Discover The Invisible: Pain and Depression in MS
October 10, 2017
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Overview

• Types of pain
• Causes and effects of pain in MS - What’s happening?
• Strategies for pain management and responses
• Types of depression
• Causes and effects of depression in MS - What’s happening?
• How depression is associated with anxiety and pain
• Identifying and treating depression
October is National Depression and Mental Health Screening Month

Awareness Matters

Support Depression Awareness

Depression Awareness
Fight the Darkness

B4Stage4
Get screened.

www.mhascreening.org
Anonymous • Free • Confidential
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Pain Basics & Definitions

• “An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.” (IASP 1994)

• If a person is experiencing pain, that’s what pain is.

• Pain is an important factor in overall health related quality of life. (O’Connor, 2008)
Old Pain Models

Pain operates like a rigid fixed system and a particular injury generates a set amount of pain.

Pain is physical and mechanical so fix it!

Renaé Descartes 1664
Biopsychosocial Model

16th Century

17th Century

21st Century

Noxious stimulus

Sensitization (Peripheral and Central)

Genetics

Neurochemical and structural changes

Mood (anxiety, depression)

Attention/expectation

Prior experiences

Descending, top down modulation

Ascending, bottom up information
All Pain Comes From The Brain

You also have a pain system

Special nerves that warn us about problems in our body
Pain Is An Alarm...

Pain is like an internal alarm that alerts us to danger in the body.
Chronic Pain

Like a sensitive smoke alarm, when the body’s nerves get too sensitive, they turn on too often, creating excessive pain that interrupts normal living.
About Pain

• The amount of pain you experience does not necessarily relate to the amount of tissue damage you have sustained.

• You can have life threatening tissue damage and no pain.

• Nociception is neither sufficient nor necessary for pain.

Butler, Moseley, Explain Pain 2012
Types Of Pain

• Acute pain vs. Chronic pain

• Neuropathic pain unrelated to MS
  • Nociceptive pain unrelated to MS

• Neuropathic pain due to MS
  • Neuralgias
  • Dysthesias
  • Painful tonic Spasms

• Nociceptive pain secondary to MS
Prevalence Of Pain In MS

- Overall pain prevalence 63%
- Headaches 43%
- Neuropathic extremity pain 26%
- Back pain 20%
- Painful spasms 15%
- Lhermitte sign 16%
- Trigeminal Neuralgia 3.8%

(Foley, 2013)
Pain Vocabulary To Know

- **Neuropathic pain** - caused by a lesion or disease of the somatosensory nervous system.
- **Nociceptive pain** - arises from actual or threatened damage to non-neural tissue; due to the activation of nociceptors.
- **Musculoskeletal pain** - arises from actual or threatened damage to non-neural tissue; due to the activation of nociceptors.
- **Allodynia** - due to a stimulus that does not normally provoke pain
- **Hyperalgesia** - increased pain from a stimulus that normally provokes pain
- **Dysesthesias** - an abnormal sensation that is considered to be unpleasant.
- **Neuralgia** - pain in the distribution of a nerve or nerves.

International Association for the Study of Pain
Risk Factors For Pain In MS

• Not entirely clear in the research
• Reduced risk with relapsing-remitting MS
• Longer disease duration
• Age
• Greater severity of disease
• Gender- comparable risk in women & men
  • Women may have greater severity of pain

(Hadjimichael et al, 2005) (O’Connor et al., 2008)
Telling Your Doctor About Pain

Try to include the following:

- **Where it happens**
  - Does it travel? Stay in one spot?

- **When it happens**
  - Sometimes? During certain activities? Always? In the morning? Late in the day?

- Describe the feeling as best you can

- What makes it better or worse?
Pain Descriptors

- Numbness
- Pins and Needles
- Burning
- Tingling
- Throbbing
- Stabbing
- Shooting
- Radiating
- Tightness
- Grabbing
- Weird stuff

- Electric Shock
- Aching
- Annoying
- Water trickling
- Gnawing
- Itching
- Crawling
- Itching
- Sore
- Constant
- Intermittent
More Pain Types In MS

- Normal pain from something not related to MS -
  - People with MS still have people stuff happen! - accidents, emotional experiences, sports injuries, etc.

