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Evaluating the Migration Rates in Percutaneous Spinal Cord Stimulation Trials

William Hirsch, Nikolaos Mouchtouris, MD, and Ashwini Sharan, MD

Introduction:

Spinal cord stimulation (SCS) provides symptom reduction in patients with chronic low back pain. The most common complication in SCS is percutaneous lead migration from initial placement site. It is our goal to determine whether using skin anchors during trial implantation reduces SCS trial lead migration rates compared to historical controls.

Methods:

197 patients who underwent SCS trial placement at Thomas Jefferson University Hospital between 2015 and 2018 were considered for this study. Complete data including device impedance measurements and pre and post trial x-rays was collected on 12 historical control patients and 19 patients with leads secured using an anchor.

Results:

The mean degree of lead migration was not statistically significantly different between the anchor group and control group in the right lead (0.71 mm (95% CI -6.24, 7.66, $p=0.84$) and the left lead (-0.85 mm (95% CI -7.70, 6.00, $p=0.80$). Additionally, there was no statistical difference in device impedance from the first day of the trial to the trial removal date between the anchor group and control group (-47.35 Ohms (95% CI -181.48, 86.78, $p=0.47$).

Discussion:

There was no significant reduction in lead migration or device impedance measurement in patients who underwent trial SCS with leads secured with an anchor compared to historical controls. This raises the question of whether the anchoring technique successfully reduces lead

migration and emphasizes the importance of obtaining pre and post trial x-rays to evaluate lead migration.