Cost-Effectiveness Analysis in Minimally Invasive Spine Surgery

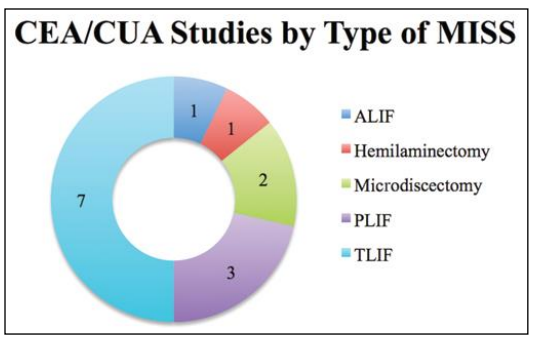
Doniel Drazin MD MA; Lutfi Al-Khouja; Eli M. Baron MD; Terrence T. Kim MD; J. Patrick Johnson, MD MD
Departments of Neurosurgery and Orthopaedics, Cedars-Sinai Medical Center, Los Angeles; and
Department of Neurosurgery, UC Davis Medical Center, Sacramento, California

Introduction

Medical care has been evolving with the increased influence of a value-based healthcare system. As a result, more emphasis is being placed on ensuring cost-effectiveness and utility in the services provided to patients. This study looks at this development in respect to minimally invasive spine surgery (MISS) costs.

Methods

A literature review using PubMed, Cost-Effectiveness Analysis (CEA) Registry, and the National Health Service Economic Evaluation Database was performed. Papers were included in the study if they reported costs associated with minimally invasive spine surgery (MISS). If there was no mention of cost, CEA, cost-utility analysis (CUA), quality-adjusted life year (QALY), quality, or outcomes mentioned, then the article was excluded.



Results

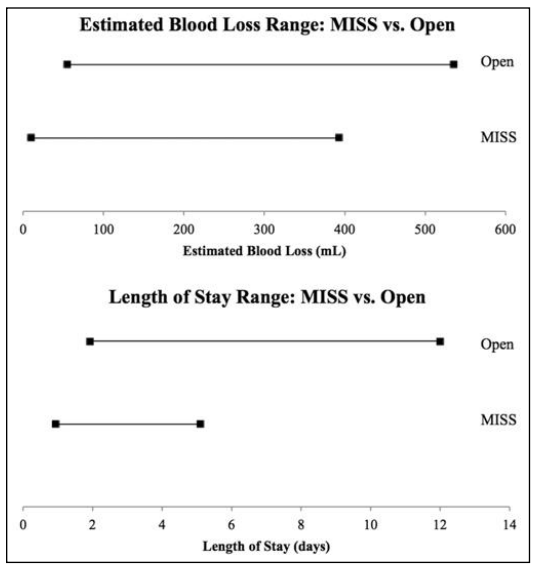
Fourteen studies reporting costs associated with minimally invasive spine surgery on 12,425 patients (3675 minimally invasive, 8750 open) were identified through PubMed, the CEA Registry, and NHS EED. The percent cost difference between a minimally invasive and open approach ranged from 2.54% - 33.68% - all indicating cost saving with a minimally invasive surgical approach. Average length of stay (LOS) for minimally invasive surgery ranged from 0.93days to 4.8days compared to 1.53days to 7.1days for an open approach. All studies reporting EBL reported lower volume loss in a MISS approach (range: 10mL-392.5mL) versus open (range: 48.66mL-535.5mL).

Conclusions

There is currently an insufficient amount of studies published reporting the costs of minimally invasive spinal surgery. Of the studies published, none have followed a standardized method of reporting and analyzing cost data. Preliminary findings analyzing the fourteen studies showed both cost saving and better outcomes in minimally invasive spine surgery compared to an open approach. However, more level 1 CEA/CUA studies including cost/QALY evaluations with specifics of the techniques utliized need to be reported in a standardized manner in order to make more accurate conclusions on the cost effectiveness of minimally invasive spine surgery.

Learning Objectives

1. There is currently an insufficient amount of studies published reporting the costs of minimally invasive spinal surgery.
2. Of the studies published, none have followed a standardized method of reporting and analyzing cost data.
3. Preliminary findings analyzing the fourteen studies showed both cost saving and better outcomes in minimally invasive spine surgery compared to an open approach.
4. Need more level 1 CEA/CUA studies including cost/QALY evaluations with specifics of the techniques utliized need to be reported in a standardized manner in order to make more accurate conclusions on the cost effectiveness of minimally invasive spine surgery.



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