Complex regional pain syndrome

Complex regional pain syndrome (CRPS) is a painful and often debilitating condition that is commonly characterised by pain and inflammation in an area in the arm or leg following injury. It is broadly defined as a regional post-traumatic neuropathic pain problem. CRPS has previously been known as Regional sympathetic dystrophy (RSD) or causalgia.

Cause of CRPS

CRPS is poorly understood, although there are a number of proposed mechanisms as to its cause. Often occurring after surgery, fracture or other kinds of traumatic injury, CRPS results in high levels of inflammation around nerve tissue. Whilst this can be normal after injury, there is an inadequate response which results in elevated levels past the regular point. In addition to the local inflammation around nerve sites, there is also evidence that there can be cortical reorganisation in the brain cortex. This means that the central nervous system often helps to heighten the pain experience in sufferers of CRPS.

Diagnosis

There is no gold standard diagnostic test for diagnosing CRPS. Diagnosis is largely based off the medical history, as well as their signs and symptoms. Sometimes, a doctor may order blood tests, bone scans, x-rays, CT scans or MRI scans to rule out other conditions that have similar symptoms, or to try and find if any nerves have been affected.

CRPS can be subdivided into CRPS-1 and CRPS2. Patients are diagnosed as having CRPS-1 when there is uncertainty about the particular nerve injured. The area of pain may be unrelated to an area of a single nerve. CRPS-2 is when a specific nerve has been identified as being injured.

The symptoms of CRPS may include:

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- Pain that changes in intensity and can be more extreme than is warranted. This can often be referred to as allodynia or hyperalgesia
- Loss of fine motor control
- Tremor and muscle spasm
- Stiffness or swelling around the affected limb
- Changes to the nails, skin, and hair on the affected limb
- Temperature changes compared to the unaffected limb
- Dry or sweaty relative to the unaffected limb

Management

Due to the complex nature of CRPS, treatment is a multimodal approach spanning medical, physical rehabilitation and psychological approaches.

- A variety of medications aimed at reducing pain and neuropathic symptoms may be implemented to help control symptoms
- Physiotherapy treatments focusing on improving range of motion and muscle strength are often directed at peripheral areas such as the arms or legs
- Different strategies are aimed at managing the central nervous systems role in this condition, including:
    - Mirror therapy
    - Graded motor imagery
    - Tactile discrimination training
    - Exposure therapy
    - Virtual reality is also a strategy being explored with technological advances
- Psychological services are crucial at helping to manage stress, anxiety and depressive symptoms that can often arise due to persistent pain

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Fig. 2. Mirror therapy is a commonly used rehabilitation method to help improve pain and function of the limb

Prognosis

Most cases that are considered mild to moderate will recover over months to a few years as the injured nerve regrows. If this doesn't happen, symptoms can linger to cause long-term disability.

In a nutshell

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CRPS I and II can be a debilitating neuropathic condition post-trauma, and whilst there is still a lack of understanding around its specific cause, there is a growing understanding around ways to effectively manage the condition. Physiotherapists are at the forefront of helping to manage CRPS with strategies focusing on both the local muscle, nerves and joints, as well as focusing on the brain's relationship with the pain process.

If you have been diagnosed with CRPS and would like help moving forward, please contact the physiotherapists at In Balance Physio & Pilates.

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