

Early Results of Optimized Nerve Management with Electrical Stimulation for Lower Extremity Neuroma

Jesse Chou MD, Janice Choi BS, Minton Cooper MD, Joseph Park MD, Bobby Chhabra MD, Brent DeGeorge MD PhD



Introduction

- Nerve injury is the most common complication following foot and ankle surgery.
- Electrical stimulation (ES) through peripheral neuromodulation is associated with improvement in nerve-related pain and acceleration of neural regeneration.

Objective

- Assess the short-term outcomes of combining nerve reconstruction techniques with ES in providing early pain relief for patients with symptomatic lower extremity neuromas.



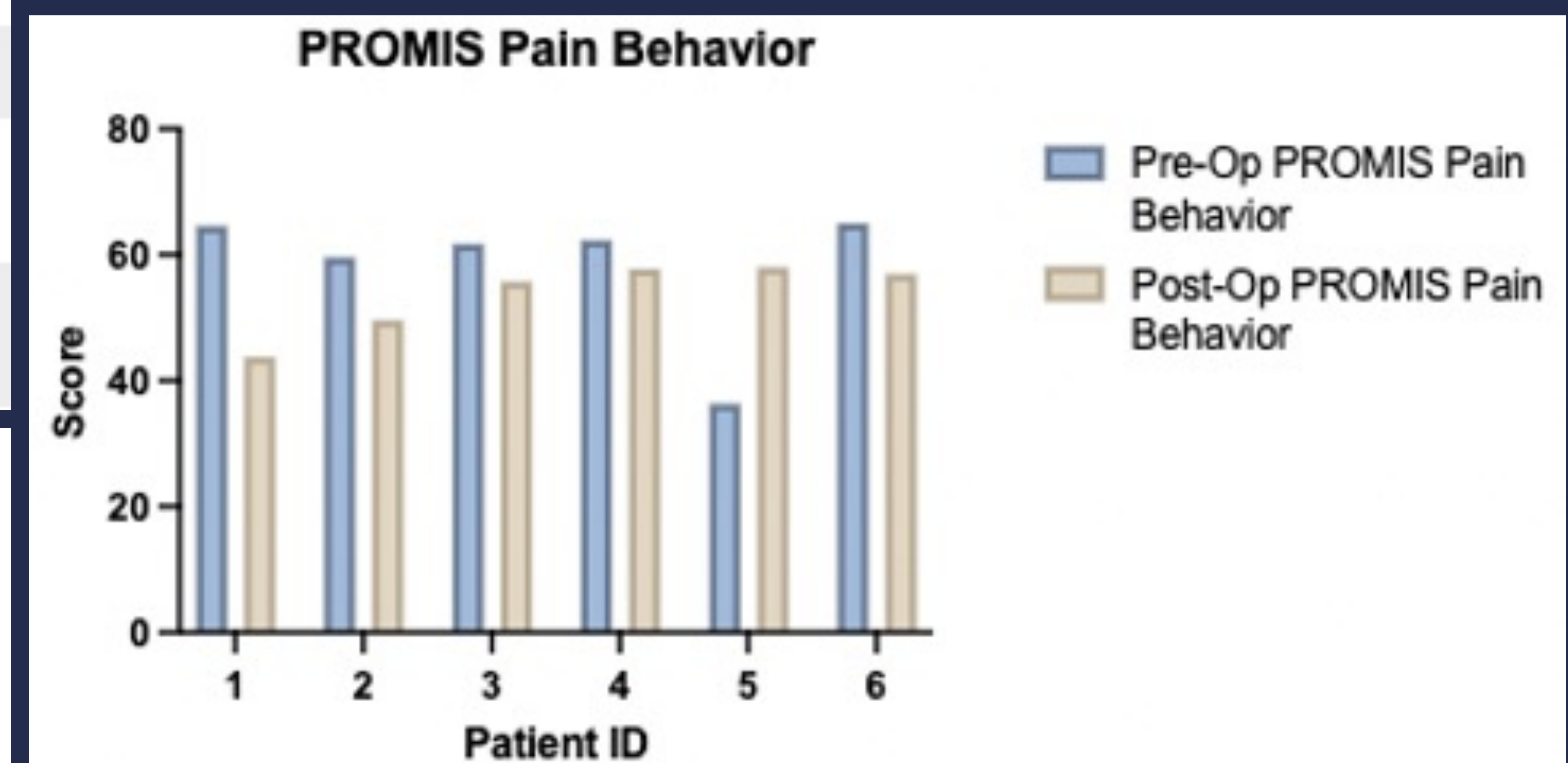
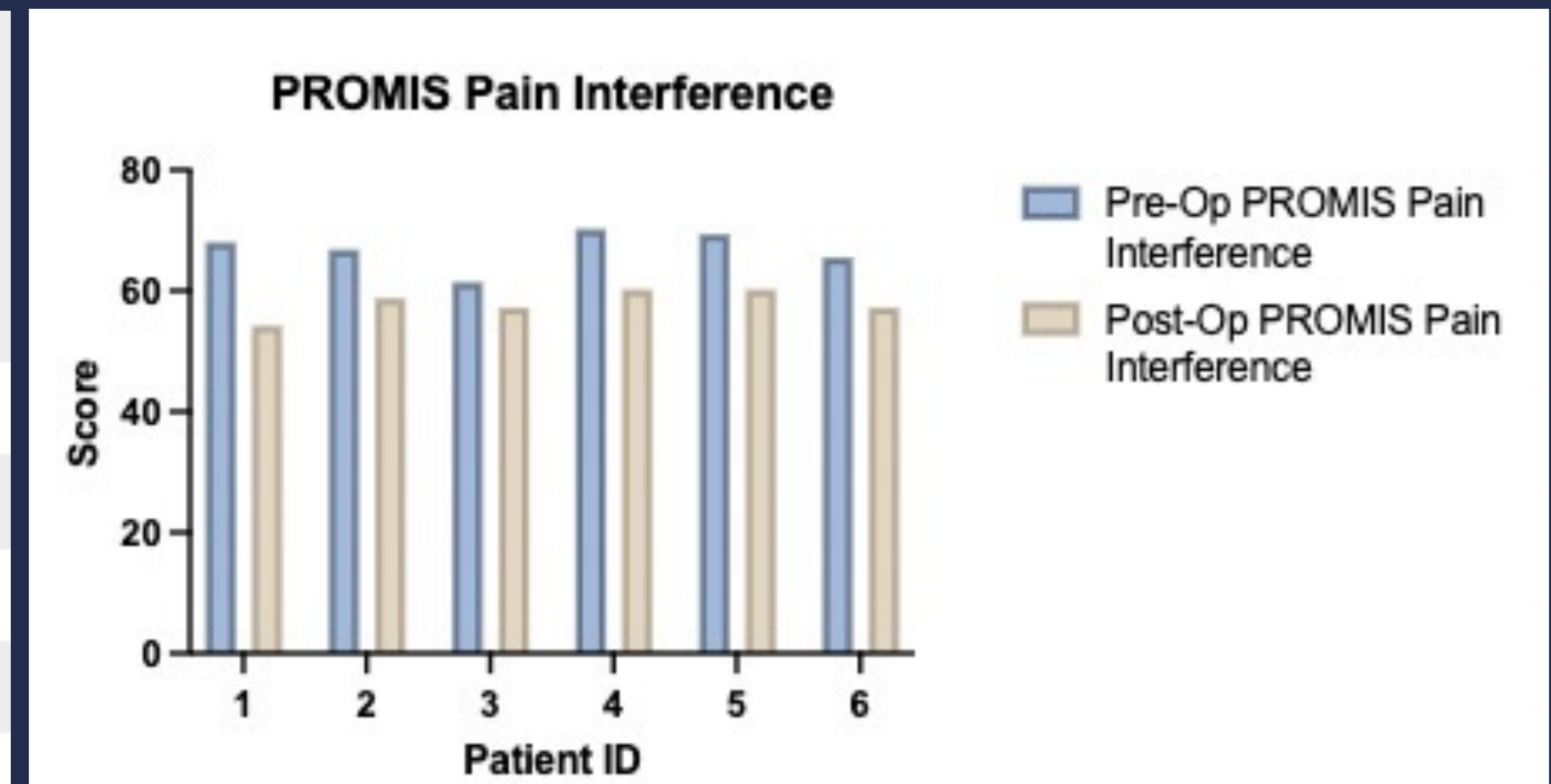
Methods

