

Peripheral Neurostimulation for Facial Pain: Retrospective Case Series Analysis

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Learning Objectives

Evaluate results of applying peripheral nerve stimulation for treatment of trigeminal facial pain.

Introduction

Facial pain is a complex affliction with multiple etiologies including trigeminal neuralgia, post herpetic neuralgia and post-traumatic neuropathic pain as well as other referred pains such as sinus pain and TMJ dysfunction. Management is initially medical and in most cases this is sufficient. Yet there are cases that are resistant to therapy that significantly affect the patient's quality of life. Since its introduction in 1960, peripheral neurostimulation has become an accepted avenue for treatment of different pain syndromes. We evaluate our experience of applying peripheral nerve stimulation for treatment of facial pain.

Methods

A retrospective chart review was performed to collect history and outcomes from implants by a single surgeon. Peripheral neurostimulation was achieved using subcutaneously implanted octrodes either in a supraorbital or infraorbital location, or both. All patients underwent a seven-day trial with externalized electrodes prior to permanent system implantation. Patients with 50% or greater improvement in pain went on to implantation.

Using the visual analog pain scale (VAS), we report the analgesic results of 9 patients with neuropathic facial pain due to idiopathic trigeminal neuralgia, trauma, or post herpetic neuralgia treated with peripheral neurostimulation. Furthermore, we evaluated the improvement in facial pain by comparing preoperative versus postoperative analgesic usage as an indicator of pain alleviation with median follow up of 15 months.

Results

Of the 9 patients, 6 had significant reduction in facial pain after a trial of neurostimulation and subsequently underwent permanent lead implantation.

Five of those six patients had reduction of facial pain with subjective improvement in quality of life, reduction of chronic pain medication use, and an average reduction in VAS score by 5 ± 1 points, while one patient had no pain reduction.

Complications occurred in one patient who had lead erosion requiring removal of the permanent leads 7 month postoperatively, and subsequent reimplantation of the device once infection was cleared.

Three patients—one with post herpetic neuralgia, one with post traumatic neuropathy, and the final with post neuropathic trigeminal pain—failed the trial phase.

Table 1: Patient demographics

Number of patients	9		
Passed trial	6		
Failed trial	3		
Age (mean)	58 +/- 15 years		
Male / Female	6 / 3		
Right side / Left side	4 / 5		
Follow up	26.5 +/- 38.3 weeks		
Diagnosis:	Passed Trial	Failed trial	Total
• Trigeminal neuralgia	2	0	2
• Post herpetic neuralgia	2	1	3
• Post Traumatic	1	1	2
• Neuropathic pain	1	1	2
Procedure:			
• Supraorbital electrode		2	
• Infraorbital electrode		1	
• Both		2	

Figure 1: Pre and post operative Visual analog pain scale

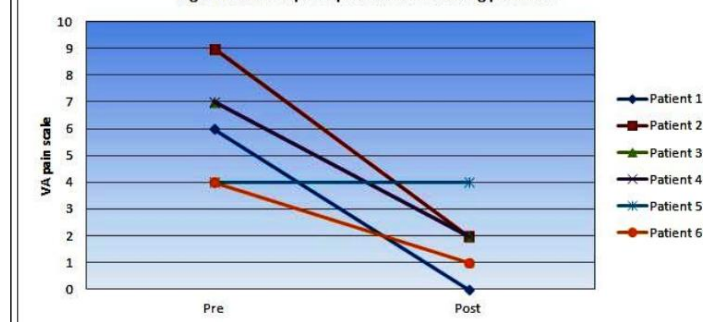


Table 2: Patient outcome

Outcome \ Diagnosis	PHN	Neuropathic	trauma	TGN	Total
A	1	-	-	-	1
B	1	1	1	1	4
C	-	-	-	-	-
D	-	-	-	-	-
E	-	-	-	1	1

Outcome scale: **A**: no pain no medication **B**: no pain with medication **C**: >50% pain reduction **D**: < 50% pain reduction **E**: no imp or worse. **PHN**: Post Herpetic neuralgia, **TGN**: trigeminal neuralgia

Conclusion

In properly selected patients, peripheral neurostimulation is effective for facial pain relief in terms of achieving overall improvement in patients' reported quality of life, decreased dependence on analgesics, and reduction in VAS scores. This case series provides further support for a future prospective randomized control trial evaluating peripheral neurostimulation for face pain syndromes.