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Road to Recovery for Craniotomy patients

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Doctor of Nursing Practice: Executive Summary

Introduction of the Problem

Craniotomies, surgical procedures involving the skull to address neurosurgical disorders, are associated with various complications and increased hospitalization costs (Haber et al., 2019). The Enhance Recovery After Surgery (ERAS) protocol, initially developed to improve outcomes in colorectal surgery, has gained recognition in various medical departments. This quality improvement project aimed to enhance the ERAS protocol for craniotomy patients at Stanford Health and Clinics, focusing on preoperative and postoperative education and expectations. The goals included reviewing evidence-based research to establish an ERAS protocol for craniotomy surgery and implementing this protocol at the Stanford Hospital and Clinics Neurosurgery clinic. The clinical significance lies in improving patient outcomes, reducing hospitalization length of stay, and enhancing the overall recovery experience for craniotomy patients. While implementing the ERAS protocol requires multidisciplinary team collaboration and time, its patient-centered and evidence-based approach can mitigate stress responses to surgery, decrease complications, improve satisfaction scores, and reduce hospital stays and healthcare costs (Joliat et al., 2018). Thus, educating the ERAS protocol to neurosurgery patients undergoing craniotomy procedures at Stanford Hospital and Clinics can lead to improved outcomes and patient experiences.

Literature Review

The literature review explored the implementation of the Enhanced Recovery After Surgery (ERAS) protocol for craniotomy surgery patients. The search strategy involved various databases and specific search terms, resulting in over 30 relevant articles from the past five years.

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The ERAS protocol encompasses three phases: preoperative, intraoperative, and postoperative. Education and clear communication with patients and their families are crucial in the preoperative phase to ensure smooth surgery preparations. This phase includes instructions related to medication management, nutrition, alcohol and smoking cessation, and infection prevention (Lu et al., 2020). The intraoperative phase focuses on scalp blocks, limited opioid use, fluid management, and temperature regulation (Liu et al., 2022). Medication dosing and anesthesia choices are also critical in this phase. Early intervention, including antibiotics and deep vein thrombosis prophylaxis, is emphasized to prevent complications. The postoperative phase emphasizes early mobilization, nutrition, pain management, and removing unnecessary lines. Early ambulation and multimodal pain management have been shown to reduce complications and shorten hospital stays (Liu et al., 2019). The goals of implementing the ERAS protocol include decreasing the length of hospital stay, improving overall patient recovery and satisfaction, and reducing stress levels. Studies have indicated that ERAS implementation can lead to shorter hospital stays, increased patient satisfaction, and reduced stress responses (North & Tulledge-Scheitel, 2019).

The ERAS protocol is crucial in improving the recovery process for craniotomy surgery patients. It involves a multidisciplinary approach and focuses on education, clear communication, and active patient participation throughout the surgical journey. The protocol's successful implementation has been associated with decreased hospital stays, improved patient satisfaction, and reduced stress levels.

Project Methods

The project involved implementing the ERAS protocol to enhance preoperative education for Stanford Hospital and Clinics craniotomy patients. It was a non-experimental quality

improvement project aimed at improving the patient's recovery by providing standardized, quality preoperative education. A quality improvement team, including the Chair of Neurosurgery Quality lead and the Nurse Practitioner manager at Stanford, guided the project. The team identified issues such as prolonged hospital stays and the need for improved patient education in the preoperative phase. An educational pamphlet was created, approved by relevant stakeholders, and disseminated to patients via a secure messaging system, website link, or a brochure given in the clinic. The project's setting was Stanford Hospital and Clinics in the Neurosurgery outpatient clinic, targeting adult patients over 21 undergoing craniotomy surgery. The cost was minimal; stakeholders included hospital staff, management, quality, marketing teams, and the anesthesiology department.

Evaluation

The project evaluation focused on enhancing preoperative education for patients scheduled to undergo craniotomy procedures, a critical aspect of their surgical journey. Before the project was implemented adequately prepare them for craniotomy surgery's complexities to this clinical need, the project introduced educational pamphlets tailored to the unique needs of craniotomy patients. These pamphlets served as a valuable resource to educate patients about what to expect before and after their surgery.

Data collected from 20 patients who received these pamphlets provided valuable insights into the project's outcomes. The evaluation included a Likert scale questionnaire with ratings ranging from 1 to 5, where higher scores indicated effectiveness. The results revealed a highly positive reception, with an average Likert scale rating of over 90%. This high rating indicates that patients found the educational materials accessible and comprehensible, meeting their informational needs effectively. In addition, an open-ended question allowed participants to

provide additional feedback and insights. One notable piece of feedback emphasized the importance of discussing the expected length of stay with patients and their families during preoperative education. This feedback shows the critical role of clear communication in managing patient expectations and facilitating a smoother recovery process.

One of the most significant findings from this evaluation was the impact on the length of hospital stay. Data retrieved from the EPIC system showed a noteworthy reduction in the average length of stay, decreasing from 3.8 days to 2.6 days post-implementation of the educational pamphlets. While this reduction is a positive outcome, the study acknowledges several limitations and warrant consideration. These limitations include the small sample size of 20 patients and the relatively short data collection period of three months. The small sample size may not fully represent the diversity of craniotomy cases, and the short duration may not account for longer-term effects, potential variations due to different patient populations, or surgical factors. Therefore, the study emphasizes the need for future research involving a larger patient cohort observed over an extended duration to provide a more comprehensive understanding of the impact of enhanced preoperative education on patient outcomes. In conclusion, this evaluation indicates the importance of patient education in craniotomy procedures and the potential benefits of tailored educational materials in improving patient experiences and outcomes.

Impact on Practice

Implementing a preoperative education pamphlet based on ERAS education has significantly transformed neurosurgery practice. Incorporating these educational materials have substantially reduced the average length of hospital stay. This outcome emphasizes the efficiency and effectiveness of educational resources in patient recovery. As reflected in evaluation surveys,

the positive feedback received from patients highlights their appreciation for the educational pamphlets, indicating a high likelihood of recommending them to others. The education pamphlet (based on ERAS) heightened patient engagement and informed decision-making, contributing to improved outcomes and exemplifying the positive impact of ERAS education on the overall quality of neurosurgical care. Given the positive impact to our patients since the education pamphlet to their recovery, the education based on ERAS protocol will continue in our clinics. The education pamphlet will further be utilized in all other brain tumor department teams as a basic standard educational tool.

Conclusion

This project successfully harnessed the ERAS protocol to enhance preoperative education for craniotomy patients at Stanford Health and Clinics. By creating and disseminating tailored educational pamphlets, the project addressed the historical challenges of craniotomies, such as complications and increased hospitalization costs. The evaluation phase demonstrated the pamphlets' effectiveness, with a high Likert scale rating and a significant reduction in the average length of hospital stays. While the study acknowledged limitations related to sample size and data collection duration, the data did show the importance of patient education in improving surgical outcomes. This project has shown the importance of ERAS protocols and exemplified the transformative impact of patient-centered education in neurosurgical care.

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