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Evidence-based Pain Management

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Background

- A study from the Institute of Medicine found that one-third of the U.S. population suffers from chronic pain.

- Pain not only has a profound impact on people’s lives, but is also a huge economic burden, attributing up to an estimated $635 billion in medical costs and lost productivity annually.
Pain is common in FOP patients

- Inadequate pain relief from available pain medications is often reported in FOP patients.
What is this thing called pain?

- An unpleasant **sensory** and **emotional experience** associated with actual or potential tissue damage, or described in terms of such damage (IASP 2007).

Prevalence: 6.9%-10%


Woolf C. JCI 2010
Pain is common in FOP patients

- In a recent FOP patient survey, about 30% of patients report hypersensitivity to touch or temperature change, suggesting peripheral nerve injury may contribute to their chronic pain syndrome.

- We are currently recruiting patients and family members to conduct a **Quantitative Sensory Test (QST)** to confirm whether FOP patients are more sensitive to touch or temperature change on their skin.
Quantitative Sensory Tests

The study will help us to understand the underlying neurobiology of pain processing in patients with FOP.
How do we treat pain?

- Pain Management
  - Pharmacological treatment
  - Physical therapy
  - Pain psychology
  - Invasive Procedures
  - Complementary / Integrative Medicine
Multimodal therapy for pain management

Pharmacological therapy

- NSAIDs
  - Non-selective
  - COX-2 inhibitors
- Acetaminophen
- Neuropathic Agents
  - Gabapentinoids
- Opioids
  - TCA
- Herbs
  - SNRIs
NSAID Risks

- Kidneys
- Platelet function
- GI tract
  - COX-2 inhibitor has less GI side effects.
  - In 2004, Merck pulled popular Vioxx due to risks of heart attacks.
CONCLUSIONS:

- The risk of gastrointestinal events was significantly lower with celecoxib than with naproxen (P=0.01) or ibuprofen (P=0.002);

- At moderate doses, celecoxib was found to be noninferior to ibuprofen or naproxen with regard to cardiovascular safety.
Evidence-based pharmacotherapy for neuropathic pain

<table>
<thead>
<tr>
<th>Strong recommendations for use</th>
<th>Total daily dose and dose regimen</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gapabentin</td>
<td>1200–3600 mg, in three divided doses</td>
<td>First line</td>
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<tr>
<td>Gabapentin extended release or enacarbil</td>
<td>1200–3600 mg, in two divided doses</td>
<td>First line</td>
</tr>
<tr>
<td>Pregabalin</td>
<td>300–600 mg, in two divided doses</td>
<td>First line</td>
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<tr>
<td>Serotonin-noradrenaline reuptake inhibitors</td>
<td>60–120 mg, once a day (duloxetine);</td>
<td>First line</td>
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<tr>
<td>Duloxetine or venlafaxine*</td>
<td>150–225 mg, once a day (venlafaxine extended release)</td>
<td>First line</td>
</tr>
<tr>
<td>Tricyclic antidepressants</td>
<td>25–150 mg, once a day or in two divided doses</td>
<td>First line†</td>
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<table>
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<tr>
<th>Weak recommendations for use</th>
<th>Total daily dose and dose regimen</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Capsaicin 8% patches</td>
<td>One to four patches to the painful area for 30–60 min every 3 months</td>
<td>Second line (peripheral neuropathic pain)‡</td>
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<tr>
<td>Lidocaine patches</td>
<td>One to three patches to the region of pain once a day for up to 12 h</td>
<td>Second line (peripheral neuropathic pain)</td>
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<tr>
<td>Tramadol</td>
<td>200–400 mg, in two (tramadol extended release) or three divided doses</td>
<td>Second line</td>
</tr>
<tr>
<td>Botulinum toxin A (subcutaneously)</td>
<td>50–200 units to the painful area every 3 months</td>
<td>Third line; specialist use (peripheral neuropathic pain)</td>
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<tr>
<td>Strong opioids</td>
<td>Individual titration</td>
<td>Third line§</td>
</tr>
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