

Complex Regional Pain Syndrome: An Introduction

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Complex Regional Pain Syndrome

- Chronic (greater than 6 months)
- Typically affects one limb
- Usually post-injury
- Interaction with central and peripheral nervous system
- Prolonged or excessive pain
- Changes in skin color
- Changes in temperature
- Swelling

Types of CRPS

- Type 1
 - Reflex Sympathetic Dystrophy Syndrome
 - Without confirmed nerve injury
- Type 2
 - Causalgia
 - Associated, confirmed nerve injury

Who gets it?

- Anyone
- Women > men
- Mean age 40
- Rare in elderly and children

Symptoms of CRPS

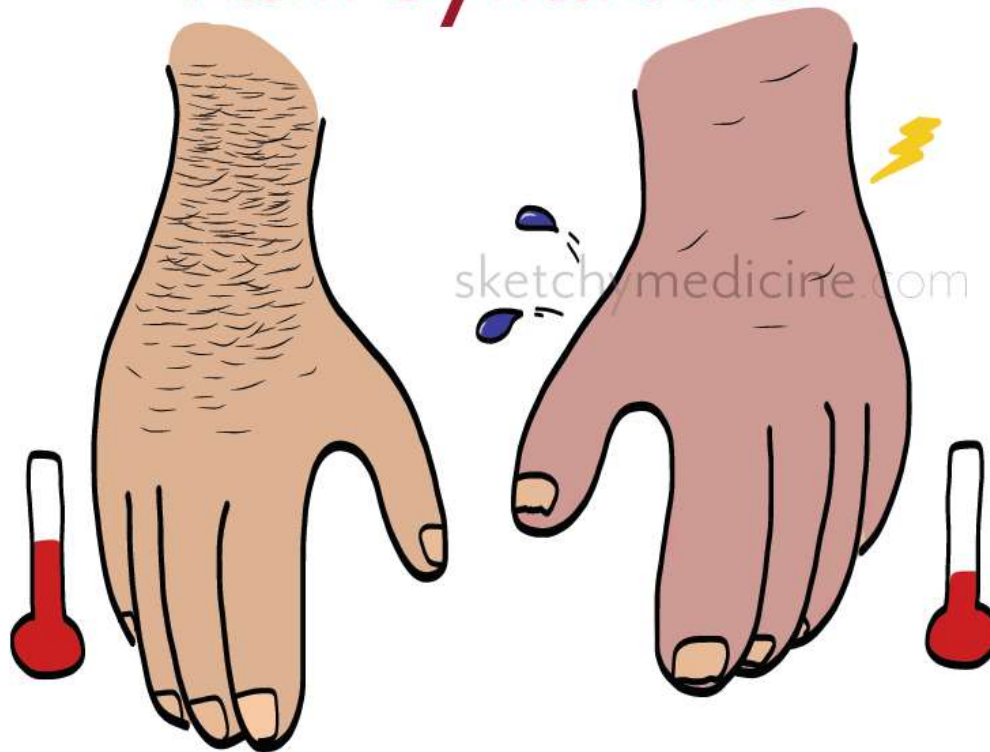
- Constant, severe pain
- Burning
- Pins and Needles
- Squeezing
- Entire extremity
 - Even if only peripheral
- Allodynia
- Changes in skin temperature
 - Abnormal microcirculation
- Skin color
 - Blotchy
 - Blue
 - Pale
 - Red
- Swelling of affected limb

More CRPS Symptoms

- Changes in skin texture
 - May appear shiny and thin
- Abnormal sweating pattern
- Changes in nail and hair growth patterns
- Stiffness in affected joints
- Problems coordinating muscle movement
 - Decreased movement of affected body part
- Abnormal movement in affected limb
 - Dystonia
 - Tremors, Jerking of limb

CRPS “STAMP” Map

Complex Regional Pain Syndrome



“STAMP”

