

Spinal anesthesia for lumbar spine surgery

Previous studies have shown varying results in selected outcomes when directly comparing [spinal anesthesia](#) to general in [lumbar spine surgery](#). Some studies have shown reduced surgical time, [postoperative pain](#), time in the postanesthesia care unit (PACU), the incidence of [urinary retention](#), postoperative nausea, and more favorable cost-effectiveness with spinal anesthesia. Despite these results, the current literature has also shown contradictory results in between-group comparisons.

SA was associated with significantly lower operative time, blood loss, total anesthesia time, time from entering the OR until incision, time from bandage placement until exiting the OR, and total duration of hospital stay, but a longer stay in the PACU. The SA group experienced one spinal hematoma, which was evacuated without any long-term neurological deficits, and neither group experienced a death. The SA group had no episodes of paraparesis or plegia, post-dural puncture headaches, or episodes of persistent postoperative paresthesia or weakness.

SA is effective for use in patients undergoing elective lumbar laminectomy and/or discectomy spinal surgery, and was shown to be the more expedient anesthetic choice in the perioperative setting ¹⁾.

Case series

De Biase et al. conducted a prospective nonrandomized study in patients undergoing elective lumbar spine surgery under SA or GA by a single surgeon. Fatigue was assessed with the fatigue visual analog scale (0-10) and Chalder Fatigue Scale, quality of life with Medical Outcomes Study 12-item Short Form (SF-12), and differences in cognition with Mini-Mental State Examination. Patients were baselined before surgery and assessed again 1 mo after surgery.

Results: Fifty patients completed the study, 25 underwent surgery under SA and 25 under GA. The groups were homogeneous for baseline clinical characteristics, with no differences in preoperative fatigue, quality of life, and cognition. At 1 mo after surgery, SA compared with GA had better fatigue scores: fatigue visual analog scale (2.9 ± 1.5 vs 5.9 ± 2.3 [$P < .0001$]) and Chalder Fatigue Scale (11.2 ± 3.1 vs 16.9 ± 3.9 [$P < .0001$]). One month postoperatively, we observed a significant difference in the SF-12 physical component, with SA having 38.8 ± 8.9 vs 29.4 ± 10.3 ($P = .002$). We did not observe significant postoperative differences in the SF-12 mental component or Mini-Mental State Examination.

Conclusion: Our study demonstrates that SA offers unique patient-centered advantages to GA for elective spine surgery. One month after surgery, patients who received SA had less postoperative fatigue and better quality of life ²⁾.

A retrospective analysis was performed by querying the electronic medical record database for surgeries performed by a single surgeon between 2007 and 2011 using procedural codes 63030 for discectomy and 63047 for laminectomy: 544 lumbar laminectomy and discectomy surgeries were identified, with 183 undergoing general anesthesia and 361 undergoing spinal anesthesia (SA). Linear and multivariate regression analyses were performed to identify differences in blood loss, operative time, time from entering the operating room (OR) until incision, time from bandage placement to exiting the OR, total anesthesia time, PACU time, and total hospital stay. Secondary outcomes of

interest included incidence of postoperative spinal hematoma and death, incidence of paraparesis, plegia, post-dural puncture headache, and paresthesia, among the SA patients.

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Pierce JT, Kositratna G, Attiah MA, Kallan MJ, Koenigsberg R, Syre P, Wyler D, Marcotte PJ, Kofke WA, Welch WC. Efficiency of spinal anesthesia versus general anesthesia for lumbar spinal surgery: a retrospective analysis of 544 patients. *Local Reg Anesth.* 2017 Oct 10;10:91-98. doi: 10.2147/LRA.S141233. eCollection 2017. PubMed PMID: 29066932; PubMed Central PMCID: PMC5644537.

2)

De Biase G, Gruenbaum SE, Quiñones-Hinojosa A, Abode-Iyamah KO. Spine Surgery Under Spinal vs General Anesthesia: Prospective Analysis of Quality of Life, Fatigue, and Cognition. *Neurosurgery.* 2022 Feb 1;90(2):186-191. doi: 10.1227/NEU.0000000000001777. PMID: 34995217.

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