

Preoperative preparation

Preoperative preparation begins as soon as the decision of surgical treatment is made and does not end until the transfer of the patient to the operating room. The period before an operation is mainly intended to examine the overall condition of the patient in order to ensure that the patient can tolerate the operation. In the case of emergency procedures, examination and preparation is limited; however, ensuring sufficient blood perfusion to vital organs, including the brain and myocardium, must be done.

The **goal** of preoperative preparation is to create suitable conditions for uncomplicated healing with subsequent convalescence. Preoperative preparation includes general elements that must be met during each surgical procedure and special elements that depend on the diagnosis and type of operation.

In the preoperative period, the anesthesiologist meets the patient.

The main tasks of an anesthesiologist are to evaluate the preoperative internal and complementary examination, get acquainted with the performance indication and surgical plan, check the ordered blood reserve, evaluate the risk on a scale according to the American Society of Anesthesiologists (ASA), prescribe premedication and premedication. , issue a plan anesthesia, create a record in medical records. Preparation for the operation includes **general universal preparation, general special preparation, and local preparation.**

General preparation

The role of the surgeon is to provide a detailed description of the surgical intervention, especially in regard to possible risks and repercussions. It is necessary to explain to the patient the special preoperative preparation that will be performed, type of anesthesia (general/local anesthesia) that will be given, postoperative location, and postoperative care, which can involve drains, probes, coils, catheters, etc... The average length of the hospital stay and the possible impact of treatment should be approximated. In amputations, psychological preparation before the operation is important. The task of the medical staff is to create calm, comfortable environment. Essential questions must be answered by the attending physician or surgeon and a record of the information must be made. With knowledge of the operation, and its risks and outcome, the patient or his legal representative must sign an informed consent form. In addition to providing information, the overall general preparation is based on the creation of homeostasis by modifying body fluids, minerals, nutrients, and initiating rehabilitation. It is important for the patient to be as physically fit/active as possible prior to the operation since cardiovascular health is a major factor in determining surgical outcome: it can positively influence surgical wound healing, reduce the risk of thromboembolism, and facilitate the return to normal intestinal motility after postoperative intestinal paralysis. This can be achieved by maintaining an active lifestyle prior to the operation as part of the general preoperative preparation.

General special preparation

Its aim is to influence the outcome of the surgery and specific risk factors.

Influence of the outcome

GIT diseases cause changes in water and mineral metabolism and nutritional disorders, and their adjustment prior to surgery is important because they significantly influence the course of the body's inflammatory response. Nutritional disorders are associated with a higher incidence of infections, impaired wound healing, and the development of immune defects. Mineral support is especially important in patients with significant weight loss and when we expect a longer period of time when the patient is unable to take food through the enteral route (tumors, Crohn's disease).

Hepatobiliopancreatic diseases with bile deficiency disorder lead to fat-soluble vitamin deficiencies, and eventually lower production of prothrombin, manifesting as a blood clotting disorder. This disease causes digestive disorders, insufficient nitrogen resorption, and hepatocyte disorders. Bile accumulation can be treated using percutaneous transhepatic drainage with an inserted stent, administration of glucose, lactulose, vitamin K, and application enemas.

Specific risk factors

Ancillary diseases pose risks to the safe conduct of anesthesia, surgery and wound healing.

Patients with pulmonary diseases are at risk in the postoperative period hypoxic condition to pulmonary insufficiency, so the examination and assessment of the respiratory system is always part of the preoperative examination. Serious surgery requires blood gas tests and functional lung tests. In patients with acute lung disease, it is necessary to consider the indication for surgery, or to postpone the operation after the cure of lung disease. Preoperative preparation, which includes a smoking ban, is required for patients with chronic lung disease. In bronchiectasis, postural drainage with bronchodilators and expectorants with a combination of antibiotics is important. A risk factor for respiratory complications is obesity.

In patients with heart disease, the need for surgery and the possibility of postponing it should be considered. The most serious problem is the indication of patient surgery after myocardial infarction. In the first 3 months after MI, the risk of new ischemia is up to 30%, after half a year 5%. Myocardial infarction, valve defects and angina pectoris are contraindications to surgery. To assess operational risk, the so-called **Goldman's Index** or **NYHA Classification**.

