Cryotherapy of Pain Associated with Traumatic Peripheral Nerve Injury

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Introduction: Tarsal tunnel syndrome is an entrapment neuropathy characterized by compression of the posterior tibial nerve as it courses posterior to the medial malleolus. Tarsal tunnel syndrome is associated with pain in the sole of the foot. Although infrequent in incidence, it is a condition that can pose a formidable challenge in terms of therapeutic options

Objective: Illustrate the application of cryotherapy as a mode of long term pain relief for patients with peripheral nerve injury.

Case Presentation: A 69 year old male with 2 year history of worsening left foot pain presented for evaluation. The patient fractured his left ankle during a skiing accident. He reported significant pain presenting after surgical repair of his ankle. Pain was associated with plantar numbness and was described as sharp/stabbing/burning. Additionally, the patient exhibited severe weakness during foot plantarflexion. Treatment prior to consultation included multimodal pharmacotherapy, as well as multiple tarsal tunnel decompressions all without any lasting benefit. Physical exam and EMG supported a diagnosis of left tibial neuropathy.

After initial consultation, the patient demonstrated a positive response to a course of 3 ultrasound guided diagnostic tarsal tunnel injections. Pain relief was restricted to 1 week duration. After further discussion concerning long term treatment options, the decision was made to proceed with ultrasound guided posterior tibial nerve cryoablation. This was based on the patient’s prior positive response to peripheral nerve block without associated change in motor strength or ambulation. (severe pre-existing atrophy).

The procedure was performed with an Iovera Device fitted with a 22G/55mm Smart Tip needle (Myoscience, California). A total of six, seventy second cycles were carried out. After the procedure, the patient displayed appropriate numbness in the distribution of the tibial nerve and continued to report greater than 80% pain relief at 6 months.

Conclusion: This case demonstrates that ultrasound guided cryoablation of peripheral nerves may be effective in providing long term pain relief for patients with traumatic nerve injury.
