

Antidepressant Use Does Not Impact Intraoperative Blood Loss in Lumbar Fusion

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Disclosures: M. McCurdy: None. R. Narayanan: None. Y. Lee: None. J. Heard: None. N. Pohl: None. G. Bowen: None. Y. Dulitzki: None. A. Glover: None. S. Sumughan: None. E. Dean: None. E. Boyajieff: None. A. Giakas: None. J. Canseco: 4; PathKeeper Surgical. 5; Accelus. 8; Wolters Kluwer Health - Lippincott Williams & Wilkins. 9; Cervical Spine Research Society. A. Hilibrand: 4; Paradigm Spine. 7A; Biomet, CTL Amedica. A. Vaccaro: 4; Accelus, Advanced Spinal Intellectual Properties, Atlas Spine, Avaz Surgical, AVKN Patient Driven Care, Cytomics, Deep Health, Dimension Orthotics, Electrocore, Flagship Surgical, FlowPharma, Globus Medical, Harvard Medtech, Innovative Surgical Design, Jushi (Haywood), Nuvasive, Orthobullets, Parvizi Surgical Innovation, Progressive Spinal Technologies, Sentryx, Stout Medical, ViewFi Health. 6; AO Spine, Sentryx. 7A; Atlas Spine, Globus Medical, Medtronic, Spinal Elements, SpineWave, Stryker. 7B; Elsevier, Jaypee, Taylor Francis/Hodder and Stoughton, Thieme. 9; National Spine Health Foundation. G. Schroeder: 3B; Advance Medical, Bioventus, Surgalign. 5; Cerapedics, DePuy, Medtronic Sofamor Danek. 8; Wolters Kluwer Health - Lippincott Williams & Wilkins. 9; AO Spine, Cervical Spine Research Society. C. Kepler: 7A; Curetiva, Regeneration Technologies Inc.. 8; Clinical Spine Surgery.

INTRODUCTION

In recent years, mental health has increasingly been recognized as an influential determinant of patient outcomes after surgery across many specialties. Patients with back pain, a common manifestation of spine pathology, experience high concomitant rates of depression. Roughly a quarter of patients undergoing spine surgery are regularly taking antidepressant medication, which has been associated with longer hospital stays and increased cost. The impact of antidepressants on surgical outcomes, particularly in relation to blood loss, is an important consideration in spine surgery. To our knowledge, no study has comprehensively examined the relationship between antidepressants and their effects on intraoperative blood loss in patients undergoing lumbar fusion. Therefore, this study aims to investigate the impact of antidepressants on intraoperative blood loss during lumbar fusion procedures.

METHODS

After approval was obtained by the Institutional Review Board, patients undergoing primary 1-3 level lumbar fusion at a single, tertiary care institution from 2017-2021 were retrospectively identified. Patient characteristics, surgical details, and surgical outcomes were collected via chart review. Antidepressant use was collected based on current medication lists at the patient's preoperative and first postoperative appointment. Patients were considered to be "taking antidepressants" only if they were listed as current medications at both appointments. To report blood loss, we calculated total blood loss (mL) rather than reporting estimated blood loss (EBL) to account for hidden blood loss that occurs in surgery. Total blood loss (mL) was calculated using the formula proposed by Gross et al. in order to account for hemodilution secondary to fluid resuscitation.

RESULTS

Of the 1,812 patients included in the study, 496 were taking antidepressants perioperatively. Female (64.7% vs. 45.5%, $p=0.001$) patients were more likely to take antidepressants than their male counterparts. Patients in the antidepressant group were more likely to be discharged to an inpatient rehabilitation facility than patients without antidepressant use (11.3% vs. 7.14%, $p=0.029$), but LOS was not different between the two groups (3.70 vs. 3.74, $p=0.618$). Surgical characteristics were not significantly different between the two groups. PLDF (1,255 vs. 1,246, $p=0.730$), TLIF (1,252 vs. 1,292, $p=0.695$), and ALIF (1,237 vs. 1,210, $p=0.660$) all showed similar intraoperative blood loss between the two groups. SSRI (1,255 vs. 1,266, $p=0.875$), SNRI (1,255 vs. 1,254, $p=0.986$), atypical (1,255 vs. 1,259, $p=0.893$) and TCA (1,255 vs. 1,161, $p=0.306$) sub-groups were all observed also to not have significantly different intraoperative blood loss compared to patients in the control group.

DISCUSSION

Recent studies have similarly tried to elucidate the effects of antidepressant use on surgical interventions within orthopaedic surgery. Interestingly, the present study found that patients on antidepressants were more likely to be discharged to inpatient rehabilitation facilities, while those not on antidepressants were more likely to be discharged home. Several studies have implicated depression with increased perception of pain and limited functional recovery after surgery, possibly predisposing them to increased readmissions and disposition. Antidepressants, specifically SSRIs, have been previously shown to increase the risk for blood loss. However, in our analysis, we did not find a difference in intraoperative blood loss between patients taking antidepressant medications and those not taking antidepressants in any of our procedure subgroups or antidepressant subgroups.

Despite our robust sample size and stratification of subgroups based upon procedure performed and class of antidepressant used, this paper has several limitations. First, this study examined patient data retrospectively, leading to an inherent risk of information bias. Additionally, this study was conducted among one orthopaedic surgery group at a large academic center. As such, these results might not be generalizable to the entire population.

Our study found that antidepressant use, specifically SSRIs, SNRIs, Atypicals and TCAs, has no impact on intraoperative blood loss. We additionally observed no increase in transfusions among patients taking antidepressant medication when compared to those who were not. These findings suggest that antidepressants pose no increased risk of surgical blood loss in the context of primary lumbar fusion procedures. Therefore, caution should be taken when considering discontinuing antidepressants prior to surgery. Further research is necessary to elucidate the effect of serotonergic and non-serotonergic antidepressant medications on blood loss in other surgical procedures.

SIGNIFICANCE/CLINICAL RELEVANCE

Current evidence in the literature is mixed concerning the impact of antidepressant use on intraoperative blood loss. We observed no difference in our lumbar fusion cohort between patients taking antidepressants and those who were not, suggesting patients can safely continue taking antidepressant medication in the perioperative period.

ACKNOWLEDGEMENTS: None.

TABLES

Blood Loss (mL) by Procedure and Antidepressant Use

Procedure	No Antidepressants	Antidepressants	P-value
All Procedures	1255 (897)	1253 (911)	0.976
PLDF ($n=744$)	1255 (950)	1246 (879)	0.730
TLIF/PLDF ($n=651$)	1252 (871)	1292 (1173)	0.695
ALIF/PLDF ($n=417$)	1237 (846)	1210 (514)	0.660

*Indicates statistical significant with p -value <0.05 ; Abbreviations: : PLDF = posterior lumbar decompression and fusion, TLIF = transforaminal lumbar interbody fusion, ALIF = anterior lumbar interbody fusion.