ERAS: Nutrition

Nutrition plays a key role in optimizing outcomes and enhancing surgical recovery. Important components of nutrition for ERAS patients include pre-operative nutrition counselling, optimizing pre-operative nutritional intake and avoidance of perioperative fasting with carbohydrate loading 12 and 2 hours prior to surgery as well as early introduction of nutrition post-operatively.

Inadequate nutrition, particularly for cancer patients undergoing surgery, is an independent risk factor for complications and increased hospital stay. By correcting nutritional deficits and optimizing nutritional status and body weight prior to surgery, patients benefit from improvements in both post-operative wound healing and immune function.

Carbohydrate Loading

Pre-surgical carbohydrate loading has been proven safe and an effective way of reducing the body's stress response to surgery which is typically characterized by profound inflammation and muscle and tissue loss. Carbohydrate loading has also been shown to diminish pre-operative thirst, hunger and anxiety and results in reduced post-operative dehydration, insulin resistance, hyperglycemia, and fatigue. Improvements in post-operative insulin resistance and glycemic control significantly reduces risk of post-operative infection and infection-related complications.

We ask our surgical patients to drink a beverage containing 100 grams carbohydrate the night before surgery (choice of either 32 ounces apple or cranberry juice, or 24 ounces grape juice). Patients are also instructed to drink a beverage containing 50 grams carbohydrate 2 hours before they arrive for surgery (choice of either 16 oz apple or cranberry juice or 12 oz grape juice).

Contraindications for carbohydrate loading include:

- Having fluid in the abdomen (ascites) that limits the amount of fluid that can be consumed or if patients have been told to limit their fluid intake due to certain conditions including Congestive Heart Failure (CHF), End Stage Renal Disease (ESRD), or Addison's disease.
- Diabetics who use an insulin pump for glucose control or have a severe form of diabetes called "brittle" diabetes.
- Difficulty breathing due to fluid in the lungs.
- Difficulty swallowing or neurological disorders such as Parkinson's disease.
- Documented medical conditions including achalasia, severe gastroparesis in which the patient has been prescribed a prokinetic agent (e.g. metoclopramide), hiatal hernia or severe gastroesophageal reflux disease (GERD).
- Prior surgeries that involved the gastrointestinal system including total gastrectomy, partial gastrectomy/gastric resection involving Biliroth I and Biliroth II, or Whipple's procedure (pancreaticoduodenectomy) requiring jejunostomy tube placement.

Click on link below to see our educational handout on pre-surgical carbohydrate loading.

https://www.mdanderson.org/patient-education/Gynecology/Carbohydrate-Loading-Enhanced-Recovery-After-Surgery-Program-for-Gynecologic-Oncology-(ERAS-GYN)_docx_pe.pdf

We are currently looking into different pre-formulated carbohydrate loading products to incorporate into our program to replace the use of juice.

Post-Operative Nutrition

Early introduction of fluid and food intake beginning 4 hours after surgery has been shown to promote improved gastrointestinal integrity and facilitate earlier return of bowel function. Not to mention addresses the body's need for increased protein and calories to facilitate healing and reduce catabolic losses of lean body mass.

At our hospital, we start patients on a low fat, low fiber, bland diet 4 hours after surgery. Patients are generally instructed to start with something light and encouraged to consume smaller, more frequent meals. Our facility incorporated the use of GI Post-OP: First Foods diet which excludes high-fat, fried/greasy foods, spicy foods and foods high in fiber and added sugar. Patients are instructed to follow this diet for 1-2 weeks after their surgery.

Focusing on a balanced diet that includes lean protein and limits high fat, fried and processed foods, helps the body heal, fight infection and speed recovery after surgery. Once normal bowel function has returned, intake of nutrient-rich foods like fruits, vegetables and whole grains provides the body with essential vitamins, minerals and phytonutrients needed to promote healing and reduce inflammation. Patients are instructed to gradually begin adding fiber back into their diet as tolerated. Adequate fluid intake is emphasized as fiber intake increases in order to prevent constipation.

Click on link below to see our educational handout on ERAS diet guidelines after surgery.

https://www.mdanderson.org/patient-education/Gynecology/Diet-Guidelines-After-Surgery-Enhanced-Recovery-Program-for-Gynecologic-Oncology-(ERAS-GYN)_docx_pe.pdf

Immunonutrition

The potential to modulate the activity of the immune system by interventions with specific nutrients is the key concept of immunonutrition. Nutrients and dietary components, including but not limited to arginine, glutamine, selenium, omega-3 (n-3) fatty acids, (eicosapentaenoic acid [EPA] and docosahexaenoic acid [DHA]), the omega-6 gamma-linolenic acid [GLA], nucleotides and/or antioxidants have been implicated for their potential to modulate the metabolic response to surgery or stress by enhancing immune function. Use of these specialty enteral or oral nutrition products are recommended for a specified duration-either pre-operatively, post-operatively or peri-operatively. Utilization of immunonutritoin prei-operatively, for 5-7 days pre-op and 5-7 days post-op, have produced the strongest evidence-based outcomes for elective surgery patients. These outcomes include reduction of infectious complications, improved wound healing, and reduced length of stay.

Immune-modulating formulas may be contraindicated in patients with severe sepsis or infection.

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