# Impact of Enhanced Recovery after Surgery (ERAS) Program on Postoperative Course in Adult Cervical Deformity Patients

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INTRODUCTION:
Enhanced recovery after surgery (ERAS) can help accelerate patient recovery and assist hospitals in maximizing the incentives of bundled payment models while maintaining high-quality patient care. A key component of an enhanced recovery pathway is the ability to predictably reduce inpatient length of stay, and reduce postoperative opioid use and complications. The purpose of this study was to assess the impact of ERAS protocols on the perioperative course in cervical deformity corrective surgery.
METHODS:
Operative CD patients ≥18yrs with complete pre-(BL) and up to 2-year (2Y) postop radiographic/HRQL data were stratified by enrollment in Standard-of-Care ERAS beginning in 2020. Differences in demographics, clinical outcomes, radiographic alignment targets, perioperative factors, and complication rates were assessed via means comparison analysis.
RESULTS:
In total, 220 patients were included (58.11 ± 11.97 years, 48% female, 29.13 ± 6.89 kg/$m^2$. Of these patients, 54 (20.0%) received ERAS protocol recovery treatment postoperatively. At baseline, ERAS+ also had significantly higher NDI (p=.005) and EQ5D (p=.023), and significantly lower mJOA scores (p<.001). At BL, ERAS- patients were significantly more likely to utilize opioids than ERAS+ patients (p=.016). Perioperatively, ERAS+ patients had significantly lower operative times overall, and if staged, ERAS+ patients had a significantly lower mean Stage 1 op time (both p<.021). Furthermore, ERAS+ patients also had significantly lower EBL overall (583.48 vs. 246.51, p<.001), and required significantly lower doses of propofol intraoperatively than ERAS- patients (p=.020). ERAS+ patients also reported lower mean LOS overall (4.33 vs. 5.84, p=.393), and were more likely to be discharged directly to home ($\chi 2(1) = 4.974$, p=.028). In terms of complications, ERAS+ patients were less likely to require steroids after surgery (p=.045), were less likely to develop neuromuscular complications overall (p=.025), and less likely experience venous complications or be diagnosed with venous disease postoperatively (p=.025).
DISCUSSION AND CONCLUSION:
Enhanced recovery after surgery (ERAS) programs in ACD surgery demonstrate significant benefit in terms of perioperative outcomes for patients. Patients undergoing ERAS-based protocols experience lower operative times, length of stays, as well as lower rates of opioid use, anesthetic dose, and postoperative complications. For ERAS-eligible patients, such programs may improve patient HRQLs and clinical outcomes, and reduce cost burden for both hospitals and patients alike.