Cost-Effectiveness of Spinal Cord Stimulation (SCS) for Chronic Neuropathic Pain

Lee T. Snook Jr. MD, FACP, FASAM, DABPM 1, Anthony Pineda MPH CPHQ1, Sally Kimbrell RN1 Bryan Boroski1
Lilly Chen MD2, Kerry Bradley MS2, Nitzan Mekel-Bobrov PhD2
1 Metropolitan Pain Management Consultants, Inc., Sacramento CA 2 Boston Scientific Neuromodulation, Valencia CA

Background

While published analyses of clinical outcomes have been steadily increasing as well, the availability of published cost-effectiveness analyses remains relatively scarce.

Methods

Study design: Retrospective chart review of clinical outcomes, from our own patient charts.

Duration: Previous 4 year period.

Inclusion criteria: Subjects in whom chronic neuropathic pain of the trunk and/or limbs was treated with the Boston Scientific Precision SCS and one or two Linear™ 8-contact leads, placed epidurally to achieve paresthesia concordance of their primary area of neuropathic pain.

Exclusion criteria: SCS trial failure or >50% missing data.

Number of subjects: 46 (23 male, 23 female)

Clinical endpoint: Patient-reported pain rating on a visual analog scale (VAS) and direct costs before and after SCS implant procedure.

Additional data: Age, gender, diagnosis, duration of implant.

Analyses: Cost-effectiveness was assessed by estimating effectiveness in terms of VAS pain reduction. The incremental cost-effectiveness ratio (ICER) represents the additional cost incurred by the payer to obtain a reduction of 1 point in the VAS score with intervention (SCS) compared to Standard Medical Care (SMC).

Results

A total of 46 patients met our inclusion and exclusion criteria.

- Mean subject age: 55.3±10.6 years
- Diagnoses: FBSS/PLS, CRPS, neuropathy
- Mean implant duration: 19.5 ± 19.0 months

The median pain reduction in VAS from pre- to post-procedure was 3.0 points. This improvement in pain score is both clinically significant and statistically significant (P<0.0001).

The median direct costs prior to SCS were $3,438/year, compared to $2,012/year post-permanent implant procedure, adjusted for the duration of follow-up.

This annual cost reduction of approximately 42% is statistically significant (P = 0.0007). With a mean per-patient SCS cost of $31,530, the ICER of SCS was $11,250 compared to SMC.

Conclusions

Our study suggests that SCS provides both clinically significant and cost-effective reduction in pain, when compared to SMC over the patient's lifetime.

References


Results of clinical studies may not necessarily be indicative of clinical performance.