GOLDMAN'S INDEX contains factors and ratings:

S3, increased BP: 11 points

IM in the last 6 months: 10 points

More than 5 extrasystole/min: 7 points

Non-sinus rhythm: 7 points

Age over 70 points: 5 points

Urgent operation: 4 points

Intraperitoneal, thoracic, aortic surgery: 3 points

Aortic stenosis: 3 points

Poor internal condition of the patient: 3 points

RATING

0-5 points: risk of heart complications and death in less than 1%

13-25 points: risk of complications in 13% and death in 2%

26 or more points: risk of complications in 78% and death in 56%

Diabetics usually have high blood sugar levels in the preoperative period. In the preoperative period, it is necessary to ensure that during the day, glycemia remains below 10 mmol/L and that the patient is not experiencing acidosis. Complete kidney and ECG examinations are recommended. Ensuring the treatment of an infection site and the administration of glucose to prevent hypoglycemia are necessary. Depending on the blood glucose level, we give an infusion of 5% glucose (25 g of glucose with 6 IU insulin before the surgery to patients with type 2 diabetes. When glycemia is higher than 10 mmol/L, the glucose dose is increased by 1 unit for each blood glucose increase of 2 mmol/L above 10 mmol/L). Preoperative blood glucose values should not be higher than 10 mmol/L and lower than 4 mmol/L!

Surgery for patients suffering from **adrenal disease** can cause an Addisonian crisis with hypovolemia, mineral loss, hypotension, which can be fatal. These patients should be given corticoids and fluid volume and mineral balance should be monitored.

In **cancer patients**, there is a high probability of thromboembolic complication. This risk also arises in orthopedic operations in the area of large joints, long bones, pelvis, long-term patients, patients with varix varices, the elderly, and in obese, women using hormonal contraception. Before the operation, we can prevent these complications by certain measures, which include elevation of the lower limbs to 15 degrees, which will reduce venous volume in the calf, training of active exercises and elastic compression (stockings). In terms of anticoagulants, low molecular weight heparin is used, which is associated with a lower risk of bleeding than other forms of heparin. By default, the mini-dose heparin administration is performed, 5000 IU before surgery and still once every 12 hours. Other anticoagulants include vitamin K antagonists (Warfarin). Dextran and substances that affect blood viscosity (Ancord) are used to prevent venous thrombosis. Patients taking coumarin-type anticoagulants can only undergo surgery if their prothrombin time is above 25% and INR is below 1.5. If the values are lower, it is advisable to administer vitamin K in a dose of 5 mg before surgery, which adjusts the prothrombin time within 2 days. In patients taking heparin, the effect of heparin must be neutralized with protamine sulphate before the emergency operation (amount mg = number of heparin units divided by 100). If the operation is not urgent, it is enough to postpone the operation by 6-8 hours.

Central venous access allows the measurement of central venous pressure and the infusion of larger volumes of blood. It is prepared prior to surgery since a large amount of blood loss is to be expected.

Bladder catheterization allows you to measure hourly diuresis.

Local preparation

The introduction of a **nasogastric tube** is useful for the aspiration of gastric and duodenal contents. Gastric toning occurs after removal of the contents, which has a beneficial effect on healing of anastomoses and reduces the risk of aspiration at the beginning of anesthesia. Also, aspiration of contents reduces pancreatic juice secretion. A 2 mm diameter nasojejunal tube is most often used for enteral nutrition.

Emptying the contents of the colon prevents its volume from increasing and prevents contamination of the peritoneal cavity and surgical wounds. Enema cleansing of the intestine is used to clean the distal part of the intestine.

Orthograde preparation involves lavage with a hypertonic solution taken orally or gavaged. There are products (Golytely solution, Fortrans) that are used to clean the intestine without the possibility of electrolyte and fluid imbalance, these products are not used in patients with cardiac failure, dehydration, intestinal obstruction. Bowel emptying is also used before diagnostic procedures (X-rays, colonoscopy, rectoscopy).

Pre-operation skin preparation involves maintaining to the overall hygiene of the patient, the operating field (area to be operated on), and the washing of the hands of the surgical staff. Shaving of the skin (area to be operated on) to remove body hair prior to the operation is recommended; however, shaving a few hours before the operation increases the presence of bacterial flora. Various skin antiseptics are applied to the skin, and their selection is governed by hospital habits, patient tolerance, and the nature of the disease.

Before transporting the patient to the operating room, the nurse's task is to check the patient's consent to the procedure and anesthesia, hygienic measures, bandages, probes, coils, bandages, absence of dental prosthesis, and removal of jewelry and nail polish.

Links

External links

- AKUTNE.CZ: Preoperative preparation and patient compensation - interactive algorithm + test (<https://www.akutne.cz/index.php?pg=vyukove-materialy--rozhodovaci-algoritmy&tid=284>)

Literature

- ČERNÝ, Ján. *Chirurgia : základy všeobecnej a špeciálnej chirurgie*. 3. vydání. Bratislava : Slovak Academic Press, 1998. 0 s. ISBN 8088908248.
- ZEMAN, Miroslav, et al. *Chirurgická propedeutika*. 2. vydání. Praha : Grada, 2000. 524 s. ISBN 80-7169-705-2.