The Role of Osteopathic Manipulative Treatment in Managing Chronic Regional Pain Syndrome

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Introduction

Complex regional pain syndrome (CRPS) is a disorder of both the peripheral and central nervous system, including peripheral and central sensitization, local inflammation, changes in autonomic tone (primarily sympathetic hypersensitivity and catecholaminergic receptor up-regulation), changes in somatosensory representation in the brain, and psychophysiological factors.

CRPS is further separated into CRPS-I and CRPS-II depending on the presence and absence of an identified nerve injury.

Treatment of this disease often requires a multidisciplinary and multimodal approach.

Case Presentation

19-year-old male college student, weighing 174 lbs, who was struck by a vehicle while walking across the street four years prior. Initially, he experienced mild pain in his left knee, with no further medical evaluation at the time. However, his condition progressively worsened, resulting in burning, radiating pain extending into his lower leg, accompanied by occasional paresthesia and numbness. The patient now relies on a cane for mobility due to the severity of his pain. Over the following four years, a series of diagnostic studies yielded no significant findings. His treatment regimen included a variety of interventions, such as peroneal nerve entrapment decompression, lumbar sympathetic nerve blocks, ketamine infusions, spinal cord stimulator, a peripheral nerve stimulator, and an intrathecal pain pump. Additionally, he was prescribed hydromorphone and clonazepam without relief. The patient sought care at an osteopathic manipulative treatment (OMT) clinic, where his treatment focused on the facilitated segments of the lower extremities (T12-L2), addressing lymphatic restrictions, and restoring the biomechanics of the affected limb. Additional techniques included Balanced Ligamentous Tension to the fibula and rib raising/paraspinal inhibition. The patient expressed that OMT provided more relief than any other modality he had previously tried.

Pain	Displayed Symptoms	Displayed Signs
Continuing pain disproportionate to the inciting event	Sensory symptoms corresponding to hyperesthesia and/or allodynia. Vasomotor symptoms corresponding to temperature asymmetry, skin color changes, and/or skin color asymmetry. Symptoms corresponding to edema, sweating changes, and/or sweating asymmetry. Motor/trophic symptoms corresponding to a decreased range of motion, motor dysfunction, and/or trophic changes.	Sensory symptoms of hyperalgesia, allodynia (to light touch, deep somatic pressure, and/or joint movement). Vasomotor symptoms corresponding to temperature asymmetry, skin color changes, and/or asymmetry symptoms corresponding to edema, sweating changes, and/or sweating asymmetry. Motor/trophic symptoms corresponding to a decreased range of motion, motor dysfunction, and/or trophic changes.
	Requires at least one symptom in three out of the four categories listed above.	Requires at least one sign in two or more of the categories listed.

Figure 1. Budapest Criteria for diagnosis of CRPS.

Figure 2. Before (top) and after (bottom) OMT treatment.

Discussion

The patient met the Budapest criteria for CRPS. He has reported allodynia in the leg, skin color asymmetry, and weakness of limb. Physical exam and diagnostic studies showed temperature asymmetry, atrophy of gastrocnemius-soleus complex and decreased range of motion of the ankle and knee.

Although poorly understood, it is postulated that a hypersympathetic tone and autonomic imbalance play a role in the pathophysiology of complex regional pain syndrome.

As such, this treatment session had a focus of sympathetic inhibition and parasympathetic stimulation.

Conclusion

OMT can be utilized by osteopathic practitioners for patients with complex regional pain syndrome.

Given its low intensity and passive approach, it more likely to be tolerated well by patients with CRPS.

1.https://pmc.ncbi.nlm.nih.gov/articles/PMC7557797/