Visual Abtract Series

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Sensor-Driven Position-Adaptive Spinal Cord Stimulation for Chronic Pain

Schultz, et al. (2012)

Prospective, Multicenter, Open-label, Randomized Crossover Study Comparing Automated vs. Conventional Manual Programming Using Medtronic RestoreSensor™ device

Enrollment (n=79)

- 10 U.S. centers
- 1 wk after SCS trial for chronic trunk and/or limb pain

Implant (n=76)

- Device recorded manual adjustments
- When on, AdaptivStim™ technology sensed body position and adjusted stimulation amplitude

4w of manual programming only

Randomization: Week 0 (n=76)

Position-Adaptive (PA) Arm (n=36)

Conventional Manual Programming (MP) Arm (n=40)

Crossover: Week 6

End of study: Week 12

Pain Relief & Convenience

- 86.5% (64/74) of patients with *improved* pain relief with *no* loss of convenience, or *improved* convenience with *no* loss of pain relief with PA vs. MP (p<0.001)

Relief, Adjustments, Change in NPRS

- 2.8% w/ worsened pain relief during PA arm
- 41% drop in avg. # of button presses for PA arm (18.2 vs. 30.7, p=0.002)
- Decreased mean NPRS in **both** arms (p<0.001) w/ no significant decrease between arms

Safety and Partcipant Experience

- 90.1% to leave PA on all/most of the time
- Improved comfort: 80.3%
- Improved activity: 69%
- Improved sleep: 47.9%
- No difference in adverse events related to uncomfortable stimulation

Automatic position-adaptive stimulation is safe and effective in terms of patient-reported improved pain relief and convenience compared with manual programming alone.

HTTPS://WWW.NCBI.NLM.NIH.GOV/PUBMED/22270733