TREATMENT APPROACHES: NEUROMODULATION

High-density stimulation: a rescue treatment for failing conventional spinal cord stimulation?

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OBJECTIVES

Conventional spinal cord stimulation (SCS) is a well-established treatment for post-laminectomy syndrome. However, its analgetic effect can decrease over time. Recently, high frequency SCS has been successful in treating post-laminectomy syndrome. Therefore reprogramming the internal pulse generator (IPG) to deliver high energy stimulation could restore the effect of SCS.

METHODS

10 patients with failing conventional SCS were selected. Mean time since SCS implantation was 6.5 years (1-13 years). Conventional reprogramming of the IPG (Medtronic) could not improve analgesia. We reprogrammed the IPG to high density stimulation (HDS: 2x130Hz, 450µsec and amplitude just under the paresthesia-threshold). Visual analog scale (VAS) scores for leg and back pain were assessed after 1,3 and 6 months.

RESULTS

Mean energy delivered with HDS tripled in comparison to conventional SCS. After 1 month 50% of patients returned to conventional SCS due to limited effect. In the remaining 50% mean baseline VAS score for back pain was 6 and this decreased to 2.8, 3 and 2.8 after 1, 3 and 6 months HDS, respectively. Baseline VAS score for leg pain was 7.8 and this decreased to 3.4, 4.4 and 4.6 after 1,3 and 6 months HDS, respectively. At 6 months all patients preferred to continue with HDS instead of conventional SCS.

CONCLUSION

HDS can be tried as a rescue treatment in post-laminectomy syndrome after conventional SCS loses its effectiveness.

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