



Introduction

Several minimally invasive fusion strategies have been described, like anterior lumbar interbody fusion (ALIF), posterior lumbar interbody fusion (PLIF), transforaminal lumbar interbody fusion (TLIF) and two lateral approaches, extreme and direct lateral interbody fusion (XLIF and DLIF), all with pros and cons compared to open surgery and each other. The benefits of MIS techniques are less blood loss, faster postoperative ambulation, lower opioids use, and shorter hospital stays, which are nearly always significantly better than an open procedure (1). However, there is limited data on how MIS techniques compare with each other, especially in the treatment of a specific spine diagnosis such as degenerative spondylolisthesis.

Methods

Review of our clinical database and patient medical records for sex, direct surgical cost, age at surgery, pre-op BMI, EBL, hospital LOS, duration of surgery, post-operative complications, and patient reported functional outcomes (Oswestry Disability Index-ODI and Visual Analog Scales-VAS). These outcomes are reported at pre-op, 6 weeks, 6 months, and 1 year+ post-operative terms. We used paired t-test and a two-sample t-test with

Steps in MIS-TLIF: Decompression, Fascetomy, Application of Intervertebral Device and Instrumentation

Lateral Interbody Fusion (LIF) Technique

Results

There were 32 patients in the LIF group and 39 in the TLIF group. There was no significant difference in age, BMI, direct cost, hospital LOS, or duration of surgery between the 2 groups. EBL was significantly less for LIF patients (p value 0.0007.) Both LIF and TLIF patients had significantly improved clinical outcomes at each time points post op with a tendency for improved outcome in TLIF patients (p values .0029 and .0039.)

Study Demographics	LIF	TLIF
Total Cases	32	39
Sex:		
Male	14	11
Female	18	28
Average Age	64.40625	64.41026
Avg. Pre-Op BMI	29.84138	29.74026
Avg. LOS (Days)	2.625	3.487179
Avg. Duration of Surgery (Mins)	245.4138	254.1026
Average EBL (CCs)	98.125	190.8974
Avg Direct Cost	\$28,315.78	\$27,599.10

Both Minimally Invasive Surgical Techniques (TLIF & LIF) Improved Patient Quality of Life (ODI & VAS) with a Trend Toward Better Outcomes in the TLIF Group.

TLIF v LIF: Average Cost

Conclusions

Both MIS-LIF and MIS-TLIF demonstrate significant and sustained improvement outcomes in patient pain and quality of life. When compared against each other, MIS-TLIF seems to offer better functional outcomes. We plan to carry out a RCT of TLIF versus LIF in the treatment of degenerative spondylolisthesis.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) understand MIS treatment options for patients with degenerative spondylolisthesis and their clinical effectiveness. 2) Cost effectiveness of MIS TLIS and LIF for treatment of spondylolisthesis.

References

Spoor AB1, Öner FC. Minimally invasive spine surgery in chronic low back pain patients (2013) J Neurosurg Sci. 57(3):203-18.