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Short Communication

Our Experience with ERAS Guidelines in Vaginal Surgery

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The ERAS protocol (Enhanced Recovery After Surgery, "best recovery after surgery") is applied in our daily clinical practice for the assistance of each surgical patient and represents an innovative and multidisciplinary approach for the patient undergoing surgery.

The concept of ERAS, intended as a path of assistance capable of both reducing peri-operative stress and improving the body's response to surgical insult, was first introduced about 20 years ago, thanks to Henrick Kehlet, in the *British Journal of Anesthesia* [1].

Patient management according to the ERAS protocol constitutes a change aimed at obtaining a better result in treatment, early healing and recovery, simultaneously reducing costs and hospitalization times.

In the gynecological field, the ERAS strategy provides [2-4]:

- An accurate pre-operative interview with the patient, aimed at giving accurate explanations and indications of behavior (e.g. stopping smoking and possibly hormonal therapies);
- The reduction of pre-operative fasting;
- The abolition of bowel preparation;
- Adequate antibiotic prophylaxis;
- The prophylaxis of thromboembolism;
- The prevention of intraoperative hypothermia and the maintenance of perioperative uvolaemia;
- The prevention of postoperative nausea and vomiting;
- Very limited use of the nasogastric tube;
- Early removal of the urinary catheter;
- Adequate analgesia;

- Early postoperative mobilization;
- Early nutrition in the post-operative period, to favor a rapid recovery of gastrointestinal functions.

In our operating unit we plan for all patients candidates for gynecological surgery, including vaginal hysterectomy, an initial evaluation and comprehensive pre-operative information in well-organized counseling.

Infact, the pre-operative counseling provides a moment of meeting between the patient and the multidisciplinary team (gynecologist, anesthetist, nurse), in order to illustrate the objectives of the assistance to the patient and her family and thus promote compliance. to the care pathway.

The objective of the preoperative information is not only to physically prepare the patient for the surgery, but to make the whole surgical procedure better understood, making both the patient and the family members aware of the postoperative phase, regarding the reduction of pain, the reduction of hospitalization days and everything that the ERAS protocol provides [5].

The meeting with the patient is scheduled in the month before the intervention, at least two weeks before the date of the intervention itself, so as to provide all the information well in advance, verify the correctness of the diagnosis, verify chronic therapies, any devices and the allergies of each patient, encourage the abstention from smoking and alcohol and plan the outpatient surgery.

Having informed the patient well, the gynecologist and anesthetist collect informed consent.

The nurse informs the patient and her family about the organization of the ward and the necessary aids, offers indications on the execution of the shower to be performed the day before the operation and carries out an assessment of the patient's needs, including her nutritional needs. The nurse also explains to the patient that bowel preparation is not recommended and shaving pubic hair is not indicated [6].

In the outpatient surgery, performed at least two weeks before the date of admission, the patient performs the blood chemistry and instrumental tests necessary for the operation itself (sampling, chest x-ray, ECG). A complete specialist evaluation of weight measurement is also carried out. and height for the calculation of the BMI (Body mass index) and the verification of informed consent is performed.

The patient, after carrying out the required tests, carries out the outpatient anesthetic evaluation, at least two weeks before surgery.

The anesthetic evaluation is aimed at verifying risk factors for post-operative nausea and vomiting (PONV); the stabilization of any clinical conditions: cardiological diseases, anemia, chronic obstructive bronchopathy, diabetes, states of nutritional deficiency (preoperative assessment of nutritional risk using the Malnutrition Universal Screening Tool MUST, i.e. Universal screening tool for malnutrition if indicated); to the evaluation of the respiratory function; verification of any suspension or replacement of pharmacological treatments in progress and to promote correct lifestyles in preparation for the intervention: suspension of smoking and alcohol, carrying out moderate daily physical activity for a better postoperative recovery, adequate control body weight. In accordance with the ERAS, our preoperative phase provides for a normal diet until midnight on the day before the surgery, with the possibility of taking clear liquids up to two hours before the surgery [7].

In our patients who have undergone vaginal hysterectomy, no bowel preparation and no trichotomy are performed.

In the absence of contraindications, it is recommended to take oral carbohydrate solutions the evening before surgery, in order to obtain better hydration and a normal condition of the intravascular volume, an improvement in preoperative well-being and reduced insulin resistance. postoperative [8].

On the same day of the intervention, always in accordance with the ERAS, antibiotic-prophylaxis is carried out 30 minutes before the intervention, using cephalosporins intravenously (Cefazolin 2g), so as to reduce total postoperative infections, including urinary tract infections [9,10].

In patients allergic to such antibiotics, clindamycin 600 mg is used.

