **Similar principles of treatment apply for all patients with chronic pain regardless of the cause**
- **Functional restoration addresses the disability factor and interestingly influences pain more than do the opioids. It is the best option for RTW**

More to come

The Bio-psychosocial model of Pain

Olga Slavin-Spenny, PhD

2011 Institute of Medicine Report

- 116 Million Americans report experiencing chronic pain
- Interdisciplinary rehabilitation is recommended as the optimal treatment for individuals experiencing high levels of distress and disability

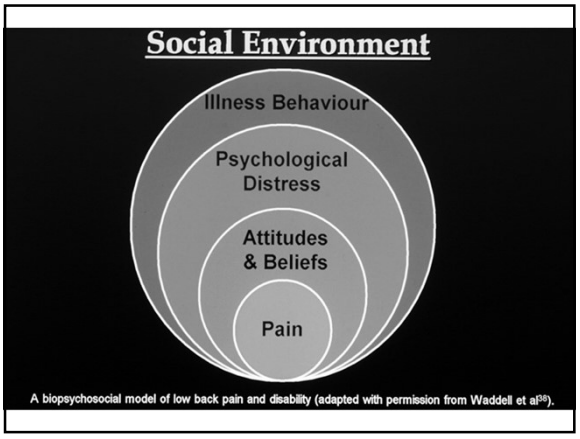
Who Develops Chronic Pain?

Chou &Shekelle, 2010

- Psychological/behavioral factors may be more important
  - Maladaptive pain coping behavior
  - Functional impairment
  - Psychiatric comorbidities
  - Nonorganic signs
- Baseline pain, presence of radiculopathy, demographic variables, and work environment are not useful predictors

Chronic Pain in TBI

- More prevalent in mild TBI
- Multiple factors contribute to cognitive dysfunction
- Principles of treatment for chronic pain management work for cognitive improvement



Cognitive-Behavioral Model of pain-related fear

FRP – What Does it Mean?

Functional – Focus on patient goals and functioning ability

Restoration – Restore to maximum level of function

Program – Combined interdisciplinary program using multiple specialists working in concert

Cognitive Behavioral Treatment

- Focus on resolving the consequences of the pain
- Change the behavior and reaction pattern to the pain
- A holistic approach using an interdisciplinary team all transmitting the same message.

FRP – Who Do We Treat?

- Patients with Chronic Pain that lasted at least 3 months
- Have lost physical functioning because of the pain
- Are suffering mentally and emotionally

Comprehensive Pain Management

- Interdisciplinary
- Goal oriented
- Functionally Focused
- Group Format
- Educational Emphasis
- Time Limited

Treatment-Get back to Life

- Treatment components
  - Medical Management
  - Physical
  - Educational
  - Relaxation and stress-management skills
  - Counseling, addressing trauma
  - Behavior change
  - Focus on goals

Educational Content

Sleep hygiene	Cognitive restructuring
Body mechanics	Assertiveness skills
Exercise	Understanding emotions
Medication	Stress management
Goal setting	Nutrition

Managing flare-ups

Pain Neuroscience education

Goals

Resuming employment
Resuming driving
Discontinuing narcotics
Discontinuing "devices"
Resuming recreation/social activities
Appropriately managing pain and stress
Decreasing use of the medical system

Additional Benefits of FRP's

- High rate discontinue or decrease medications
- Lower rate of future surgery
- Lower rate of future health care utilization

"I HAVE CHRONIC PAIN,

...but I don't suffer from it anymore"

Case Report – Mrs. K

- 75 year old widowed women living in an independent and assisted living environment.
- presents with long standing back pain
- On many years of narcotic medications
- experiencing cognitive decline
- Prior cervical laminectomy and possible myelopathy
- Poor balance - multifactorial

Case Report – Mrs. K

- Multiple medications Ativan, Astelin, fexofenadine, lactulose, fioricet, trazodone, omeprazole, Celebrex 200mg, synthroid, toprol, plavix, Avinza(Morphine) 45mg, miralax, calcium, aspirin 81mg. (15 total)
- Moderate cognitive loss
- Poor balance
- Limited in ADL
- Generalized weakness

Case Report – Mrs. K

- prior pump placement with opioids
- numerous spinal injections over the years
- numerous courses of physical therapy
- PMH – osteoporosis, arthritis, anxiety and seeing psychiatrist for that.

