Percutaneous Peripheral Nerve Stimulation (PNS) Reduces Pain and Disability in Chronic Low Back Pain (LBP)

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INTRODUCTION

• Chronic low back pain (LBP) is one of the most prevalent and challenging musculoskeletal conditions and is the leading cause of disability in adults. CONVENTIONAL NEUROMODULATION:
  • Requires surgery and permanent implant
  • Cost may relegate therapy to use later in the treatment continuum

MINIMALLY INVASIVE, PERCUTANEOUS PNS:

• Wearable stimulator and percutaneous fine-wire, coiled lead (designed to anchor in tissue with excellent safety profile) could overcome limitations of previous systems

MATERIALS & METHODS

FDA IDE and IRB approved study; informed consent was obtained from each subject.

• Subjects with chronic LBP (≥3 months); no radicular pain
• No prior lumbar surgery, no prior radiofrequency ablation
• No anesthetic injections within 3 months, no botulinum toxin within 6 months
• Score of ≤20 on Beck Depression Inventory

Lead Placement: Bilateral, percutaneous PNS leads, targeting medial branch of dorsal ramus in region of pain

PNS Therapy: Stimulation for 6 hrs/day; Subjects continued normal activities
• Leads withdrawn at the end of the 1-month therapy (EOT)
• Subjects completed long-term follow-up visits up to 12 months after EOT

RESULTS

Clinically Significant Improvements with PNS

• 67% responder rate: n=6/9 had highly clinically significant reductions (≥50%) in average pain intensity (BPI-5) at end of treatment (EOT)
• 80% avg. reduction among responders

Safety: There were no serious or unanticipated adverse events

DISCUSSION

• Percutaneous PNS creates the opportunity to offer neuromodulation therapy to low back pain patients earlier in the treatment continuum.
• This study suggests that percutaneous PNS can provide sustained relief of chronic low back pain and improvements in secondary outcomes for at least 12 months without a permanently implanted system.

REFERENCES & ACKNOWLEDGEMENT

This study was conducted at the Center for Clinical Research.

Center for Clinical Research

Funding: This study was funded by SPR Therapeutics.

Research of the SPRNT PNS System has been supported by grants from the DoD and NHR.

PNS is not intended as a drug substitute.

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