

Economic Performance of Oblique Lateral Lumbar Interbody Fusion (OLLIF) with a Focus on Hospital Throughput Efficiency

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Objectives

Between 1998 and 2008 the number of spinal fusions in the U.S. increased 2.4 fold and the cost per fusion increased 3.3 fold, leading to a 7.9 fold increase in the cost burden of spinal fusions to the U.S. health care system [1].

OLLIF is a new minimally invasive procedure for fusions of the Lumbar spine that can be employed safely and effectively [2] from T12-L1 to L5-S1. OLLIF approaches the disk space through Kambin's triangle. OLLIF does not require direct visualization but instead relies on bilateral fluoroscopic imaging and electrophysiological monitoring. OLLIF reduces surgery times and hospital stay compared to TLIF. The purpose of this study is to evaluate the preoperative cost of OLLIF compared to TLIF.

Methods

The study population are 69 OLLIF patients and 58 open TLIF controls. All patients underwent full course of conservative therapy. Indications were Degenerative Disk Disease, Disk Herniation, Listhesis, Stenosis (except Osteogenic Stenosis).

This is a retrospective cohort study. All surgeries were single surgeon procedures and all TLIF cases were completed before the surgeon started performing OLLIF. We recorded surgery time and length of stay.

Preoperative outcomes were monetized by using a multiplier approach. OR time was monetized at \$83.51/minute [3] and hospital stay at \$2197/day [4].

Results

The differences in surgery time are shown in Figure 2 and the differences in hospital stay in Figure 3. When these differences are monetized, OLLIF reduces the average cost per surgery relative to TLIF by \$11,834 per surgery, with higher cost reductions for multilevel procedures (Figure 4).



Radiographic outcome is the same as TLIF

Discussion

In 2008, there were 207,495 lumbar fusions in the U.S. [1]. By saving \$11,834 per surgery relative to the current standard of care, OLLIF could reduce U.S. healthcare expenditures by almost \$2.5 billion (USD.)

We are currently conducting a detailed study of the costs of OLLIF relative to TLIF. This study will include direct health care costs such as provider visits, injections, diagnostic tests, medication, and devices, as well as indirect health costs and productivity losses due to disability.

Conclusion

OLLIF is a new MIS spinal fusion that reduces perioperative costs relative to open surgery and could potentially reduce U.S. healthcare expenditures by \$2.5 billion (USD) per year, through the preoperative cost savings alone. A comprehensive cost analysis is under way.

References

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Values from [3] and [4] adjusted to 2015 USD using "Medical Care Indexation" from years 2006-2014.



