Mindfulness as a first line intervention in chronic pain management

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Disclosure

• Advisory Board: Purdue Dec 2016, Paladin Dec 2016, Knight Therapeutic May 2017
Objectives

- As a result of attending this session, participants will be able to:
  - Be familiar with what mindfulness is (and what it isn’t)
  - Discover how mindfulness can be a valuable tool in chronic pain management
  - Discuss some of the evidence for mindfulness and meditation in chronic pain management
Chronic Pain

Pain

- An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage

  *International Association for the Study of Pain (IASP), 1986*

Chronic Pain

- Pain without apparent biological value that has persisted beyond normal tissue healing time (often noted as > 3 months)
- The persisting pain becomes its own pathology, independent of its initial cause
Chronic Pain

• 20% of visits in primary care
• Chronic pain costs in Canada: more than cancer, heart disease and HIV combined (direct health care $6 billion/year + productivity costs $37 billion)*
• The various approaches to chronic pain management offer only modest benefits for some
• Chronic pain: Orthopedic injury vs nervous-system related condition
• Paradigm shift in chronic pain management
Chronic Pain

- Patients with chronic pain are often given the message that “you will have to live with this pain”
- Traditional approaches come up short on teaching patients *how* to live with the pain
- Pain is an experience – not just a sensation
What is Mindfulness?

• Mindfulness is the awareness that arises through paying attention, on purpose, in the present moment, non-judgementally
  
  Jon Kabat-Zinn

• Mindfulness is the ability to see what’s happening in your head at any given moment, so you don’t get carried away by it
  
  Dan Harris
Mindfulness-Based Stress Reduction

- Program created by Jon Kabat-Zinn 1979
- Brought *meditation* into mainstream medicine
- University of Massachusetts Medical Centre
- Variety of medical conditions
- 8 week program
- Centre for Mindfulness
  - [https://www.umassmed.edu/cfm/](https://www.umassmed.edu/cfm/)
- Hundreds of programs worldwide

- MBCT (Mindfulness Based Cognitive Therapy) for depression relapse prevention
- MBCPM™ (Mindfulness Based Chronic Pain Management) for chronic pain
What is Meditation?

• Setting aside a specific period of time in which we practice focused awareness of what we sense and experience in the present moment
• Practicing daily allows the mind to practice entering a state of lowered arousal and to practice being present without evaluating what is noticed
• Sympathetic activity may decrease and Parasympathetic activity increase
What is Meditation?

• Meditation ≠ Relaxation
  • Mind focusing vs Mind wandering
• Not mind emptying, not thought suppression
• It is focused, non judgmental awareness in the present moment
• Repeatedly noticing “thinking" arising and returning non judgmentally, gently, to a bare, focused, awareness of the present
• Mind will wander – Bring it back
• Not Positive thinking
Mindfulness and Meditation

• **Mindfulness**: Moment-to-moment non-judgmental awareness, being fully present with what is happening right now

• **Meditation** is the tool we use to cultivate mindfulness

• **Formal practice**: meditation

• **Informal practice**: mindfulness in everyday moments
  • Being more present, less reactive in daily life
Mindful Showering
Unmindful Showering

My boss is a pain

I haven’t checked my phone

I have to get in and out fast

I shouldn’t have eaten so much today

My toe hurts

What shall I cook for dinner?

I forgot the dry cleaning

What a shame Peggy hates her teacher

courtesy of Dr. Bahram Jam
Why do some people develop chronic or persistent pain?

- 2 people with similar accidents or similar surgeries
- One person pain free after a few weeks
- The other develops chronic or persistent pain

MRI /CT scans analyzed by radiologists to predict pain: *there is no correlation*
Why do some people develop chronic or persistent pain?

- Important to find a diagnosis that explains the pain
- Persistent nerve injury?
- In chronic pain, need to identify why it is persisting, reactivating and not healing
- Why is there still inflammation and nerve irritation months/years later?

- Transition from acute injury/illness to chronic pain via central sensitization: a "brain habit" is formed
- Nervous system stuck in state of heightened pain experience reactivity
The Mind/Body Connection

- **Suffering** caused by chronic pain comes from the combination of the pain sensation and what it means to the sufferer—how it is interpreted.
- Physical pain and mental pain often inseparable.
- Mind plays an important role in physical illness.
- This is **certainly not** to say that pain is "all in their heads."

- Time of the ancient Greeks: mind affected illness.
- René Descartes 17th century
  - Separation of mind and body.
Why Mindfulness for chronic pain?

