Complex Regional Pain Syndrome

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Abstract

Complex Regional Pain Syndrome (CRPS) is prolonged, disproportionate neuropathic pain and inflammation which presents after surgery, fracture, or trauma to a limb. Over the last 20 years, the pathophysiology of CRPS has become clear, however, there are no diagnostic tests. Recognizing the clinical signs, understanding the disease process, and familiarity with the different treatment options are all critical to managing patients with CRPS.

Clinical Presentation

Chief Complaint
- Spontaneous or stimulus induced pain in a single limb
- Worse with increased activity
- Described as deep and burning

History
- Surgery, fracture, or trauma to the affected limb within the last 6-11 weeks
- With late presentation, pain increases and spreads proximally

Signs (as compared to contralateral limb)
- Decreased hair, brittle nails
- Edema, decreased muscle strength
- Increased or decreased perspiration and tactile temperature of skin

Epidemiology and Risk Factors

Patient will be a post-menoupasal caucasian woman

- Incidence 20/100,000 per year
- Upper extremity > lower extremity
- Half of cases are precipitated by a fracture

Associated factors:
- Immobilization after injury
- Disproportionate pain to initial trauma
- Rheumatic diseases
- Migraines
- ACE inhibitor use

NO association with pre-existing psychological disorders

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Pathophysiology

Injury ⇨ Nerve Growth Factor released from immune cells ⇨ Substance P and Calcitonin-Gene-Related Peptide released from cutaneous nociceptors — vasodilation and protein extravasation — classic "neurogenic inflammation" — inflammation does not resolve and additional SP and CGRP are released at low levels of stimulation — continuously increased pain

After 6-12 months, the basal ganglia and somatosensory cortex become inflamed ⇨ dystonia and proprioceptive defects of the affected limb with vasoconstriction, thickening of capillaries, and osteoporosis

Diagnosis: Budapest Criteria

1. Disproportionate pain to inciting event

2. At least one symptom in all categories
3. At least one sign in at least two categories

   a. Sensory - hyperalgesia, allodynia
   b. Vasomotor - temperature asymmetry, skin color asymmetry
   c. sudomotor/edema - sweating asymmetry, edema
   d. motor/trophic - decreased ROM, decreased strength, hair, skin, nail changes