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) → Implant (n=76)
- 10 U.S. centers
- 1 wk after SCS trial for chronic trunk and/or limb pain
- Device recorded manual adjustments
- When on, AdaptivStim™ technology sensed body position and adjusted stimulation amplitude
- 4wk of manual programming only

Randomization: Week 0 (n=76)

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 Participant 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/22750733