

Treatment of Neuropathic Craniofacial Pain with Peripheral Nerve Stimulation Approach

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Peripheral nerve stimulation has been used for decades as a treatment option for variety of pain syndromes, including the posttraumatic neuropathic pain and certain peripheral neuralgias. In the recent years, several reports described use of this modality in patients with pain involving the craniofacial region, and the reported results have been encouraging.

Methods: During 2000-2004, we used neurostimulation in a total of 34 peripheral nerves (23 occipital, 6 supraorbital, 5 infraorbital) in 20 patients (14 female, 6 male; age range 22-73, mean 46 years) with pain secondary to traumatic, iatrogenic or idiopathic neuropathy. Standard wire electrodes were inserted into an epifascial plane traversing the course of the nerve to be stimulated. All patients underwent a stimulation trial of 5-7 days. If the patients experienced more than 50 percent pain relief, they had a permanent stimulation device implanted (the trial electrode was replaced with the permanent one, and the pulse generator was inserted into infraclavicular region).

Results: In 75 percent of patients (n=15), a trial was successful, and patients underwent permanent stimulator implantation. Overall, subcutaneous peripheral neurostimulation was initially successful in 25/34 stimulated nerves (74 percent). During the 26 months follow-up period (2-57 months), 4 patients had their system removed (1 due to infection, 2 due to loss of efficacy, 1 - due to symptom improvement). Of the remaining 11, 8 (72%) patients continue to enjoy satisfactory pain relief (>75 percent of pain intensity). Complications and revisions were rare, with only 3 surgeries performed for revision of the electrodes (2 due to electrode migration and 1 - electrode erosion), overall infection rate of 0.08 per electrode implanted (n=2).

Conclusion: Peripheral nerve stimulation of both the trigeminal nerve branches and the occipital nerves is a straightforward, safe and effective treatment option of medically intractable chronic pain, related to trigeminal neuropathy or occipital neuralgia. With meticulous surgical technique and thorough post-operative care, the risk of migration and infection is negligent comparing to the benefit that a patient may experience from this procedure. We encourage other clinicians to try this modality for their patients with intractable craniofacial pain.