Salvaging Loss Of Efficacy in Chronic Spinal Cord Stimulation Through Cross-Platform System Conversion

Namath Hussain[1], Brandon Edelbach[1], Maria Recio[1], Clark Metzger[2], Blake Hammond[2], Zachary McCormick[3], Alison Lewis[4], Rajat Shivacharan[4]

1. Loma Linda University Health, Loma Linda, CA USA 2. Live Oak Neurosurgical Associates, Pensacola, FL USA 3. University of Utah School of Medicine, Sale Lake City, UT USA 4. Boston Scientific Neuromodulation, Valencia, CA USA

BACKGROUND

Standardized connections are common in implantable pacemakers and ICDs. Similarly, the Institute of Neuromodulation (IoN) has advocated for standardized connector designs for neuromodulation devices so as to help address certain complications, including Loss of Efficacy (LoE) in permanently-implanted Spinal Cord Stimulation (SCS) patients (1). A recent European study utilizing such adaptors in patients experiencing LoE reported a high rate (approximately 60%) of therapy salvage using a multi-modal SCS system (2, 3). Here, we report clinical outcomes in chronic pain patients using a device capable of delivering multi-modal SCS therapy and can be interconnected using standardized connections or implantable adaptors to salvage therapy after LoE.

METHODS

- Multi-center, real-world, observational study of patients previously implanted with a commercially available system who reported LoE.
- If comprehensive reprogramming failed, patients were transitioned to a device capable of delivering multi-modal SCS therapy (Boston Scientific) via:
  - Direct standardized connection (Nevro) or
  - FDA-approved, full body MRI conditionality implantable adaptor (M8-Medtronic or S8-Abbott)

System conversion included:

- Explantation of the prior IPG
- Use of adaptors/standard connectors for ~1-week trial with external stimulator

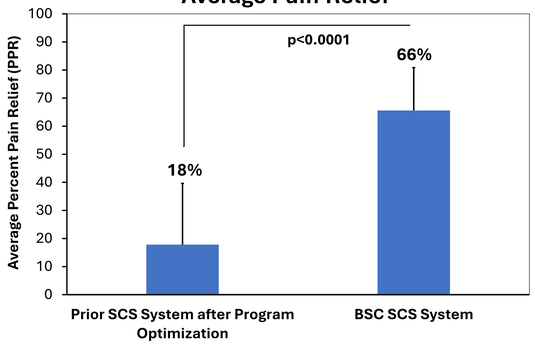
- Patients demonstrating successful pain relief proceeded to permanent implantation with a new IPG while retaining their existing leads.
- This report includes data from patients who completed permanent implantation after prior failed SCS therapy.

Study Design	Multicenter Consecutive, Observational, Case-Series. Data collected by site personnel only.
Study Device	A device capable of delivering multi-modal SCS therapy (Boston Scientific)
Cohort	43 Subjects with a prior SCS system converted to Boston Scientific SCS systems

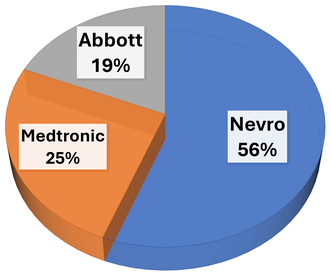
RESULTS

Gender - Males (%)	53% (23/43)
Age [Mean (SD)]	61.8 (14.1) years n = 42
Pain Diagnosis (%)	Lumbosacral Radiculopathy (100%)
Baseline NRS [Mean (SD)]	7.0 (2.1) n = 42
Sub-optimal Pain Relief with non-BSC System	100% (43/43)

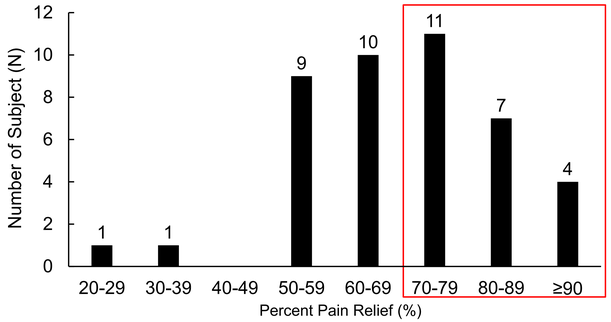
Average Pain Relief



Prior Implanted SCS System



Pain Relief after Salvage Using Multi-modal Device



- **Highly, statistically and clinically significant improvement** in average pain relief was observed after converting prior SCS optimized patients to BSC SCS system **(Student t-test, p<0.0001)**
- **95%** (41/43) of patients who converted to a BSC SCS system that reported **PPR were responders**
- **51% (22/43)** of patients reported **≥70% pain relief**
- Average Follow-up Post-BSC Implant was 8.3 (0 to 53.5) months

CONCLUSIONS

- These results demonstrate that converting to a multi-modal SCS device using implantable adaptors and standardized connections can salvage failed SCS therapy.
- Post Conversion to a device capable of delivering multi-modal SCS therapy, subjects on average observed:
- 66% improvement in pain relief (p<0.0001)
- 51% (22/43) reported ≥70% pain relief
- 95% of subjects were responders to SCS post conversion

REFERENCES

1. North RB, Konrad PE, Judy JW, Ries AJ, Stevenson R. Examining the Need to Standardize Implanted Stimulator Connectors: NANS Survey Results. Neuromodulation. 2021 Dec;24(8):1299-1306.
2. Haider N, Ligham D, Quave B, Ha rum KE, Garcia EA, Gilmore CA, Miller N, Moore, Bains A, Lechleiter K, Jain R. Spinal Cord Stimulation (SCS) Trial Outcomes After Conversion to a Multiple Waveform SCS System. Neuromodulation. 2018 Jul;2(5):504-507.
3. Rigoard P, Billot M, Bougeard R, Llopis JE, Raoul S, Matis G, Vesper J, Belaid H. Improved Outcomes and Therapy Longevity after Salvage Using a Novel Spinal Cord Stimulation System for Chronic Pain: Multicenter, Observational, European Case Series. J Clin Med. 2024 Feb 14;13(4):1079.

DISCLOSURES

Study Sponsored by Boston Scientific.
Alison Lewis and Rajat Shivacharan are employees of Boston Scientific.

November 5-7, 2026

JW Marriott Tampa Water Street | Tampa, Florida

#ASRAFALL26

