

SUBJECT	<b>BASIC PRINCIPLES OF SURGERY</b>					
CREDITS	Total	<b>5.5</b>	Theory	<b>3</b>	Practical	<b>2.5</b>

## GENERAL OBJECTIVES

- Introduction to the field of surgery and anaesthesia
- Understanding the most important aspects of accidental injury and surgical insult
- Assessment and intervention in the different stages of the prevention-diagnosis-treatment-recovery sequence in surgery
- Specific aspects of certain branches of surgery not studied in other course modules

## SPECIFIC OBJECTIVES

- Understanding the various treatment modalities in surgery
- Understanding the organism's response to injury or insult
- Basic principles of wound healing and management of different wounds
- Basic management of patients with multiple trauma, cancer and surgical infection
- Patient assessment in the preoperative and postoperative periods
- Basic principles of anaesthesia and pain management
- Basic principles of organ transplantation
- Basic principles of nutrition in surgery
- Learning how to perform venous puncture, wound suturing and the basic principles of endotracheal intubation

## SYLLABUS

### Theory

#### 1. Historical development of surgery

Current situation and future perspectives. Specialization. Surgical training.

#### 2. Neuroendocrine response to surgical insult

Homeostasis. Integration of stimuli and modulation of the response to lesion: vies afferent pathways and regulatory organs. Efferent pathways: mechanisms of hormonal action and other cell mediators (cytokines, eicosanoids, TNF, etc.).

#### 3. Replacing liquids and electrolytes in the surgical patient

Normal losses of the organism. Losses due to different digestive secretions in different clinical situations. Most common clinical situations that alter the water-electrolyte balance in surgery. Diagnosis and treatment in the pre- and post-operative period. Composition of different solutions.

#### 4. The multiple trauma patient

Concept of multiple trauma. The patient with multiple trauma as a multidisciplinary patient. General approach to the damage in different systems. Diagnostic and treatment aspects of the multiple trauma patient from the perspective of different specialities. The primary care of the multiple trauma patient. Basic objectives in the treatment of the multiple trauma patient. Reanimation, assessment and priorities.

## **5. The biological process of wound healing**

Mechanisms of tissue repair. Stages in the healing of skin wounds. Local and systemic factors that may affect the process. Pathological wound healing.

## **6. Types and treatment of wounds**

Classification of wounds. Ways of optimizing wound healing. Suture material and techniques. Anti-tetanus prophylaxis. Bites and stings.

## **7. Thermal trauma**

Classification of burns: depth and extension. Prognosis and admission criteria. Initial treatment of large burns. Local treatment. Special characteristics of electrical and chemical burns. Lesions due to radiation. Cold lesions: hypothermia and frostbite.

## **8. Grafts and flaps**

Applications. Concept of grafts, histology, types and applications. Concept of flaps, histology, types and applications in surgery. Cutaneous ulcers: vascular, pressure or positional.

## **9. Nutrition in surgery (I)**

Body composition. Physiopathology of malnutrition in surgery. Metabolism of short and long fasts and of the insult. Assessment of nutritional state. Consequences of malnutrition in the surgical patient. Types of malnutrition.

## **10. Nutrition in surgery (II)**

Approaches to calculating the energy and protein needs of the surgical patient. Parenteral and enteral nutrition: administration routes. Indications. Advantages and disadvantages of each of the related complications. Administration routes. Enteral and parenteral nutrition. Indications and techniques.

## **11. Infection in surgery (I)**

Prophylaxis of infection in surgery. Asepsis and antisepsis. Infection of the surgical wound. Deep infections. Types of surgery according to the degree of contamination: clean, clean-contaminated, contaminated and dirty. Effect of the host in infection. Surgery in patients with viral disease.

## **12. Infection in surgery (II)**

The treatment of infections in the surgical patient: surgical drainage and for radiological interventions. Infections of soft parts: cellulitis, fasciitis and myositis. Aetiology, differential diagnosis and treatment.

## **13. Laparoscopic surgery**

Instruments and physiology of the pneumoperitoneum. Advantages, disadvantages and risk factors. Accepted indications and those under study. Robotics and surgery.

## **14. Hernias of the abdominal wall (I)**

Inguinal anatomy. Basic principles of hernioplasty. Inguinal hernia. Crural hernia.