Case Report – Mrs. K

Examination

- **Decreased balance**
- **Cognitive loss moderate**
- **scoliosis**
-

Case Report – Mrs. K

Post treatment 7 week program

- **Discharge meds: Synthroid, Toprol, effexor, plavix, lactulose, atrovent (6 total)**
- **Markedly improved gait and balance**
- **significant improvement in cognition**
- **decrease in pain rating**
- **exercising regularly**
- **2 and a half year follow-up still doing well.**

Functional Restoration Programs

Outcomes

A PROSPECTIVE TWO-YEAR STUDY OF FUNCTIONAL RESTORATION INDUSTRIAL LOW BACK INJURY

Mayer TG, et al- JAMA, Oct 1987

Methods

199 Total Patients

Group I – 116 Patients – Treatment

Group II – 72 Patients – Denied Rx by Insurer

Group III – 11 Patients – Dropped out of Rx

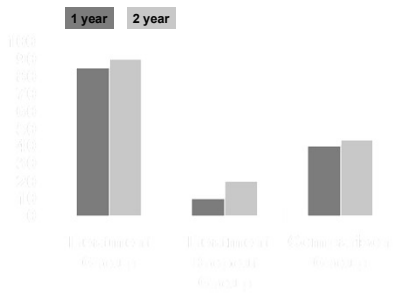
A PROSPECTIVE TWO-YEAR STUDY OF FUNCTIONAL RESTORATION IN INDUSTRIAL LOW BACK INJURY

Mayer TG, et al- JAMA, Oct 1987

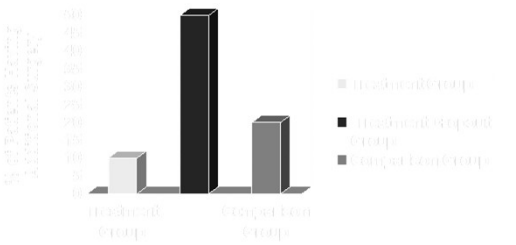
End Points

- **Return to Work**
- **Re-operation**
- **Visits to Health Care Professionals**

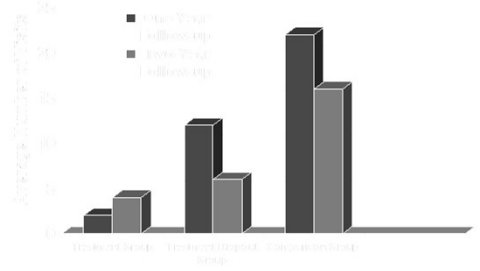
Percentage of patients who returned to work in each of three groups at one-and two-year follow-up



Percentage of additional surgeries for three groups at one year follows-up



Average number of visits to health care professionals for three groups at one-and two-year follows-up



Conclusions (regarding treatment)

- Pain is ubiquitous in humans and is only loosely related to disability from pain which has risen dramatically
- Acute and Chronic pain are different disorders
- Multiple factors contribute to disability from chronic pain most of those are NOT physical factors

Conclusions (regarding treatment)

- For CHRONIC PAIN Must treat all the issues for improvement therefore the uni-dimensional treatments of medications, devices and surgery are not effective
- Most effective treatment is Cognitive Behavioral & interdisciplinary

Conclusions

- Large degree of overlap between TBI and chronic pain.
- Many of the same treatment principles apply in the rehab process
- An interdisciplinary model that maximizes ability and removes obstacles to independent functioning is most effective

More FRP studies

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THANK YOU

Any Questions?