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ACTIVE ELECTRODE SCREENING FOR LOW BACK PAIN

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INTRODUCTION

Epidural Spinal Cord Stimulation of the low back "sweet spot" is highly desirable because you can get axial low back paresthesias and a "panty hose" paresthesia coverage of both legs.^{1,2} An algorithm has been developed using two active bipoles and studied in 160 consecutive patients with low back pain using two parallel quadrapolar leads.

METHODS

Patients with chronic intractable low back pain were screened with the following algorithm:

Place the cranial electrode of each percutaneous epidural SCS lead at the superior end plate of T8, parallel to each other and spaced apart the width of the posterior spinous process.

Screen each closely spaced (7mm) dipole for ipsilateral leg paresthesia without dorsal root entry zone stimulation and record the perception and discomfort thresholds at 20 HZ rate and 500 uSec pulse width.

Independently adjust the amplitude of each dipole so that the intensity of the perceived paresthesias in the legs are equal.

Slowly move (troll) the active dipoles caudad with the amplitude set at a comfortable level and record the location of optimal stimulation of the low back (i.e. the sweet spot).

RESULTS

The low back sweet spot was quickly and easily located using this algorithm in all but one patient without any adverse outcomes. The graph of the location of the low back sweet spot is a bell shaped curve (based on the level of the conus) centered at approximately T9.

CONCLUSION

The low back sweet spot is well defined electrophysiologically and can be accurately, reliably, and efficaciously located using this algorithm. There were no complications or adverse outcomes while trolling with active dipoles in the epidural space. The patient must still undergo a trial of stimulation of the sweet spot to see if stimulation provides adequate pain relief.

ACKNOWLEDGEMENTS

C.M. Schade, MD, PhD, PE, is a clinical advisor for Medtronic Neurological and Advanced Neuromodulation Systems. Law, Jay D.: "Targeting a Spinal Stimulator to Treat the 'Failed Back Surgery Syndrome'." *Applied Neurophysiology* 1987; 50:437-438

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