

PRE- AND PERIOPERATIVE MANAGEMENT

Types of operations

- **Emergency**
- **Urgent**
- **Elective**
- **Semi-elective/Neoplasms**

Before surgery...

- **We must (should) know what we will treat!**
- **The principle is the best preparation for the surgery and the selection of the adequate time of it (eg. monthly bleeding, trivial infections)**
- **Operation as a diagnostic tool (eg. laparoscopy)**

Emergency operations

- Bleeding from damaged arteries
- Ruptured aortic aneurysms (not always)
- Massive bleeding from GI tract (endoscopy first!)
- Penetrating wounds of the chest and abdomen (not all)
- Shock is not contraindication for operation because surgery is usually the method of its treatment

Emergency operations - minutes

- **Lack of preparation**
- **Cannulation of a central vein
(subclavian, jugular, femoral)**
- **Catheter into the bladder**
- **Antishock therapy**
- **Blood sampling for basic lab tests
including blood type test**
- **Life-saving operation**

Urgent operations - hours

- **Perforations of the GI tract**
- **Acute appendicitis**
- **Bowel obstruction - Ileus (tumors, incarcerated hernias)**
- **Cholangitis (endoscopy!)**
- **Necrosis of the lower limbs**
- **Ischaemia of the limbs (embolus, thrombosis)**

Urgent operations

- **The time up to several hours**
- **Basic research including X-ray and tests to confirm the diagnosis**
- **Supplementation (blood, ions)**
- **Start or continuation of treatment of comorbidities**
- **Surgery of „compensated” patient**

Elective operations – any time

- **Prepared patient (including vaccination against hepatitis B)**
- **A set of basic tests and some confirming pathology**
- **All comorbidities must be cured, or present a lower risk than the underlying disease**

Elective operations

- **Hernias (not incarcerated)**
- **Thyroid gland surgery (except neoplasms)**
- **Gallstones**
- **Certain surgery of stomach and biliary tree**
- **Esthetic surgery including bariatric operations**

Tests before the operation

- Chest x-ray
- Blood type test
- Full blood count
- Plasma electrolytes
- Coagulation tests
 - APTT - Activated Partial Thromboplastin Time
 - INR - International normalized ratio
- Kidney parameters
- ECG
- Other tests: hormones, proteinogram, liver parameters, other disease – specific tests (including imaging studies)

Tests before the operation

- Prior to urgent and emergency operations range of tests is significantly reduced in favor of speeding up the operating activities

After the operation

- Patient is conscious
- Normal respiration
- Thromboembolic prevention
- Early ambulation
- Fluid balance
- Supplementation of blood, ions, etc (especially after emergency and urgent operations)
- Antibiotics?

After the operation

- **Actions specific to a given condition (drains, probes, postoperative tests)**
- **Treatment of the shock (emergency and urgent, often in ICU)**
- **Prevention of pressure sores**
- **Prevention of stress ulcers**
- **Enteral and parenteral nutrition**

Fast track surgery

ERAS – enhanced recovery after surgery

Why?

How?

When?

General definition

- The term **"fast track"** means the practice of dealing a faster process compared with the conventional procedure. This name was first used in 1976 in an article in „Business Week Magazine”, which referred to the start of construction before the end of the design work.

Definition

- „Fast track surgery” is a set of actions of anesthetic, surgical, nursing and psychology aimed at shortening the patient's stay in the hospital, maintaining the same therapeutic effect as in „classic surgery”

„Fast track” in surgery

- **Is it at all possible?**
- **If so, in which clinical situations?**
- **In which patients?**
- **Is it a safe procedure?**
- **What evidence supports it?**

What exactly is "fast-track" in surgery?

- **Preoperative patient education**
- **The use of the latest surgical and anesthesiological techniques.**
- **„Aggressive” postoperative rehabilitation (nutrition, early ambulation etc.)**
- **Revision of some „old” surgical customs**

Postoperative ileus (POI)

- the primary reason for prolonged hospitalization

- **Stomach: 24-48 hrs**
- **Small bowel: 8-24 hrs**
- **Colon: 48-72 hrs**

There is no diagnostic test (CT, X-ray with contrast, isotopes - rare, scarce information)

The best test – toleration of the food without bloating, belching and nausea

Beware of prolonged ileus > 5 days

Elements of fast-track



- **Less pain (technique)**
- **Accelerated rehabilitation**
- **Prevention of the humidity of the peritoneal cavity**

Prevention of the pain

- Injecting of the bupivacaine into the wound
- Injecting of the bupivacaine into the places after trockars
- "Spraying" of the bupivacaine (0.5%) in the peritoneal cavity

Also...



