Highly Significant Pain Reduction with Advanced Neural Targeting SCS in Predominant Back Pain Patients

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INTRODUCTION

Over the past few years, spinal cord stimulation (SCS) technology has advanced greatly, with the newer sophisticated systems designed to provide greater pain relief. Neural targeting SCS is a new SCS paradigm based on 3-dimensional algorithmic customization of the stimulation field shape and position. This enables finely tuned selection of the neural fibers targeted for recruitment, including the difficult to reach low-back pain fibers.

MATERIALS / METHODS

We are conducting a prospective consecutive case-series of predominant back pain patients treated with Precision Spectra SCS system (Boston Scientific) at our center. Data collection includes: 1) baseline characteristics: demographics, medical history; pain diagnosis 2) procedural information: lead configuration, programming parameters; 3) 0-10 VAS pain intensity; 4) paresthesia coverage; and 5) global satisfaction with treatment. To minimize bias, all consecutive patients were included.

RESULTS

A Baseline Characteristics	
Age (mean ±SD)	59.8 (±15.05)
Gender (%)	
Female	83%
Male	17%
Primary Diagnosis (%)	
FBSS	73%
Lumbosacral radiculopathy	18%
Spinal discogenic pain	9%

B

- Back Only
- Back + Unilateral Legs
- Unilateral Legs Only
- Back + Bilateral Legs

(50%, 25%, 8%, 17%)

Fig. 1 Baseline characteristics of the patients included in the study (A). The majority of the treated patients suffered from exclusive back pain or predominant back and unilateral leg pain (B).

16-contact Infinion lead (83%)
32-contact Coveredge paddle (17%)
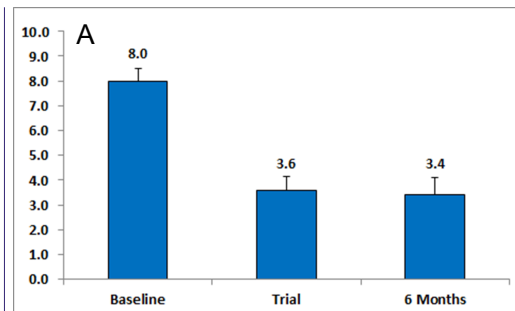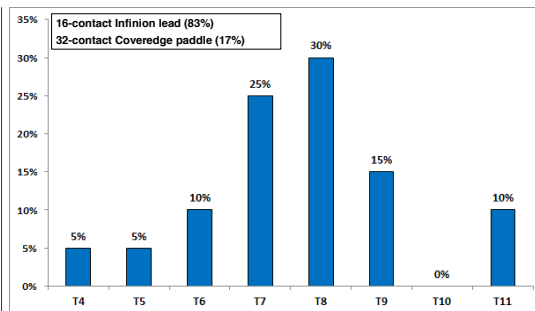
(T4: 5%, T5: 5%, T6: 10%, T7: 25%, T8: 30%, T9: 15%, T10: 0%, T11: 10%)

Fig. 2 Either percutaneous or paddle leads were implanted preferably in the mid-lower thoracic region (80% between T6 and T9).

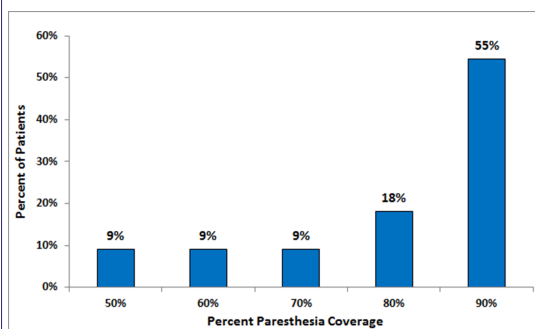Percent Paresthesia Coverage (50%: 9%, 60%: 9%, 70%: 9%, 80%: 18%, 90%: 55%)

Fig. 3 The majority of implanted patients reported ≥ 80% paresthesia coverage in the difficult-to-reach lower lumbar region.

A (Baseline: 8.0, Trial: 3.6, 6 Months: 3.4)

B

- Satisfied to Extremely Satisfied (83%)
- Neither Satisfied Nor Dissatisfied (17%)
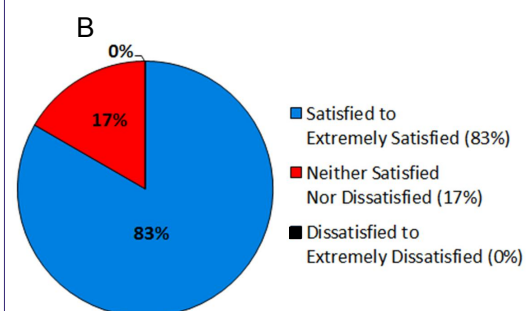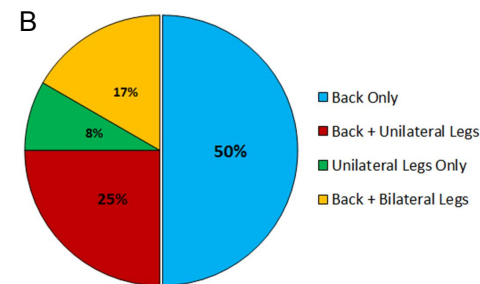- Dissatisfied to Extremely Dissatisfied (0%)

Fig. 4 A continuous tonic stimulation led to highly significant pain reduction during the trial phase and following permanent IPG implantation over a period of 6 months (A), which resulted in a significant amelioration of the quality of life and very high level of satisfaction with the neuromodulative therapy among the patients otherwise troublesome to treat (B).

CONCLUSIONS

Technological innovations over the past few years have pushing the boundaries of what SCS can achieve in treating predominant back pain. A prospective consecutive case-series of Neural Targeting SCS clinical outcomes at our center is revealing unprecedented pain reduction in predominant back pain patients at 6 months post-implant. Further study will determine whether this trend will continue long-term and in additional patients.