Management of Chronic Post-op Pain and CRPS

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“All hope abandon ye who enter here”
“The left hand, which...was also eczematous, is painful on pressure or touch, especially in the palm. Both hands are kept covered with loose cotton gloves, which he wets at brief intervals. He is...nervous and hysterical to such a degree that his relatives suppose him to be partially insane. It is difficult even to examine him properly on account of his timidity, and his whole appearance exhibits the effects of pain...and want of rest.”
CRPS I--History

Causalgia → Sudeck’s Atrophy

Reflex Sympathetic Dystrophy

Sympathetic-Maintained Pain

Complex Regional Pain Syndrome Type I
RSD/CRPS I

- Not reflex
- Not sympathetic
- Not dystrophy
- Stages: Early, Dystrophic, Atrophic
- “Post-CRPS Syndrome” & “post-Budapest CRPS”
- “Biopsychosocial disease”
RSD—Kozin’s Criteria

• Pain
• Swelling
• Vasomotor changes
CRPS I DX (Budapest)

• Continuing pain, disproportionate to inciting event
• One symptom in 3 of 4 categories
• One sign in 2 of 4 categories
• No other diagnosis that better explains
## Symptoms

<table>
<thead>
<tr>
<th>Category</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory</td>
<td>Hyperesthesia, allodynia</td>
</tr>
<tr>
<td>Vasomotor</td>
<td>Temperature asymmetry, color changes</td>
</tr>
<tr>
<td>Sudomotor/Edema</td>
<td>Edema, sweating asymmetry, sweating changes</td>
</tr>
<tr>
<td>Motor/Trophic</td>
<td>Decreased ROM, weakness, tremor, dystonia, trophic changes (skin, hair, nails)</td>
</tr>
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</table>
## Signs

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<th>Category</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Sensory</td>
<td>• Hyperalgesia (pinprick), allodynia (light touch, deep pressure, joint movement)</td>
</tr>
<tr>
<td>Vasomotor</td>
<td>• Temperature asymmetry/skin color asymmetry</td>
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Epidemiology

- Incidence 26/100,000
- Age 50-70
- Female 3-5x>Male
- Sprain, strain, fracture, surgery most common precipitating factors
- Typically monophasic, only 2% relapsing/remitting
Pathophysiology

- Poorly understood
- Inflammatory?—Hot, swollen, reduced function
- Central nervous system?--Sensitization
- Peripheral nervous system?—Small fiber neuro
- Altered sympathetic function?—Temp/color changes
- Autoimmune?—Anti-neuronal Abs in 30-90%
- Limb ischemia?—Radical-induced microvascular damage
- Psychologic factors?
Psychosocial Issues

• Unclear if psychosocial factors predispose to CRPS I
• Clearly CRPS I results in sequelae including depression, anxiety, reduced quality of life, and functional/occupational disability

Imaging

- Triple-phase bone scan
- Asymmetric uptake in blood flow and blood pool phases, diffuse periarticular uptake in third phase
- Higher sensitivity, negative predictive value than MRI or plain films

(Cappello. Meta-analysis of Imaging Techniques for the Diagnosis of CRPS Type I. JHS 2012; 37A:288-96)
Plantar Delayed
8-2-93
Bone Scan
Bone Scan
X Ray
Stages

• 1—Acute
• 2—Dystrophic
• 3—Atrophic

Historical significance, otherwise doubtful clinically important
Treatment

• Remobilize!
• Pain Control
• Focus on Function
Treatment

• Corticosteroids
• Bisphosphonates (High dose—need further study)
• Vasodilators (Limited by side-effects)
• Vitamin C—500 mg daily (wrist fx)
• Gabapentin (+/-)
• Rehabilitative Therapies (PT, OT)
Treatment--Ineffective

- TCAs
- Anticonvulsants (except Gabapentin)
- Muscle relaxants
- NSAIDs
- Opioids
- Botulinum toxins
Treatment

- Ineffective
  - IV Sympathetic Blocks
  - Percutaneous Sympathetic Blocks
  - Amputation
- Effective (in properly selected)
  - Sympathectomy (risk/benefit?)
  - Spinal Cord Stimulation
Treatment—What I Do

• Corticosteroids (if early—swelling, vasomotor changes prominent)
• Phenoxybenzamine (if early, as above)
• Gabapentin
• Topical Agents (Capsaicin vs. Compounded)
• Vitamin C
• TCAs
• Lidoderm
Treatment—What I Do

• Everything medical is to allow for participation in therapies to address allodynia, hyperalgesia, and functional problems (weakness, ROM)
• Aquatic therapy helpful for LE
• Desensitization protocols
Treatment—What I Do

• Sympathetic block if necessary to participate in therapies
• Not stand alone treatment
Prevention

- Adequate pain relief in operative and peri-operative period
- Limited use of tourniquet
- Limitation of operating time
- Vitamin C 500 mg daily?
- Early mobilization
Bottom Line

- “In practice, there is no truly effective treatment for complex regional pain syndrome.”
- “The current treatment of CRPS is mainly empirical at best. The consensus is using interdisciplinary approach on CRPS to achieve pain relief and functional restoration.”
CHALLENGES

I expected times like this - but I never thought they'd be so bad, so long, and so frequent.
Chronic Pain

- Biopsychosocial disease
- Continuum
- Better to define by time limit, or attempt to prognosticate?
- Is the best way to prevent chronic pain after surgeries better identification of who gets operations?
Put an "X" at the point of worst pain.

I drew it on both sides of this form. Thanks!!
In the back of my neck lots of times it hurts so bad, at times very painful at night in position.

at night time legs falls asleep numb feet.

Lower back can't lay down much on abdomen this will section will hurt real bad it weakens.
Chronic Pain--ID

• Women 4X as affected as men
• Childhood abuse (esp. sexual)
• Substance abuse
• Borderline personality disorder
• Narcissistic personality disorder
• Lower income levels
• Family history of disability, multiple surgeries, chronic pain
Chronic Pain--Comorbidities

• 50-75% have either primary depression or depression secondary to pain syndrome
• Over 75% show behavioral characteristics (problems with job or housework, affected relationships, inability to keep up with hobbies, etc.)
• 30-50% have drug dependency problems
Prognostic Factors?

- Average Pain Intensity
- Worst Pain Intensity
- Current Pain Intensity
- Interference with usual activities
- Interference with work/household activities
- Interference with family/social activities
- Days of activity limitation due to pain in prior three months
Prognostic Factors?

• Depression Score
• Number of other pain sites
• Number of days with index pain in prior six months

Pergolizzi. The chronic pain conundrum: should we CHANGE from relying on past history to assessing prognostic factors? CMRO 2012; 28:249-56
Curative Model

- Pain is a symptom
- Physicians look beyond symptoms, address underlying biologic abnormality
- Treatment reverses abnormality
Chronic Pain

- Often pathophysiologic process is not identified, or cannot be effectively treated
- Therapy that resolves pathophysiologic process does not always resolve pain
- Curative therapies often irrelevant, as they have been tried already and were not effective
Chronic Pain—Rx

- Interdisciplinary
- Multiple meds, modalities, procedures available
- Focus less on pain and more on improving function and disability!