

# Comparative Outcome Analysis of Spinal Anesthesia versus General Anesthesia in Lumbar Fusion Surgery

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**Dr. Sharan has received  
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# Introduction

- Spinal anesthesia (SA) has been shown in several studies to be a viable alternative to general anesthesia (GA) in laminectomies, discectomies, and microdiscectomies
- There is limited literature evaluating the cost-effectiveness of SA in lumbar fusion surgery

# Aims/Objectives

- The goal of this study was to compare SA to GA in lumbar fusion surgery in terms of costs and outcomes

# Methods

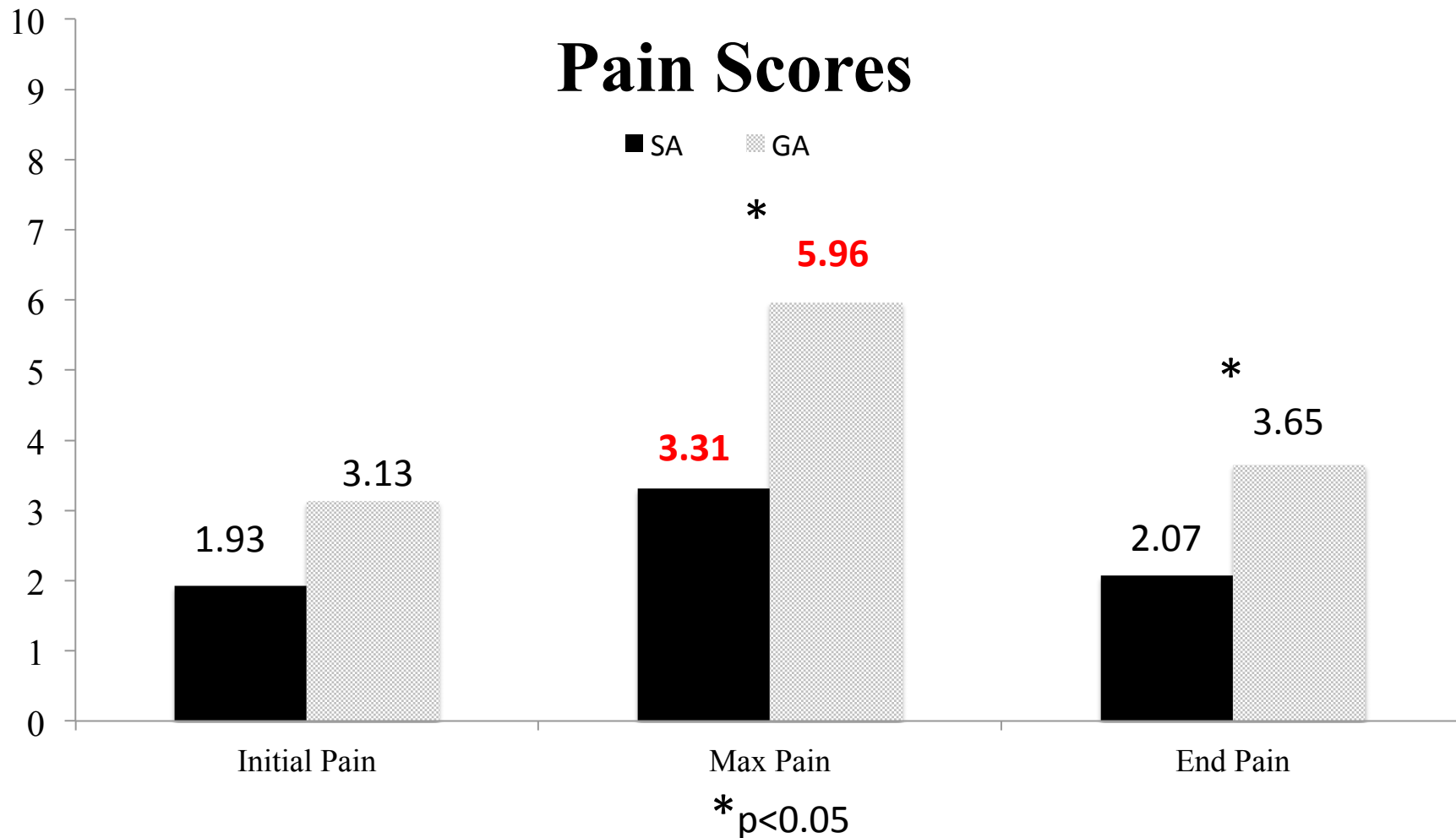
- 75 Patients undergoing a Minimally Invasive TLIF surgery by a single surgeon from 2015-2018 were included
- Patients were grouped based on anesthetic modality (General Anesthesia vs. Spinal Anesthesia)
- Perioperative outcomes and costs were analyzed
- Costs were included if they were: non-fixed, incurred in the operating room, and directly related to patient care