## **15. Hernias of the abdominal wall (II)**

Umbilical hernia. Epigastric hernia. Spigelian hernia. Lumbar hernia. Strangulated hernia. Parastomal hernia. Incisional hernia.

## **16. Oncological surgery**

Role of surgery in the treatment of cancer. Types of oncological surgery: radical, palliative, diagnostic, staging, supportive, rehabilitative, mass reduction. Surgery as part of multidisciplinary cancer treatment.

## **17. Basic principles of solid organ transplants**

Types of transplant: autograft, isograft, allograft and xenograft. Characteristics of organ donors. Organ preservation. Legal regulations. Basic principles of prophylaxis and treatment of organ rejection. Complications. Indications for the most common organ transplants and their general characteristics.

## **18. Congenital facial malformations**

Anatomical foundations and morphogenesis of the facial cranium, nasal fossa, oral cavity, face and neck. Labio-alveolar-palatine cleft. Branchial cysts and fistulas. Cysts and fistulas of the thyroglossal duct. Kyematomatopaties. Blastopathy. Embyropathy: early (holoprosencephaly, dysostosis of the middle facial third and mandibular third) and late forms.

## **19. Most common surgical complications**

Fever. Complications of the surgical wound, of the urinary and respiratory systems. Postoperative haemorrhage. Reintervention.

## **20. Preanaesthetic examination and preparation**

Detection of medical problems that cause intra- and post-operative complications. Prediction of the intra- and post-operative complications caused by preoperative problems. Use of complementary tests. Procedures in the preanaesthetic area. Anaesthetic premedication. The anaesthetist-patient relationship and legal authorization.

## **21. General anaesthesia, components of anaesthesia**

Differences between anaesthetic techniques. Stages of anaesthesia. Criteria for choosing the anaesthetic technique. Deep or mild anaesthesia. Pharmacokinetics of inhalatory anaesthesia. Main agents of inhalatory anaesthesia. Apparatus for administering inhalatory anaesthesia. Intravenous induction anaesthesia. Intravenous anaesthetics. Pharmacokinetic concepts, forms of administration.

## **22. Local and regional anaesthesia**

Local anaesthetics and types of solution administered. Different techniques of local and regional anaesthesia. Indications. Complications.

## **23. Respiratory insufficiency**

Diagnosis of obstruction. Treatment of the obstruction. Instruments for maintaining permeability. Diagnosis of acute respiratory insufficiency. Monitoring breathing. Immediate reanimation. Artificial ventilation. Instruments for artificial ventilation.

## **24. Cardiac arrest**

Cardiopulmonary reanimation. Diagnosis of cardiocirculatory arrest. Initial reanimation. Differential diagnosis of cardiac arrest. Basic and advanced cardiopulmonary reanimation. Protecting the brain against ischemia. Maintaining circulation.

## **25. Shock in the surgical patient**

Diagnosis of shock. Different types of shock. Immediate reanimation.

## **26. Basic postoperative reanimation**

Normal post-anaesthetic recovery. Postoperative complications.

## **27. Postoperative reanimation of the critical patient**

Complicated post-anaesthetic recovery. Post-anaesthetic reanimation of the patient with prior severe pathology. Post-operative reanimation of the high-risk surgical patient.

## **28. Acute pain**

Mechanisms of production and pain transmission pathways; types of acute pain. Acute postoperative pain. Drugs and pathways for acute pain management. Assessment of analgesic efficacy. Undesired effects and complications associated with methods of postoperative analgesia.

## **29. Chronic pain**

Human and socio-economic importance of the problem. Role of the general physician. The clinical forms of pain. Types of chronic pain. Multidisciplinary characteristics of chronic pain management. Types of chronic pain management.

## **30. Organization of the surgical area**

Ambulatory anaesthesia. Features and elements of the surgical area. Procedures in the ambulatory anaesthesia area and differential characteristics, including the type of patient, types of intervention and current developments.

## **LEARNING RESOURCES AND TEACHING METHODS**

### **Theory classes**

### **Practical classes**

- Surgical area in healthcare settings
- Operating theatres
- Workshops: dealing with wounds, sutures, venous punctures and reanimation