Sensory

- allodynia
- hypo-/hyperalgesia
- hypo-/hyperesthesia

Trophic

- skin, hair, nail changes

Autonomic

- swelling
- edema
- sweating

Motor

- weakness
- contractures
- atrophy

Pain

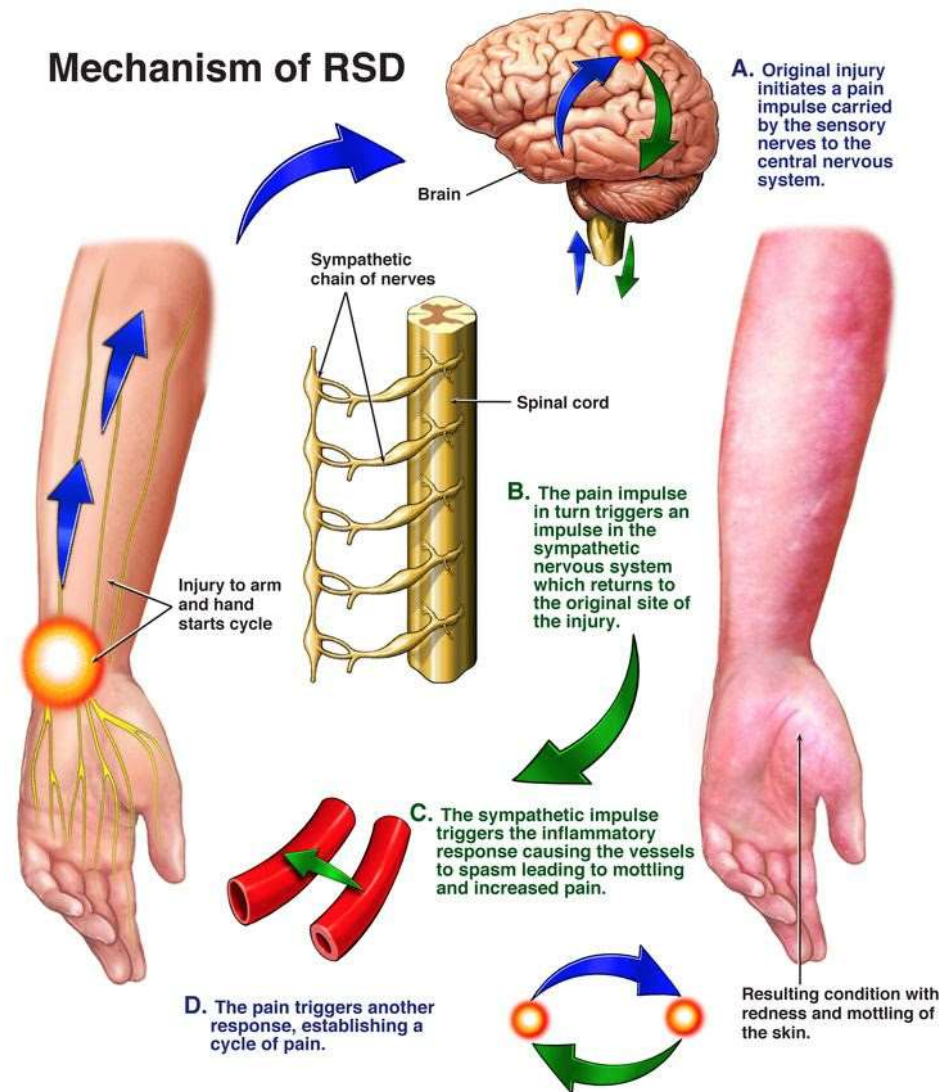
Causes CRPS

- 90% related to previous trauma or injury
- Fractures
- Sprains/strains
- Soft Tissue Injury
- Limb Immobilization
- Surgery
- Minor medical procedures
 - Needle stick
- Abnormal response that magnifies the effects of injury
- Abnormal response to a trigger
- Non-injury related
 - Infection
 - Vascular impairment
 - Peripheral nerve disorder

Further Causes of CRPS

- Peripheral nerve abnormalities
 - Axons to blood vessels
 - Typically unmyelinated and mild myelinated
 - Trigger damage in spinal cord and brain
- Small blood vessel dilatation
 - Red, swollen skin
 - Muscle and joint pain
- Small blood vessel constriction
 - Old, white, bluish skin
- Increase in cytokines
 - Redness, swelling, warmth
- Genetics
 - Earlier onset
 - Greater dystonia
 - More than one limb

Mechanism of CRPS



Diagnosis of CRPS

- No specific test
- Past Medical History
- Diagnosis of Exclusion
 - Rheumatologic
 - Infectious
 - Orthopedic
 - Neurologic
- Injury to one affected area

CRPS Prognosis

- Highly Variable
- Younger patients = better outcomes
- Older patients
 - More likely to have debilitating symptoms
- Does earlier rehabilitation helps overall outcome measures?
 - Unclear

CRPS Treatment

- Physical Therapy/Occupational therapy
 - Improve blood flow
 - Lessen circulatory symptoms
 - Improve strength, ROM, ADLs
 - Reverse brain changes

- Mirror Visual Feedback
 - Incorporated with PT
 - Drives proprioception
 - Tricks the brain
 - 2 "normal" limbs



CRPS Treatment

- Cognitive Behavioral Therapy
 - Depression
 - Anxiety
 - PTSD
- Since these conditions heighten symptoms, treatment of underlying disorders would help.

