

ABSTRACT TITLE: ERAS INTRAOPERATIVE PROTOCOL FOR ELECTIVE CRANIOTOMIES

Presenting Author: James Voon, M.D., University of Missouri-Columbia

Co-Authors: Raul Castillo, M.D., University of Missouri-Columbia

Background/Introduction: Enhanced Recovery After Surgery (ERAS) is a system-wide, multidiscipline approach to the surgical patient. The ultimate goal of ERAS is to reduce the stress during surgery and minimize the time for recovery after surgery. This integrated approach to surgery has led to improved outcomes and increased patient satisfaction. In our institution, ERAS has been successfully applied to colorectal surgery, abdominal oncologic surgery, and urologic surgery.

For neurosurgery, there is a paucity of literature and protocols written for ERAS. ERAS has many advantages for neurosurgery, specifically for elective craniotomies: early post-operative neuro exam, early ambulation, and early discharge. The application of ERAS to neurosurgery is complex given the morbidity and mortality of the patient population. Intraoperatively, the dynamic intricacies of neurophysiology, hemodynamics, intracranial pressure, and neurophysiological monitoring make the application of anesthetics a delicate task.

Methods: As a quality improvement project, we applied our intraoperative protocol to 20 patients who underwent elective craniotomies. These craniotomies were further separated to 4 major types: primary tumor resection, metastatic tumor resection, transphenoidal resection, and joint neuro-ENT surgeries.

Preoperatively, acetaminophen, tramadol, pregabalin, and scopolamine patch were administered. Intraoperatively, we used a combination of volatile (desflurane) and IV anesthetics (dexmedetomidine and remifentanyl). Postoperatively, fentanyl was given as needed in the PACU. Acetaminophen, tramadol, and pregabalin were continued for 24 hours as needed.

Results: The length of stay (LOS) for the 20 patients who underwent the ERAS intraoperative protocol in 2017 were compared to 20 patients who underwent the traditional anesthetic technique with similar types of craniotomies in 2016. Eleven primary tumor resections, 4 metastatic tumor resections, 3 joint neuro-ENT surgeries, and 2 transphenoidal surgeries were performed. With our protocol, average LOS was 3.70 days. Comparatively, the average LOS was 4.35 days with the traditional technique.

Conclusion: Our intraoperative protocol reduced the LOS for patients who underwent elective craniotomies. Furthermore, for primary tumor resections, the LOS was reduced 1 day from 4.73 days with the traditional anesthetic technique to 3.73 days with our protocol. Secondary outcomes, such as pain score and post-operative speed of recovery for neuro exam, are still ongoing. The full implementation of this project will commence in the near future.