In patients with comorbidities (e.g. diabetes, obesity) or high anesthetic risk, prophylaxis can be extended to the first postoperative day (24 hours).

Our care protocol provides, always in accordance with ERAS, the recommendation to use anti-thrombus stockings and antithrombotic prophylaxis, i.e. a thromboembolic prophylaxis with prophylactic doses of low molecular weight heparin (INHIXA 4000 IU under the skin/day starting 6 hours after the end of the operation and at discharge, the patient continues according to the specific protocol).

On day 0 (day of surgery), post-operative vomiting and nausea prophylaxis (PONV) and stress ulcer prophylaxis are also performed, possibly already during the surgery. According to the ERAS guidelines, post-operative pain and vomiting concretely become objectives of prevention and not of treatment (as needed) at the request of the patient [11,12].

At the time of surgery and for its entire duration, the patient is guaranteed normothermia (for example with the use of forced air blankets), in order to reduce the risk of surgical site infections and any adverse cardiovascular events in situations of intraoperative hypothermia [13].

The patient's hydration is monitored to replace intraoperative blood loss, to maintain euvolemia, to avoid problems associated with fluid overload (e.g. delayed bowel recovery, post-operative ileus, nausea and vomiting) or hypovolaemia (e.g. acute renal failure, surgical wound infections, sepsis and prolonged hospital stay) [14,15].

In accordance with the ERAS protocol, for patients undergoing vaginal surgery the choice of epidural or spinal analgesia is guided by the goal of providing anesthesia that reduces the endocrine response to surgical stress, provides analgesia and promotes rapid return. mobilization and nourishment.

The nasogastric tube, if necessary, is placed at the beginning of the surgery to empty the stomach and removed before the end of the operation itself so as to reduce the risk of pneumonia during operations [15]. The routine use of drains is also avoided [6].

Regarding the early postoperative phase, always starting from day 0 and maintaining it in the following days of hospitalization, a fundamental role is represented by pain control, because it allows to reduce complications and the hospitalization period, also to the advantage of cost reduction. of hospitalization. In particular, an hourly post-operative pain prophylaxis is performed with paracetamol 1g iv every 6 hours a day for the first 24 hours then paracetamol 1g per os as needed until discharge.

A concept on which the ERAS protocols are based is that of the multimodal use of analgesics with different mechanisms of action so as to be synergistic and allow the reduction of the need for opioids, for a more rapid postoperative recovery [16-18].

Already after 6 - 8 hours from the end of the surgery, the patient is expected to be able to take fluids clear and in the evening of the day 0 also a light diet.

The patient is mobilized already the same evening of the surgery.

Early mobilization promotes post-operative recovery, including the reduction of pulmonary complications, the reduction of insulin resistance, the reduction of muscle atrophy and the risk of deep thrombosis.

As already described, thromboembolic prophylaxis with low molecular weight heparin LMWH is performed at least 6 hours after surgery.

To alternate the rest periods with the mobilization phases, the patient's collaboration is obviously necessary, especially in this initial phase, and this is why preoperative counseling is particularly important. To allow this type of recovery, it is also necessary to mitigate post-operative pain as much as possible with painkillers.

On day 1, all infusion therapy is suspended, the patient resumes normal nutrition and the possible administration of specific oral nutritional supplements, after dietary re-evaluation.

Early feeding, i.e. nutrition that is introduced within 24 hours of gynecological surgery, has been shown to be safe without increasing gastrointestinal adverse events or postoperative complications. This approach has been associated with an early resumption of bowel function, a shorter hospital stay and better patient satisfaction [19].

The vaginal plug positioned at the time of surgery is removed at the latest within 24 hours of the surgery itself, as it can lead to an increase in post-operative infection rates if left after this time [20,21].

The bladder catheter is removed early on the first day, barring complications, to facilitate early mobilization and patient comfort, as well as to reduce the risk of urinary infections, with control of the bladder residue on day 3.

In fact, on day 3, the criteria necessary for discharge, necessary for the patient's return to the home, are assessed. In addition to the patient's consent, clinical and instrumental evidence of an uncomplicated postoperative course, a self-sufficient patient with adequate mobilization, adequate oral nutrition, recovery of intestinal function are necessary (only gas channeling is sufficient) and adequate pain control with oral analgesics.

At discharge, the behavioral and nutritional rules at home are renewed for the patient and her family, the optimal management of any painful symptoms, the need to continue antithrombotic prophylaxis unless otherwise indicated and the importance of carrying out the control visit 40 days after intervention.

A telephone number is also issued in order to guarantee continuity of care for the patient and also to increase, as per the ERAS protocol, the level of patient satisfaction with the care received.

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