

SPINAL CORD STIMULATION FOR CHRONIC LEG AND BACK PAIN AND FAILED BACK SURGERY SYNDROME: A DECISION ANALYTIC MODEL BASED COST EFFECTIVENESS ANALYSIS
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Background

A small number of studies have assessed the costs of spinal cord stimulation (SCS) in chronic leg and back pain (CLBP) or failed back surgery syndrome (FBSS) patients. However, no formal cost effectiveness has been published to date.

Objectives

To assess the cost effectiveness of SCS, relative to conventional medical management (CMM), for patients with CLBP or FBSS.

Methods

A Markov model was developed to synthesise evidence on both healthcare costs and outcomes for patients with CLBP and FBSS. Outcome data were combined from two randomised controlled trials [1,2] comparing SCS to CMM and CMM to spinal operation respectively. Rates of SCS complication and failure were sourced from a systematic review of SCS in CLBP and FBSS [3]. Treatment effects were measured as levels of pain relief, for which utility values were imputed. Short-term (2-year) and long-term healthcare costs were obtained from a detailed Canadian costing study of SCS and CMM in FBSS patients [4]. Results are presented as incremental cost per quality adjusted life year (QALY) and expressed in 2003 Euros. Costs were discounted at 6% and outcomes at 1.5%.

Results

Over the lifetime of the patient, SCS was found to be cost saving and more effective. In the short-term, SCS was more efficacious but more costly, relative to CMM with an average incremental cost effectiveness ratio of 43,830 Euros per QALY. This cost per QALY represents an acceptable level of cost effectiveness for many European countries. Nevertheless, given the variation in clinical outcomes (e.g. complication rates) and costs, the short-term cost effectiveness of SCS remains rather uncertain.

Conclusions

SCS was found to be both more effective and less costly than CMM, over the lifetime of a patient. Although this analysis shows SCS to be potentially cost effective in the short-term, further empirical data are required to improve the precision of this prediction.

References

1. Fritzell P et al. Spine 2001; 26:251-2534
2. North R et al Neurosurgery 2005;56:98-107
3. Taylor RS et al. Spine. 2005;30-36
4. Kumar K et al. Neurosurgery 2002; 51:106-16