# Time Savings

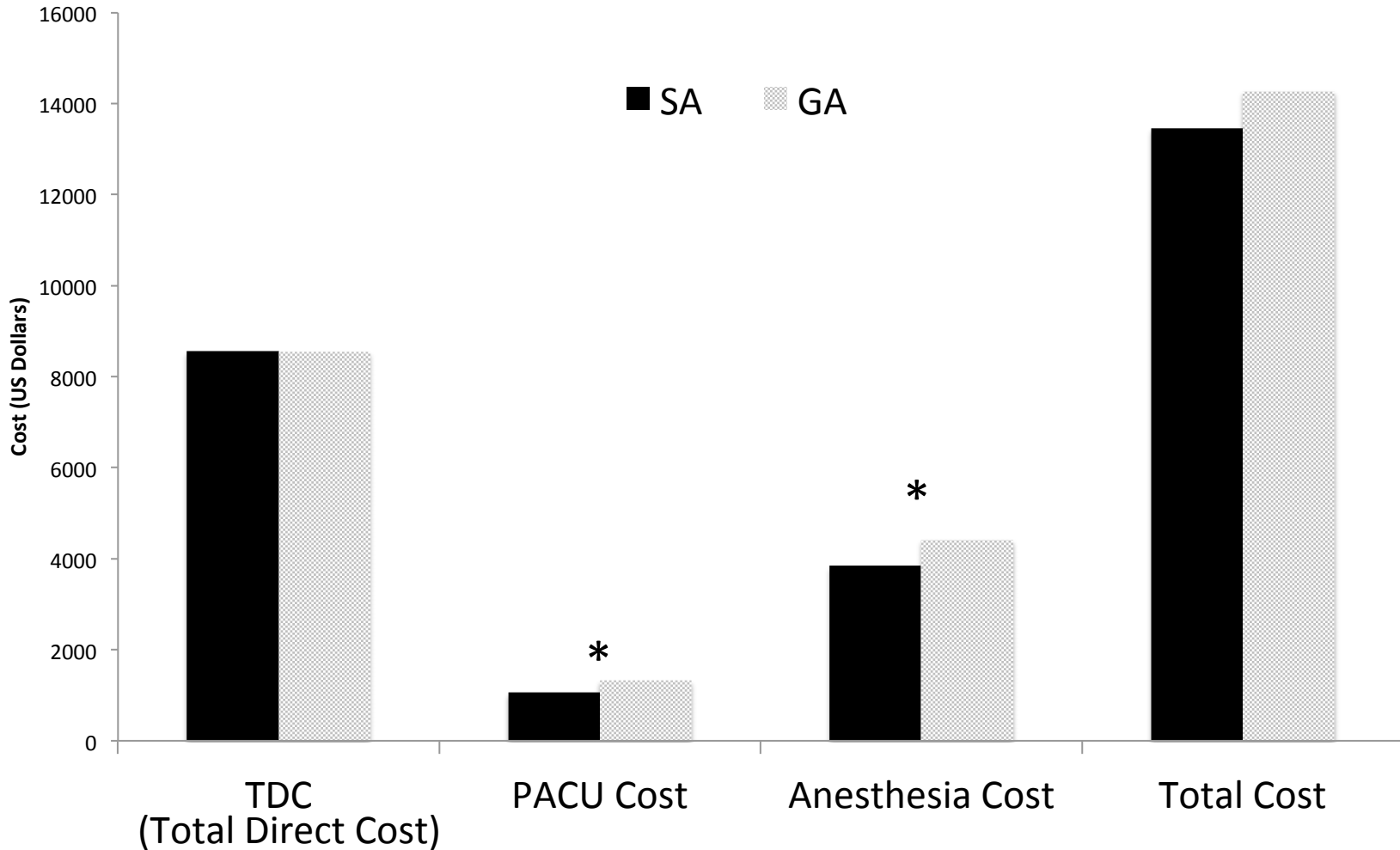
	Anesthetic modality		<i>p</i> value
	SA (n=29)	GA (n=46)	
OR time	163.86 ± 9.02	195.63 ± 11.27	<b>&lt;0.0001</b>
Surgery time	107.69 ± 7.52	122.20 ± 9.39	<b>0.019</b>
Anesthesia time	175.03 ± 9.31	204.97 ± 10.15	<b>&lt;0.0001</b>
PACU time	82.00 ± 7.17	102.98 ± 8.46	<b>&lt;0.001</b>

	Time Savings (%)
OR time	16.20%
Surgery time	11.87%
Anesthesia time	14.61%
<b>PACU time</b>	<b>20.4%</b>

# Significantly Lower Max Pain and Pain leaving the PACU in the SA group



# Reduced Costs with SA



\*p<0.05



# Reduced Costs with SA

Anesthetic modality

	SA (n=29)	GA (n=46)	<i>p</i> value
Total direct cost	8557.22 ± 965.93	8550.26 ± 539.24	0.990
Anesthesia cost	3841.38 ± 121.92	4417.39 ± 138.71	<b>&lt;0.0001</b>
PACU costs (total)	1056.93 ± 104.82	1328.91 ± 115.88	<b>0.020</b>
Total cost	<b>13455.36 ± 1131.54</b>	<b>14267.67 ± 625.93</b>	0.220

# Integrating LOS into Cost Analysis

	Anesthetic Modality		<i>p</i> value
	SA (n=29)	GA (n=46)	
Average length of stay (days)	<b>0.97 ± 0.21</b>	1.30 ± 0.33	0.091
30-day readmission rate	3.09%	2.17%	0.98

	Anesthetic Modality		<i>p</i> value
	SA	GA	
TDC + LOS cost	15583.36 ± 1316.21	17142.46 ± 1043.58	0.07

- Incorporating average LOS into the cost analysis, if the cost of one day of stay in the hospital is determined to be \$2204 the total cost of SA to GA is lower (cost savings of 9%)

# Conclusions

- SA use in lumbar fusion surgery leads to less time in the OR, under anesthesia, and in the PACU, and less pain scores and opioid usage
- SA is associated with a **6-10% cost savings**
- SA is a superior and more cost-effective alternative than GA in lumbar fusion surgery
- Although not the main focus of this study, **SA led to a shorter LOS** – which can lead to further savings as these cases are performed in the outpatient setting

# Conclusions

- The Awake Spinal Fusion procedure resulted in:
  - **50% reduction** in **max pain** scores
  - **10% cost-savings**
  - **50% reduction** in **total opioid doses** needed