Pain in Parkinson Disease

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Learning Objectives

- Review the types of pain that can occur in Parkinson Disease.
- Learn about how pain may fluctuate with ON/OFF medication cycles.
- Discuss approaches to pain control in PD.
Pain is common in PD

- 40-75% of individuals with PD report current pain when asked.

- Dystonic or cramping pain may be the most common, particularly in young onset PD.
<table>
<thead>
<tr>
<th>Pain Type</th>
<th>Subcategory</th>
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<tbody>
<tr>
<td>Central pain (Primary)</td>
<td>Off-period pain</td>
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<tr>
<td></td>
<td>Beginning of dose pain</td>
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<td></td>
<td>Peak dose pain</td>
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<td>End of dose pain</td>
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<tr>
<td>Musculoskeletal</td>
<td>Pain due to parkinsonian rigidity</td>
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<td>Pain due to rheumatologic or musculoskeletal disorder or deformity</td>
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<tr>
<td>Neuritic-radicular pain</td>
<td>Pain due to roots lesion, focal or peripheral neuropathy</td>
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<tr>
<td>Dystonic pain</td>
<td>Off-period painful dystonia</td>
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<td></td>
<td>Beginning of dose dystonia</td>
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<td>Peak dose pain</td>
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<td>End of dose pain</td>
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<tr>
<td>Akathisia</td>
<td>Off period akathisia</td>
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<td>Drug induced akathisia</td>
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</tbody>
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Ford 2005
Primary/Central Pain

- Direct consequence of PD.
- Occurs in 10-30% of individuals.
- No identifiable tissue damage.

**Symptoms:**
- burning, stabbing, aching, itching, or tingling sensations in undefined and peculiar body regions.
- vague overall sensation of tension and discomfort.
Primary/Central Pain

- May be more severe and/or frequent on the more affected side.

- Possibly more severe in the “off” condition.
Secondary Pain

- Musculoskeletal
- Radicular/neuritic
- Dystonic
- Aka thisia
Musculoskeletal Pain

- Contributing factors may include:
  - Rigidity and decreased movement
  - Postural abnormalities
  - Abnormal mechanics
  - Severe dyskinesias
  - Disordered sleep
  - Depression

- Tends to decrease during “on” states and be worst during “off” states.
Shoulder Pain

• May be very early presentation of PD.

• Rigidity and akinesia thought to contribute.

• Commonly misdiagnosed as being only due to arthritis, bursitis or rotator cuff injury.

• Can present as a frozen shoulder.
Back Pain

- More common in PD than age-matched “healthy” controls.

- Multiple contributors:
  - spinal degenerative changes (common)
  - postural abnormalities
  - rigidity and dystonia
  - dyskinesias
  - inactivity
  - depression
  - fall-related trauma
Back Pain

Complex relationship to camptocormia and PISA syndrome.
Neuritic & Radicular PAIN

- Localized to the territory of a peripheral nerve or a spinal nerve root.

- 14% of pain experienced by patients with PD.

- Postural abnormalities, drug-induced dyskinesias and rigidity may contribute.
Dystonic Pain

• Dystonia = sustained, forceful twisting muscular activity that leads to abnormal postures.

• May precede diagnosis of PD, develop as a late symptom, or be induced by DRT and by DBS.

• Dystonic spasms are often painful and may be brief or last for hours. They may be paroxysmal, spontaneous or triggered by activity.
• Off period dystonia often affects the feet.

• Hand involvement is also common.

• Left unaddressed, contractures may develop and lead to increased pain or disability.
AKATHISIA

- A feeling of general internal restlessness (often necessitating movement for relief).

- May be a presenting feature of PD or may emerge as an “off” symptom.

- About 50% of individuals with akathisia may respond to DRT.

- However, akathisia can also present as an adverse effect of levodopa.
Pain and Depression

• Increased incidence of depression in the presence of pain.

• Causal relationship not established.

• Generally recommended to treat both.
PAIN MANAGEMENT

• General principles:
  • Optimize PD medical management to decrease potential negative impact of rigidity, slowness, tremor and dyskinesias.
  • Identify underlying pain generators (e.g. lumbar disc) and address if possible.

• Look for non-pharmacologic interventions.
  • Skilled PT
  • Exercise classes/individual exercise program
  • Meditation/relaxation
  • Acupuncture
  • Massage
  • Other body therapies
  • Cognitive behavioral therapy
PAIN MANAGEMENT

- **Modalities:**
  - Ice/Heat
  - Ultrasound +/- steroid
  - TENS unit

- **Topical medications to limit systemic side effects:**
  - NSAIDs (e.g. aspirin cream, Voltaren gel)
  - Anesthetics (e.g. lidoderm patch, lidocaine creams/gels)
  - Counter irritants (e.g. salonpas, capsaicin)
  - CBD preparations
**PAIN MANAGEMENT**

- Oral medications as tolerated:
  - Adjust dopamine replacement therapy (DRT).
  - Antidepressants (to address mood, neuropathic pain and/or sleep)
  - Anticonvulsants (to address mood, neuropathic pain and/or sleep)
  - Muscle relaxants (short term use)
  - Opiates (short term and low dose)
PAIN MANAGEMENT

- **DBS:**
  - **Chronic G Pi DBS**
    - Report of alleviation of pain and other unpleasant sensations
  - **Chronic bilateral STN DBS (1yr) associated with:**
    - 84% reduction in pain fluctuations in 7 patients.
    - 49% reduction in pain prevalence
      - Dystonic and musculoskeletal pain responded, not central or neuropathic pain.
    - significant improvements in akathisia
PAIN MANAGEMENT

- Duopa (intestinal levodopa):
  - Open label studies suggest possible improvements in pain, discomfort and muscle cramps.
WHAT YOU CAN DO:

• Try to identify location, quality, provoking and relieving factors.
• Keep a pain diary to capture the relationship of the pain to the timing of medications.
• Also consider the relationship of the pain to any feelings of anxiety, stress or depression.
WHAT YOU CAN DO:

• Identify activities that help you cope and remember them.
• Discuss pain with your medical providers
  • Consider adjustment of PD medications
  • Consider further evaluation for pain source
• Stay active


• Chudler EH, Dong WK. The role of the basal ganglia in nociception and pain. Pain 1995;60:3-38.


