COMPLEX REGIONAL PAIN SYNDROME

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PRIOR TERMINOLOGY

- Sudeck’s atrophy
- Reflex sympathetic dystrophy
- Causalgia
- Post traumatic dystrophy
- Algodystrophy
- Shoulder hand syndrome
CURRENT TERMINOLOGY

• Complex Regional Pain Syndrome (CRPS)
  – Type I
  – Type II
CRPS Type I

- Develops after a noxious stimuli
- Spontaneous pain of allodynia/hyperalgesia,
- Not dermatomal in nature
- Associated edema, vasomotor changes
- Elimination of other causes of pain such as neuropathy, radiculopathy
- No evidence of nerve injury
CRPS TYPE II

- Develops after a nerve injury
- Spontaneous pain of allodynia/hyperalgesia,
- Not dermatomal in nature
- Associated edema, vasomotor changes
- Elimination of other causes of pain such as neuropathy, radiculopathy
- Presence of nerve injury
- Example- arachnoiditis
**PATHOPHYSIOLOGY**

- Alteration in the normal response to painful stimuli
- Pain stimulates the afferent C-fibers and A-delta fibers that travel to the dorsal root. This starts the cascade of stimulation of ascending fibers, central inhibitory efferent fibers and anterior horn stimulation.
- In CRPS this cycle continues even though the stimulus is removed.
CAUSES

- Trauma
  - Accidental
  - Surgical
- Diseases
  - Visceral
  - Neurologic
  - Vascular
- Idiopathic
DIAGNOSIS

- Signs and Symptoms
  - Pain, Hyperesthesias, vasomotor disturbances, edema, hail and nail growth abnormalities

- Laboratory Results
  - Positive thermography
  - Positive bone scan/ MRI
  - Osteoporosis on x-ray (second stage)
  - Quantitative sweat test
  - Positive response to sympathetic blockade

- Diagnostic Criteria
  - Greater than 6 probable RSD
  - 3-5 possible RSD
  - Less than 3 unlikely RSD
TREATMENT

- Recognize it early
- Physical therapy
  - Retrograde massage, sensory stimulation, contrast bath
- Oral prednisone, anticonvulsants, antidepressants
- Blocks
- Spinal cord stimulators
- Implantable drug delivery systems
- Psychological support
- Education
THERAPEUTIC MODALITIES

- Vibratory stimulation
- Retrograde Massage
- Contrast baths
- Isometrics
- Active Assistive ROM
- TENS
PHARMOCOLOGICAL

- Tricyclic’s
  - Thought to block serotonin reuptake and therefore increase serotonin activity at the receptor
- Opioids
  - Not really effective orally, better epidurally or intrathecally
- Corticosteroids
  - Bind in laminae III and VII in dorsal horn
- Anticonvulsants
  - Gabapentin most promising out of all
- Alpha Blockers
  - Alpha 1 blockers produce vasodilation and increase temperature
- Alpha 2 agonists
  - Epidurally and intrathecal use shows promise due to analgesic effect and modulation of adrenergic output. Minimal side effects
BLOCKS

- Peripheral
- Regional
- Sympathetic
- Neurolytic
SURGICAL TREATMENT

- Sympathectomy
  - Endoscopic or open,
  - Radiofrequency
  - Cryoablation

- Success rate
  - 12-90%
  - Recurrence 30%
**Implantable Devices**

- **Implantable Nerve Stimulators**
  - Outpatient procedure
  - Low complications
  - Promising results
  - Reversible with no nerve damage
  - Now being used for vascular claudication and diabetic neuropathy with similar results

- **Implantable drug delivery systems**
  - Not as well studied for CRPS
  - Newer intrathecal drugs such as use of Clonidine and intrathecal bupivacaine show promise
  - Narcotics intrathecally have profound effect on mu receptors with little systemic effect
  - Lots of research being done
Thank You