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Perioperative management. Nutrition in the perioperative period

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Key words
enteral nutrition; parenteral nutrition; perioperative time; protocol ERAS; ESPEN guideline

Summary
The current patterns of perioperative management are subject to dynamic changes, questioning and modifying the previously used ones. In modern surgical practice, it is recommended to apply a comprehensive peri-operative care protocol to improve the results of ERAS (Enhanced Recover After Surgery) treatment. ERAS is a multidirectional path of perioperative care over a patient, used all over the world, developed by the international scientific society ERAS Society, initiated by the Danish surgeon Henrik Kehlet. This protocol aims to achieve the fastest possible recovery of the patient by minimizing metabolic stress caused by surgery, improving the healing process, reducing tissue swelling, reducing the number of postoperative complications, shortening the duration of hospitalization and reducing the cost of health care.

Preoperative nutritional

Patients can take solid food up to 6h and clear liquids up to 2-3h before surgery (except for patients with gastro-intestinal reflux, with gastric emptying disorders, gastrointestinal obstruction and

emergency surgery) this is completely safe for them and does not affect the increase the risk of complications associated with general anesthesia. It has been shown that prolonged fasting leads to an increase in post-operative insulin resistance and complications associated with it

Patients 2-3 hours before surgery should receive an oral high-carbohydrate drink (400ml, 12.5%, 285mOsm / kg), with delayed treatment every hour 200ml.

The resulting benefits:

- reducing the patient's anxiety and the feeling of dry mouth
- effect on a faster return of intestinal motility, reduction of post-operative nausea and vomiting
- reduction of insulin resistance (glucose supply ---> insulin discharge ---> decrease in postoperative hyperglycemia ---> anabolism advantage over catabolism ---> reduction of complications)
- also for patients with diabetes (along with an adequate dose of insulin)

Postoperative nutritional

Early return to oral nutrition after surgery is one of the key elements of modern perioperative care. Comprehensive perioperative care protocol for improving the results of ERAS treatment and ESPEN guidelines recommend the introduction of an oral diet as early as possible

According to ESPEN (European Society for Clinical Nutrition and Metabolism) recommendations, in patients who require artificial nutrition in the post-operative period, the treatment of choice is the inclusion of enteral nutrition or the combination of enteral and parenteral nutrition. Contraindication to enteral nutrition is shock, intestinal ischemia, obstruction of the gastrointestinal tract. Indications for parenteral nutrition in the postoperative period:

- malnutrition (if the enteral supply is impossible or limited)
- in patients without malnutrition, in whom the expected interruption in food intake is> 7 days
- inadequate food intake (<50% of consumption)> 5-7 days

Preoperative colon cleansing

1) there is no clinical evidence of the beneficial effect of mechanical bowel preparation MBP, therefore, according to the ERAS protocol, routine bowel preparation before surgery is not recommended

2) lack of bowel preparation does not affect the occurrence of: leakiness of anastomoses, formation of intra-abdominal abscesses, peritonitis, infection of the surgical site, necessity of reoperation

3) it is advisable to prepare the intestines in patients operated on for rectal cancer with a planned appointment of a decomposing ileostomy, with anterior resection of the rectum with TME, TEM,

TaTME

Although the literature broadly describes the impact of MPB on colonic surgery results, there is still a lack of analysis on the impact of MPB solely on rectal surgery. Ji et al. investigated the effect of MPB in rectal surgery due to cancer. There were no significant differences in the frequency of leaky anastomoses in the group of patients treated with MPB compared to the group without preparation of the intestine. The severity of leakage by the anastomosis was assessed on the basis of the length of stay in the hospital, the time of returning to a full diet, the time of antibiotic use, the incidence of intestinal obstruction, and the percentage of admissions to the intensive care unit.

Early oral nutrition and PONV prophylaxis

Early return to oral nutrition after surgery is one of the key elements of modern perioperative care. The protocol for improving the results of ERAS treatment and ESPEN guidelines recommend the introduction of an oral diet as early as possible. EEN- early enteral nutrition - early initiation of enteral nutrition (oral, through a tube or jejunostomy) within 24 hours after surgery. It should be remembered that the early initiation of oral nutrition may initiate and intensify the occurrence of post-operative nausea and vomiting (PONV-postoperative nausea and vomiting), therefore it is important to apply an appropriate antiemetic prophylaxis.

PONV affects approximately 25-30% of operated patients, and in the high-risk group about 70%. To assess the likelihood of PONV, use the Apfel scale to assess 4 features whose incidence increases risk: female gender, non-smoking tobacco, previous PONV episode and motion sickness, and the use of opioids during and after the procedure. It was also shown that the PONV-friendly factors are the duration of anesthesia, the patient's age (the younger the greater the risk) and the use of inhaled anesthetics and nitrous oxide4. Several receptor systems have been defined that take part in the PONV formation mechanism, to which different classes of drugs are used. Increasing the dose of a single class of drug does not reduce the incidence of PONV, but increases the risk of side effects, therefore, it is recommended to use multimodal prevention including reduction of risk factors and drug politerapies combined with anesthesia prevention depending on the risk of PONV5. In the low-risk group (0-1 risk factors), there is no need for prophylaxis. In the intermediate risk group (2 risk factors), two antiemetics from different groups or a combination of one drug with anesthetic prophylaxis - TIVA (total intravenous general anesthesia) are used. Prophylaxis in the high-risk group (3-4 risk factors) are two different antiemetics and TIVA6. If after the operation you have nausea or vomiting, it is recommended to administer the drug from a different group than the one that was administered prophylactically, unless it has passed more than 6h7. Repeated administration of 4mg ondansetron was shown to be not more effective in the treatment of PONV than placebo.

Postoperative paralytic ileus of the gastrointestinal tract (POI) is an inherent consequence of abdominal surgery and usually lasts up to 3dnia after surgery. The prolonged POI> 3-5 days are a condition that requires diagnosis and intervention, because it can be evidence of infection, anastomosis or obstruction. According to the guidelines of ESPEN and ASPEN, enteral nutrition (oral, gavage or microtiunostomy) is preferred in comparison to parenteral nutrition. Parenteral nutrition is indicated only in patients who can not cover the need by the enteral route. The parenteral nutrition should be reduced as the enteral nutrition tolerance increases.

Conclusions:

Malnutrition is a widely recognized cause of increased morbidity and mortality among surgical patients. In a traditional procedure, the patient on an oral diet passes when there are signs of a return of bowel function: audible peristalsis, gas and stool delivery. This practice has not been confirmed in clinical trials, and the above signs are not required to start oral nutrition.

Although there is a belief that the post-operative diet should be introduced gradually ("nil by mouth", enlargement within a few days), in the literature such a procedure did not find any scientific justification. Therefore, it is necessary to consider starting the oral diet as early as possible (preferably even on the day of surgery), provided it is tolerated. Many studies have shown that EEN does not increase the risk of leaks, and also accelerates the return of peristalsis, reduces the number of infectious complications, reduces mortality and shortens the duration of hospitalization.

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