- Single-institution, prospective, cohort study
- Adult patients with lower extremity neuroma undergoing nerve management procedure with stimulator placement
- Postoperative, daily electrical stimulation

Patient	BRS	Pre-Op NRS Pain	Pre-Op PROMIS Pain Behavior	Pre-Op PROMIS Pain Interference	Post-Op NRS Pain	Post-Op PROMIS Pain Behavior	Post-Op PROMIS Pain Interference
1	2.83	10	64.7	68.1	1	43.8	54.3
2	2.17	7	59.7	66.9	1	49.7	58.8
3	3.67	7	61.8	61.5	1	55.8	57.3
4	4	8	62.4	70.3	2	57.8	60.3
5	2.83	10	36.4	69.4	1	58.1	60.3
6	2.7	9	65.1	65.6	4	57.0	57.3
Mean +SD	3.03±0.67	8.5±1.4	58.4±10.9	66.9±3.14	1.7±1.2	53.7±5.8	58.0±2.3
BRS: Brief Resilience Scale, NRS: Numerical Rating Scale, PROMIS: Patient-Reported Outcomes Measurement Information System							

Results

- Eight female patients (mean age: 49±13 years)
- Peripheral nerve injuries were identified at the following locations: sural nerve (n=5), medial plantar nerve (n=1), tibial nerve (n=1), superficial peroneal nerve (n=2), and saphenous nerve (n=1).
- Mean Brief Resilience Scale (BRS) was 3.11 ± 0.61.
- 3-month post-intervention NRS Pain scores decreased from a mean of 8.5 ± 1.2 to 1.5 ± 1.2
- 3-month post-intervention PROMIS Pain Interference scores decreased from 61.5 ± 3.4 to 53.7 ± 4.9
- 3-month post-intervention PROMIS Pain Behavior scores decreased from 65.8±3.5 to 56.1±4.2.



Conclusions

Optimized neurotherapy with electrical stimulation is a safe intervention that can lead to improved short-term pain for patients with symptomatic lower extremity neuromas.