

Effectiveness of Percutaneous Neuromodulation Therapy on Patients with Chronic and Severe Low Back Pain

Richard Seroussi, MD

Presented at the Association of Academic Physiatrists, Annual Educational Conference

Las Vegas, Nevada • March 1, 2002

Introduction:

Percutaneous neuromodulation therapy (PNT) is a minimally invasive approach to the treatment of low back pain (LBP). PNT involves placing an array of percutaneous electrodes within the lumbar paraspinal tissues, and applying electrical stimulation during 30-minute treatment sessions. We report the effects of PNT on a population of patients with chronic and severe levels of LBP.

Methods:

Subjects had LBP lasting at least 6 months with enrollment LBP visual analog scale (VAS) scores of at least 5 on a scale of 10. We recorded baseline VAS scores of LBP, physical activity, sleep, and the Oswestry Questionnaire. PNT was delivered via 5 percutaneous electrode pairs within the lumbar paraspinal tissues. Subjects were treated 2 times per week for 4 weeks. Outcomes were reassessed prior to treatment sessions. Final assessment was made 48 hours after the last treatment. After 4 sessions, subjects completed a blinded “responder screen” questionnaire whereby, to continue treatment, they had to indicate both a perceived benefit and improvement in LBP and/or activity levels.

Results:

Thirty-nine patients were enrolled; 31 completed the study protocol. Average duration of LBP was 8.8 ± 9.7 years. Of the 18 patients (58% of 31) who passed the responder screen, 14 (78%) had $\geq 30\%$ improvement in LBP and/or activity levels. Mean LBP scores decreased by 37% to 4.5 ± 2.2 from 7.1 ± 1.0 ($P=0.0001$); activity scores improved by 39% to 4.0 ± 2.1 from 6.7 ± 1.5 ($P=0.0005$); sleep scores improved by 40% from 6.2 ± 2.6 to 4.0 ± 2.6 ($P=0.0003$). Oswestry scores improved from 44 ± 12 to 33 ± 15 ($P=0.002$). Considering all 31 included patients, 14 (45%) had $\geq 30\%$ improvement in LBP and/or activity levels.

Conclusion:

In this prospective, multicenter, single-blinded study, PNT significantly improved sleep, pain, and activity levels among patients with chronic and severe LBP.
