

ERAS for All

A Clinical Practice Guideline developed by the
University of Toronto's Best Practice in Surgery and
Department of Anesthesia

Background

- The rationale for developing a procedure agnostic ERAS guideline stemmed from the success of the development and implementation of an ERAS guideline for elective colorectal surgery that was developed by our group in 2011
- Following provincial implementation of the colorectal ERAS guideline, several hospitals asked for guideline recommendations to support the uptake of ERAS by other surgical specialities

ERAS for All

Aim

- To make recommendations for pre-, intra- and post-operative strategies which will optimize recovery for patients undergoing elective surgery

Target population

- Patients undergoing elective surgery

Intended Users

- Health care providers involved in the management and care of surgical patients including surgeons, anesthesiologists, nurses, dietitians, physiotherapists and trainees

Outcomes of Interest

- Improved recovery, decreased complications and length of hospital stay, and increased patient satisfaction

Overview of development

- A review of existing guidelines for ERAS was conducted to obtain a comprehensive list of all interventions recommended in guidelines for all surgical procedures
- Based on these guideline recommendations, a master list of interventions was created to determine similarities and differences amongst guidelines for the same surgical procedures as well as across different procedures
- Then a review of each individual ERAS intervention was undertaken by searching MEDLINE for relevant supporting evidence
- After gathering and summarizing the evidence, the Best Practice in Surgery committee with representation from all surgical specialties, anesthesiologists and nurses, met to discuss the evidence and finalize recommendations

ERAS for All guideline

- The recommendations are presented as pre-, intra- and post-operative recommendations
- Several recommendations are included in supplemental guidelines for surgical site infection prevention, thromboprophylaxis, preoperative fasting, and perioperative fluid management
- These guidelines will be available on www.bestpracticeinsurgery.ca once completed

Recommendations and Supporting Evidence

Patient Education: Recommendation

Patients and their families should receive education about the surgery and expected recovery prior to their operation

- Information should include: expected length of stay assuming there are no complications; length of preoperative fasting; pain control; early ambulation and feeding; and smoking cessation prior to surgery
- Patients should be assessed for history of gastroesophageal reflux disease, dysphagia symptoms, or other gastrointestinal motility disorders preoperatively. If present, patients may require individual recommendations for perioperative fasting

Level of evidence: Low

Patient Education: Supporting evidence

- Despite the limited evidence, it is widely believed that preoperative patient education is an essential component of ERAS programs
- Appropriate preoperative education has been shown to decrease patients' anxiety and fears about surgery, reduce postoperative complications, as well as lessen the use of postoperative analgesia and leads to shorter hospital stays
- Research, although limited, has shown that preoperative psychosocial interventions have positive effects on postoperative psychological and physical functioning
- Patient education should address the patient, the patient's spouse or partner, and the patient-partner relationship

Preoperative fasting: Recommendation and supporting evidence

Patients should be allowed to eat solid foods until midnight the night before surgery

- Very little evidence to support this
- However, all society and international guidelines recommend a 6 hour fast after a light meal and 8 hours after a heavy meal
- Fasting after midnight for all patients irrespective of the scheduled time for surgery was chosen because:
 - Easy for patients to remember
 - In case there are changes in the surgery time, the patient will be NPO

Level of evidence: Low

Carbohydrate loading: Recommendation

Patients should be encouraged to drink clear fluids up to 2 hours before anesthesia administration

- Clear fluids include coffee and tea (without milk), and drinks that are high in carbohydrates (i.e. apple juice and pulp-free orange juice)

Level of evidence: High

Carbohydrate loading: Supporting evidence

- Canadian Anesthesiologists Society and the American Society of Anesthesiology recently published clinical practice guidelines that support the intake of clear fluid intake (including CHO drinks) two hours prior to induction
- Additionally, the Canadian Agency for Drugs and Technologies in Health (CADTH) reviewed 5 systematic reviews and seven evidence-based guidelines on the clinical effectiveness of preoperative CHO loading in patients undergoing surgery under general anesthetic
 - Majority of the evidence showed no benefit with preoperative carbohydrate drinks
 - Some studies showed modest effects for reduced length of stay, postoperative insulin resistance, return to GI function, and patient wellbeing

Multimodal pain control: recommendations

Perioperative pain control should be multimodal

- This should include considering acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), gabapentinoids, ketamine, lidocaine, epidurals and regional anesthesia
- Analgesia should be customized to enable the earliest possible transition to oral medications including early removal of patient controlled analgesia (PCA) if used



Level of evidence:
Moderate

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Multimodal pain control: evidence

- The American Pain Society, the American Society of Regional Anesthesia and Pain Medicine, and the American Society of Anesthesiologists' Committee on Regional Anesthesia, Executive Committee and Administrative Council released a clinical practice guideline on the management of postoperative pain
- They define multimodal analgesia as the “use of a variety of analgesic medication and techniques that target different mechanisms of action in the peripheral and/or central nervous system”
- Multimodal analgesia is highly recommended as it is perceived to provide more effective pain control when compared to single modalities
- Clinicians should try to incorporate non-opioid analgesics and nonpharmacological treatments into their modalities and try to avoid opioids when possible
- Oral rather than IV administration of opioids should be used postoperatively
- IV PCA should be used when the parental route is needed for management of ileus, aspiration risk or after surgeries that affect the ability to take medications orally

NG tubes: recommendations and evidence

Prophylactic use of nasogastric tubes for decompression of the GI tract should be avoided