CRPS Treatment: Medications

- No drug FDA approved
- Multiple medicines in different classifications have shown to be helpful in limiting symptoms
- Side effect profile of medicine can cause other symptoms
 - Dizziness, Palpitations, memory loss, fatigue

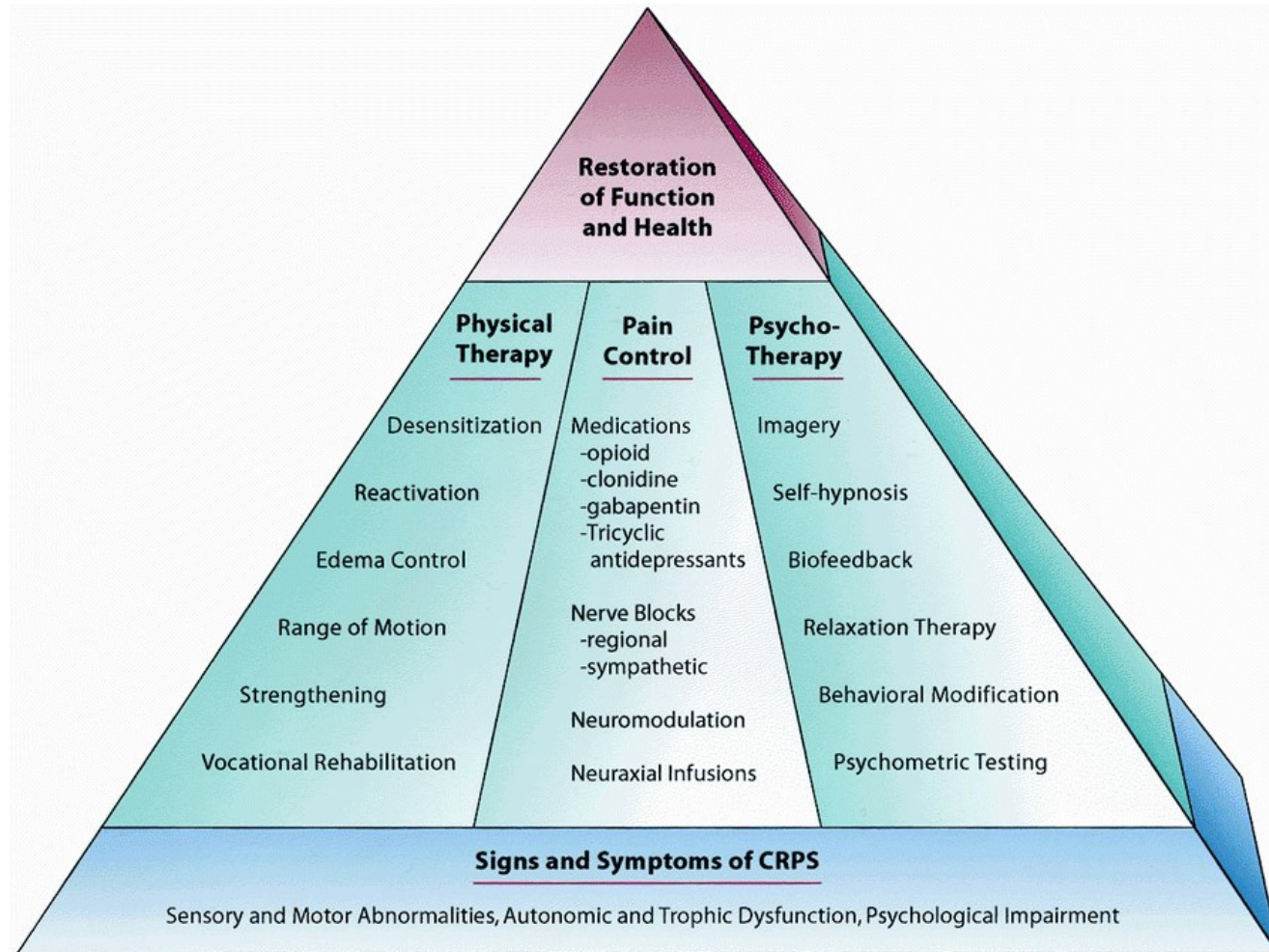
CRPS Treatment: Medications

- Bisphosphonates
 - Not in younger patients
- NSAIDs
- Corticosteroids
- Botox
- Opiates
- Topical anesthetics
- Neuropathic Pain
 - Gabapentin
 - Pregabalin
 - Amitriptyline
 - Nortriptyline
 - Duloxetine
- NMDA antagonists
 - Dextromethorphan
 - Ketamine

CRPS Treatment: Procedures

- Sympathetic nerve block
 - No long term help
- Surgical sympathectomy
 - Mixed results
- Spinal cord stimulation
- Neural Stimulation
- Intrathecal Drug pumps

Pyramid to Clinical Betterment



CRPS Treatment: Emerging

- Intravenous immunoglobulin (IVIg)
- Ketamine
- Graded motor imagery
- Acupuncture
- Relaxation techniques
- Manual therapy (OMT, Chiropractic care)

Thank You...Questions?