- Chronic pain - Mind Body Connection "windup"

- With mindfulness:
  - learn to uncouple the somatic sensations from thoughts and emotions
  - learn to manage pain by better understanding the personal relationship to it: collaborating, rather than fighting it

- Goal is not to change the content of one’s experience, but rather alter the way in which it is experienced
  - Example: pain in extreme sport may be tolerated better than as a result of a MVA
What’s the evidence?
Contemplative Neuroscience
Meditation and Brain Activation (Grant et al 2011)

- Meditators – increase activity in primary pain processing regions in the brain
  - Anterior cingulate cortex, thalamus, insula
  - Anterior cingulate cortex capable of modulating pain sensation

- Meditators – reduce activity in executive, evaluative emotional areas in the brain
  - PFC, amygdala, hippocampus, MCC
  - Reduced activity correlated with increased meditation experience

- Meditators have lower pain sensitivity
  - Correlated with decreased connectivity between executive & pain-related cortices
In other words

• Meditators can feel the pain without thinking about, and dreading, the suffering which could be associated

• The brain’s ability to dull the pain can get to work without interference from emotional wind-up—conscious or unconscious
The clinical evidence

• ”Do Mindfulness-Based Interventions Reduce Pain Intensity? A Critical Review of the Literature” – Pain Medicine February 2013
• Literature search from 1960 to 2010
• 16 studies included in the review
• 8 controlled – 8 not controlled

• Most studies (10 out of 16) showed significantly decreased pain intensity
• Controlled trials – 6 out of 8 showed higher reduction in pain intensity when compared with control groups
• Follow-up assessments → Reduction in pain intensity were generally well maintained
The clinical evidence

• 2014 meta-analysis
  • Meditation Programs for Psychological Stress and Well-Being
  • 41 randomized controlled trials (2993 participants)
  • Moderate strength of evidence for improvement in anxiety, depression, and pain
Mindfulness and Fibromyalgia

- Decrease in depressive symptoms  
  Sephton et al. 2007
- Decreased pain scores
- Better pain coping
- Improvement in anxiety, depression, and somatic complaints
- Improvement in quality of life
- Benefits sustained for 3 years  
  Grossman et al. 2007
MBSR and Low back pain

• Randomized controlled trial of adults with chronic low back pain – JAMA 2016
• 342 participants – Randomly assigned to
  • 8-week MBSR course or CBT or usual care
• In MBSR group, 60.5% of participants showed clinically meaningful improvement in back pain–related functional limitation (vs 57.7% CBT and 44.1% usual care)
• In MBSR group, 43.6 % of participants showed clinically significant improvement in pain bothersomeness (vs 44.9% for CBT and 26.6% usual care)
• Improvements for participants were maintained after one year

• 2017 Clinical practice guideline American College of Physicians:
  • For Chronic low back pain – Non pharmacological treatments, including mindfulness-based stress reduction recommended
Mindfulness for Chronic Pain

• Mindfulness-Based Chronic Pain Management (MBCPM™)

• Program developed by Dr. Jackie Gardner-Nix, a physician and chronic pain consultant at St Michael’s Hospital, Toronto, Canada

• The Mindfulness Solution to Pain (2009)

• Based on the Mindfulness-Based Stress Reduction Program (MBSR) originated by Jon Kabat-Zinn

• Developed into a program more customized to the needs of those dealing with chronic pain with a particular attention to being trauma-informed and trauma-sensitive

• Patient courses (groups) are usually once a week for 12 to 13 weeks, for 2 and a half to 3 hours per session
MBCPM™ program

- Weekly education and discussion
- Factors that influence pain
- Through the lens of mindfulness
- Meditation practice

- Insights into why pain and suffering have become established
- Not a replacement for usual treatments
- Help understand how physical, psychological and emotional aspects of pain interact
- Improve overall health, improve function and decrease suffering
Mindfulness for pain (MBCPM™) outcome

• Decreased perceived pain intensity
• Improved mental health
• Decreased Pain Catastrophizing
• Decreased measures of level of suffering
• Decreased medication use for some
Fig 24. Medication Changes for Chronic Pain Sufferers Attending MPCPM courses in 2013/2014 (N=460 participants suffer from chronic pain, N=382 take medication)
MBCPM™ Medication Changes for Other Conditions

Anxiety

- No Medication: 40%
- Take More: 6%
- No Change: 66.5%
- Take Less: 7.5%

Medication Users

Hypertension

- No Medication: 79%
- Take More: 3%
- No Change: 75%
- Take Less: 18%

Depression

- No Medication: 27%
- Take More: 10%
- No Change: 72.5%
- Take Less: 17.1%

Medication Users

Insomnia

- No Medication: 30%
- Take More: 6.3%
- No Change: 70%
- Take Less: 30%

Medication Users

Anxiety: N=332 suffer, N=200 take medication

Hypertension: N=133 suffer, N=100 take medication

Depression: N=304 suffer, N=222 take medication

Insomnia: N=272 suffer, N=190 take medication
Other Impacts of MPCPM™

- 72.8% more productive
- 60.5% see family & friends more
- Increased engagement in:
  - Favourite hobbies: 35%
  - Recreational activities: 33.3%
  - Physical activity: 42.3%
  - Volunteer activities: 15.0%
Summary

- The various traditional approaches to chronic pain management offer only modest benefits for some.
- A Mindfulness based management program can be a valuable addition to the treatment of chronic pain and complement usual approaches.
- There is an increasing amount of evidence supporting the potential benefits of mindfulness in chronic pain sufferers with decreased pain intensity, improvement in function, and overall reduction in suffering.
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• NeuroNova Centre For Mindful Solutions Inc
  https://neuronovacentre.com

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