Normothermia during the operation



- Body temperature drops by $2-4^{\circ}\text{C}$ ($> 2 \text{ h}$)
- Reheating is associated with cortisol and catecholamine discharge
- Normothermia provides: reduced blood loss, reducing the amount of cardiac episodes and wound infections

How long in the hospital?

- Inguinal hernia (local anesth.) – 1,5-6 h
- Laparoscopic cholecystectomy – 80% < 24 h
- Nissen fundoplication – 90% < 24 h
- Laparoscopic resection of the colon – 2-4 days
- Miles and Dixon - 3-6 days (even with stoma)
- Suprarenal gland (laparoscopic)- < 24 h

Specific situations

- Patients taking anticoagulants
 - Medical history!

Number of platelets: 140-450 thous.

APTT (Activated Partial Thromboplastin Time):
28-40 sec.

Prothrombin time (Quick time): 80-120%;
and/or INR (International Normalized Ratio):
0.9-1,3

Specific situations

- **Antiplatelet drugs – no abnormalities in the standard tests**
- **Many patients use them**
- **"Persistent" - ASA (aspirin), ticlopidine, clopidogrel (Plavix)**
- **"Intermittent" NSAIDs other than aspirin (ASA)**
- **Discontinue for 7 days (the lifetime of the platelets) before operation and go on fractional doses of heparin in prevention**

Specific situations

- Oral anticoagulants (Warfarin, Sintrom)
- Increase in INR, APTT, number of platelets unchanged
- Discontinue for 2-4 days before operation and go on fractional doses of heparin in prevention
- Urgent operations: discontinuation, fresh frozen plasma, vit. K (Konakion)

Specific situations

- **Thrombocytopenia:** at least 50-60 thousand
 - Platelet transfusion
 - **Hemophilia:** (factor VIII >70% of activity, factor IX > 40%)
- Transfusion of the appropriate factor, FFP, antihemorrhagical drugs

ANAESTHESIA

- **General anaesthesia:**
 - The patient should return from operating theatre awake, breathing on his own
 - possible aspiration (vomiting)
 - RR control, pulse, state of consciousness

ANAESTHESIA

- **Epidural:**
 - Post-dural-puncture headache
(recommended lying over several hours)
- **Local (infiltration):**
 - practically safe. The ability to puncture the vessel. One should control the amount of a given agent especially in the elderly

Aldret's scale (postoperative evaluation)

Obserwacja	Wynik badania
Motoric activity	
2	4 limbs moving independently or on command
1	2 limbs moving independently or on command
0	Do not move on their own or on command
Breath	
2	Deep breathing, coughing
1	Dyspnea or shortness of breath
0	Apnea
Circulation	
2	Pressure +/- 20% of the initial value before anesthesia
1	Ciśnienie +/- 20-50 % wartości wyjściowej przed znieczuleniem
0	Ciśnienie +/- 50% wartości wyjściowej przed znieczuleniem
Consciousness	
2	Fully conscious.
1	Wake up on command
0	No reaction
Skin colour	
2	Pink
1	Pale, spottted yellow
0	Cyanotic

Complications

- **Many can be prevented!**
- **Early diagnosis**
- **General: pneumonia, thrombosis and embolism, cardiac and neurological disorders.**
- **Local infections, evisceration, anastomotic dehiscence, intra-abdominal abscesses**

Complications - recognition

- Increased temperature
- Dyspnoea
- Redness and swelling of the wound
- Leakage of pus
- Leakage of intestinal contents
- Blood flow from drains (over fixed value)
- Bloating and lack of peristalsis
- The decline in the value of serum K^+

Complications - recognition

- **Jaundice after biliary surgery**
- **Other troubling symptoms that can be combined with surgery performed**
- **Disclosure of other diseases, for which the patient does not know yet**

Prevention of complications

- Prepared patient !!!
- Surgical technique
- Early ambulation
- Early nutrition (supplementation before and after surgery)
- Antithrombotic drugs
- Antibiotics ???
- Early intervention

Treatment of complications

- **Is specific for each type of surgery**
- **Usually requires reoperation or firm conservative treatment**
- **This greatly increase the cost of treatment**