- The evidence from several meta-analyses indicates that the original rationale for using prophylactic NG intubation are no longer valid
- However, NG tubes may be used in patients having gastric or pancreatic surgery as per the surgeon's clinical judgement

Level of evidence: High

Early ambulation: recommendations

Patients should be encouraged to participate in early mobilization once extubated with the exception of patients having spine surgery who should be assessed individually

- Patients should be encouraged to dangle on the side of their bed, walk, or sit in a chair on POD0
- Patients should be encouraged to walk at least twice on POD1 and everyday until discharge
- Patients should be encouraged to sit up in a chair while awake during the day

Level of evidence:
Moderate

Early ambulation: evidence

- There is very limited evidence on the effectiveness of postoperative mobilization for most surgical procedures with the exception of orthopedic operations
- There is evidence that suggests that extended bed rest has negative consequences
- There is some evidence supporting early mobilization within a multimodal program although the timing and frequency differ among protocols

Early feeding: recommendations

Patients should resume eating and drinking as soon as possible after surgery

- Patients should be offered clear fluids 2 hours postoperatively provided they are awake, alert and capable of swallowing
- Patients should be offered solid food beginning POD1
- Patients should be encouraged to chew gum 3x/day for 5 minutes until they are tolerating solid food

Level of evidence:
Moderate

Early feeding: Supporting evidence

- Several guidelines and meta-analyses have shown that early feeding results in a small decrease in length of stay compared with the traditional method of “nil per os” until bowel function resumes
- Early feeding may lead to an increased chance of vomiting but otherwise there appears to be no adverse effects
- In particular, early enteral feeding does not increase the rate of wound infection, infectious complications, or anastomosis dehiscence
- The main advantage to using chewing gum is that it is inexpensive, well tolerated, and widely available

Foley Catheters: Recommendation

The routine use of Foley catheters should be avoided with the exception of patients undergoing urologic or pelvic surgery, there is an anticipated prolonged duration of surgery, patient is anticipated to receive large volume infusions of fluid or diuretics, or the patient requires monitoring.

- If used, the Foley catheter should be removed within 24 hours except if the patient underwent rectal or urologic surgery
- For patients who undergo rectal surgery the catheter should be removed at or before 48 hours
- For patients who undergo urologic surgery the catheter should be removed at the discretion of the treating urologist based on the nature of the surgery

Level of evidence:

Foley catheters: Supporting evidence

- There is overwhelming agreement that urinary catheters should be avoided perioperatively unless they are absolutely necessary. Urinary tract infections are the most common type of hospitalize acquired infection, in both medical and surgical patients and the biggest risk factor for developing a urinary tract infection is indwelling urinary catheters.
- The recommendations provided by the Centres for Disease Control and Prevention (CDC) apply to all hospitalized patients and they recommend
 - Use urinary catheters in operative patients only as necessary, rather than routinely.
 - For operative patients who have an indication for an indwelling catheter, remove the catheter as soon as possible postoperatively, preferably within 24 hours, unless there are appropriate indications for continued use
 - In patients having bladder/prostate surgery and other pelvic surgery (eg: rectal resection), urinary catheters are often left in situ for longer duration to allow for healing (bladder anastomoses) or because of perceived difficulty with voiding (rectal resections)

Implementation Strategies

Implementation

- Implementation of an ERAS guideline requires several implementation strategies to be employed simultaneously
- Based on the available literature, as well as our experience, we developed an implementation toolkit that may be used to assist with implementation
- The toolkit and other implementation resources can be found at www.bestpracticeinsurgery.ca. Below are the necessary steps to take when implementing ERAS

Steps to Implementation

Step 1: Identify Champions

- Identify at least one Surgeon, Anesthesia and Nurse Champion
- Ideally, each surgical specialty and corresponding hospital unit will have its own ERAS champion(s).

Step 2: Get support from administration and other stakeholders

- The Champions should communicate with administration about the program to ensure that they have the support required for implementation

Step 3: Stakeholder engagement, agreement and buy-in

- Once administration has signed on, it is important to get buy in from all members of the perioperative team who will be affected the changes presented in the ERAS guideline
- All departments should receive information and education on the ERAS guideline and all stakeholders should feel part of the implementation process
- Multidisciplinary ground rounds and/or rounds for each department may be helpful

Steps to implementation

Step 4: Develop local implementation strategies

- As a group, discuss which implementation strategies may be most beneficial and develop a local implementation plan
- This may include rounds and in-services, dissemination of guidelines, development of strategies for disseminating and collecting the patient education booklet, and creating local care pathways and other tools such as posters.
- As well, during this stage, order sets should be modified to reflect the ERAS guideline recommendations and other processes should be put in place, such as identifying ERAS patients.

Step 5: Collect data and process for feedback

- It is important to collect data. Collecting baseline data is essential to be able to assess progress. Thus, it is suggested to start collecting ERAS data as soon as possible.

Steps to implementation

Step 6: Identify a start date

- It is important to determine a start date so that the healthcare professionals are aware of when implementation will start. A good start date is when the standardized orders have been modified.

Step 7: Monitor implementation

- Once ERAS has launched, it is important to maintain interest and active implementation of the recommendations.
- Having regularly scheduled meetings with the Champions is essential to regularly review data, address gaps in care and develop strategies to overcome them. As well, it is important to provide continuous re-education for the staff as well as provide regular updates on the progress and lessons learned.

Implementation Assistance

For more assistance with implementing ERAS for All at your hospital, contact the Best Practice in Surgery at bestpracticeinsurgery@utoronto.ca