- Infections - Bladder infections
  - May seem like an exacerbation, fatigue, spasms, fatigue, fever

- Medication side effects
  - Headaches
  - Reactions to drugs or injection sites
Neuropathic Pain In MS

• Central Neuropathic pain- pain consistent with a central nervous system lesion

• Pain in a neurologic distribution with altered sensation- “dysesthetic pain”

• Most common central neuropathic pain in MS
  • Extremity pain
  • Trigeminal neuralgia
  • Lhermitte’s sign
Neuropathic pain in MS
“noisy nerves”
Neuropathic Pain In MS

• Dysesthesias
  • Burning
  • Hyperesthesia
  • Lhermitte’s sign
  • MS Hug- banding – dysesthesia or spasticity

• Neuralgias
  • Trigeminal Neuralgia
  • Occipital Neuralgia
Addressing Pain With Medications

• Treatment for Dysesthesias:

  Anti-convulsants - Neurontin (gabapentin)
  Lyrica (pregabalin)
  Tegretol (carbamazepine)
  Trileptal (oxcarbazepine)

  Anti-depressants - Cymbalta (fluoxetine)
  Savella (milnacipran)
  Amitriptyline
  Nortriptyline

Topical patches and compounded preparations
  Lidoderm
  Compounded Preparations
Opioids for Pain Management

• For short term pain
• Not a preferred choice for long-term pain
• Tends to be less effective over time
• Addiction risk
• Some newer opioids are less addicting, but insurance is reluctant to approve them because of costs- “catch 22”
Musculoskeletal Pain in MS

- Nociceptive pain - arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors.

- May be related to altered movement patterns.

- Back Pain

- Joint pain
Spasticity /Spasms

• Spasticity = a state of chronic increased tone
  Can result in contractures, tissue changes
  Not all spasticity is bad, e.g. transfers, gait.

• Spasm = a wave of increased tone

• Increased muscle tone due to an insult to the brain
  and/or spinal cord

• Spasticity tends to result in upper extremity flexion
  and lower extremity extensor tone.

• Spasticity can be painful
  Therapy, Stretching, Medications, Acupuncture,
  Dry Needling
Spasticity Management

• Change irritating or noxious stimulus

• Assess for infections
  
  Respiratory infection
  Bladder Infection

• Physical Therapy - stretching, exercise, safety with movement, orthotics

• Occupational Therapy – stretching, splinting, casting, activities of daily living
Spasticity Medications

- Baclofen
- Zanaflex (tizanidine)
- Benzodiazepines
  - Klonopin (clonazepam)
  - Ativan (Lorazepam)
  - Valium (diazepam)
- Dantrium
- Anticonvulsants, botox, cannabinoids
What Goes With MS Pain?

- Greater pain severity is associated with poorer health-related quality of life. (O’Connor 2008)
- Interference with daily life
- General health, energy/vitality
- Social Functioning
- Poor Sleep
- Fatigue
- Attention/concentration
What Goes With MS Pain?

• Mental Health- Mood- Anxiety- Depression

• Ability to walk / move around

• Deconditioning

• Normal Work

• Recreational activities

• Enjoyment of life

• Physical and emotional functioning (Hadjimichael 2007)
Pain Management

• **Education**- Reduces the threat associated with pain; positive effect on all of the input and response systems.

• **Movement**- Increases health of tissues; nourishes brain as it reestablishes fine functional sensory and motor representation;

• **Healthy Behaviors**- Medication, diet, CBT, relaxation strategies, love, spiritual health, physical therapy/activity
ED FISCHER '08

Yes, yes, yes - now, seriously, what can we do to improve our health?

1. Exercise
2. Exercise
3. Exercise
4. Exercise
5. Exercise
6. Exercise
7. Exercise
8. etc.

Doctor's office:

Exercise: The key.
Physical Therapy and Exercise

• Fatigue
• Depression
• Functional Mobility
• Safety
• Preventing Falls
• Ergonomics, Body Mechanics
• Pacing Activity
Addressing Pain with Behaviors

• Pain should be addressed through behaviors of person experiencing pain and the people sharing their lives with them

• Positive Coping strategies

• Avoid catastrophizing - excessively negative and unrealistic thoughts about pain - correlated with changes in pain, as well as physical & psychological functioning (Jensen et al, 2010)
Thought Viruses

Thoughts and beliefs are nerve impulses too…

There are thought processes powerful enough to maintain a pain state.


“The CT scan couldn’t find it so it must be really bad.”

“Aunt Diedre had back pain, too. Now she’s in a wheelchair.”

“I don’t think I can take this anymore.”
Responding Positively To Pain

• Participating **actively** in your care plan
• Cognitive Behavioral Therapy
• Optimism
• Active movement, exercise, and therapy
• Socializing
• Wellness programs, gym activities
• Education- (try retrainpain.org)
• Doing what you CAN DO!
References

- www.Retrainpain.org
- www.painexhibit.com
- National MS society
- Explain Pain
- Dr. Ben Thrower, MD, Shepherd Center, talk on MS and pain for Multiple Sclerosis Foundation
- Dr. Dawn Ehde, PhD University of Washington, talk on UWtv series
Between 6 and 19% of patients with MS have both depression and pain.

Individuals who are depressed are more likely to report pain.

When both pain AND depression are present, treatment should target both.
Depression is more common in MS than in individuals with other long-term medical illnesses in the general population (people without MS).

In persons with MS age 18 to 45 there is a 25% chance one will develop a form of depression over the course of...

...of persons with MS will develop a form of depression in their lifetime.
General Population ≤ Multiple Sclerosis
Depression and MS

Depression is associated with…

• increased disease severity, including neurodegeneration – cell loss

• MS relapses

• co-occurring diagnoses such as PAIN, fatigue, anxiety, and cognitive changes

• life stress, such as financial stress
Depression

Biology
- physical health
- genetic vulnerabilities
- drug effects

Social
- peers
- family circumstances
- family relationships

Psychological
- coping skills
- social skills
- family relationships
- self-esteem
- mental health
Higher rates of depression in RRMS may be suggestive of an inflammatory cause.

Depression is less common early in the disease.

Depressive thoughts and hopelessness are more common in SPMS suggestive of a reactive cause.
Types of Depression

Adjustment Disorder

Depression Due to Medical Condition

Major Depressive Disorder
Diagnosing Depression

1. *Feeling down, depressed, or hopeless
2. *Anhedonia – Little interest or pleasure in the things you can do
3. Feeling bad about yourself, such as feeling like a failure or that you’ve let yourself or others down
4. Fatigue
5. Change in sleep – trouble falling asleep, or sleeping too much
6. Changes in thinking skills: concentration and memory
7. Moving and speaking slowly or being fidgety or restless
8. Change in appetite
9. Thoughts of suicide or hurting yourself
Anatomical changes have been noted in the brains of depressed individuals with MS. Specifically, atrophy (cell loss) and increased number of lesions in frontal and temporal areas of the brain.
**MS, Depression, and the Brain**

- **Reactive**: Negative emotions or thoughts activate the amygdala, which in turn activates the HPA axis via the hypothalamus. Glucocorticoids are released reactivating the amygdala.

- **Immune Mediated**: molecules that are associated with inflammation, proinflammatory cytokines, also activate the HPA axis. Elevated levels of these molecules have been reported in MS.

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MS, Depression, and the Brain

In MS, immune changes are thought to occur before depression

However

Depression can impact the immune system, so the impact might be bidirectional.

HPA activation in persons with MS has been linked to increased neurodegeneration.

In persons without MS, increased HPA activation has been linked to cell death in the hippocampus and prefrontal cortex.
MS, Depression, and Anxiety

Approximately half of depressed individuals with MS also experience anxiety.
Anxiety disorders are 3x greater in MS than the general population.

Anxiety alone is associated with increased risk of excessive alcohol use.

Anxiety can exacerbate cognitive dysfunction, specifically processing speed.
MS, Depression, and Anxiety

When anxiety and depression occur together…

- Thoughts about self-harm are more prevalent
- Individuals experience more social dysfunction
- Individuals experience and report more pain
## Do a Self-Test

Over the past 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little interest or pleasure in doing things (the things you CAN DO)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Feeling down, depressed, or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Score of 3 or more? Consider talking to a medical provider.
Next Steps: Treatment

• Depression is underdiagnosed and undertreated

• One study’s findings:
  • Up to 2/3 of MS patients with depression receive no treatment
  • Of those that did receive an antidepressant, only 25% were given an adequate dose

Kalb, 2010; Sadovnick et al., 1991; Stenager & Stenager, 1992; Mohr et al., 2006
Next Steps: Treatment

Treatment Options:
• Psychotherapy: CBT or ACT
• Medication
• **Best**: Medication + Psychotherapy
Cognitive Behavioral Therapy (CBT)

Thoughts

Trigger

Emotions

Behaviors

Body Sensations

what you think and do affects the way you feel

National Multiple Sclerosis Society
Summary

• Depression is common in MS
• Depression may be caused by the disease, a reaction, or both
• Depression co-occurs with other diagnoses such as anxiety or pain
• Depression is underdiagnosed and undertreated, BUT it can be treated
• Treatment can be medication, talk therapy, or both
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your best life update

Q&A

Can Do Library

Find these resources at www.MSCanDo.org.
The New MS Listing for Social Security: Learn How Recent Changes to the MS Criteria Will Impact your Disability Claim

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