351 SURG Objectives

2019-2020

The Metabolic Response to Injury

1. Features of the response when not modified by medical intervention	
2. Factors mediating the metabolic response to injury	a. The acute inflammatory response. b. The endothelium and blood vessels. c. Afferent nerve impulses and sympathetic nervous system activation. d. The endocrine response of surgery.
3. Consequences of the metabolic response to injury	a. Hypovolaemia b. Increased energy metabolism and substrate cycling. c. Catabolism and starvation. d. Changes in red blood cell synthesis and blood coagulation.
4. Factors modifying the metabolic response to injury	a. Control of blood glucose. b. Manipulation of inflammation and coagulation in severe infection.
5. Anabolism	

Principles of Fluid and Electrolyte Balance in Surgical Patients

1. Normal water and electrolyte balance	
2. Assessing losses in the surgical patient	a. Insensible fluid losses. b. Effect of surgery.
3. Intravenous fluid administration	a. Types of intravenous fluid. b. Maintenance fluid requirements c. Treating hypovolaemia and or/ hypotension.
4. Specific water and electrolyte abnormalities	a. Water and sodium imbalance. b. Potassium imbalance. c. Other electrolyte disturbances.
5. Acid-base balance	a. Metabolic acidosis. b. Metabolic alkalosis c. Respiratory acidosis d. Respiratory alkalosis e. Mixed patterns of acid-base imbalance

Shock and Hemorrhage

1. Definition of shock	
2. Causes of shock	
3. Pathophysiology of shock	a. Microcirculation b. Microcirculation c. Cellular function
4. Effects on individual organ systems	a. Nervous system b. Kidneys c. Respiratory system d. Heart e. Gut f. Liver g. Neuro humoral response
5. Principles of management	a. Hypovolemic shock b. Septic shock c. Cardiogenic shock d. Anaphylaxis
6. Advanced monitoring organ support	a. Cardiovascular support b. Respiratory support c. Renal support
7. Nutrition	

Transfusion of Blood and Blood Products

1. Blood donation	
2. Blood components	a. Fresh blood components b. Plasma fractions
3. Red cell serology	a. ABO antigens b. Rhesus antigens c. Other red cell antigens
4. Indications for transfusion	
5. Pre-transfusion testing	
6. Blood administration	
7. Adverse effects of transfusion	
8. Autologous transfusion	a. Pre-operative donation b. Isovolaemic haemodilution c. Cell salvage
9. Transfusion requirements in special surgical settings	a. Massive transfusion b. Cardiopulmonary bypass
10. Methods to reduce the need for blood transfusion	a. Acute volume replacement b. Mechanism for reducing blood use in Surgery
11. Better blood transfusion	
12. Future trends	

Nutritional Support in Surgical Patients

1. Assessment of nutritional status	
2. Assessment of nutritional requirements	
3. Causes of inadequate intake	
4. Methods of providing nutritional support	a. Enteral nutrition b. Parenteral nutrition
5. Monitoring of nutritional support	

Infections and Antibiotics

1. Pathogenic potential of microbes	a. Exaltation b. Pathogenic synergy
2. Asepsis	a. Surgical ritual b. Sterilization c. Disinfection
3. Surgical infection	a. Infection, bacteraemia and septicaemia b. Microbiological diagnosis of infection c. Wound infection d. Sepsis, shock and the systemic Inflammatory response syndrome e. Helicobacter pylori
4. Anaerobic infection	a. Tetanus b. Gas gangrene and other clostridial c. infections d. Progressive bacterial gangrene and e. necrotizing fasciitis f. Other anaerobic infections
5. Hospital-acquired (nosocomial) infections	a. Sites of colonization b. Hospital microbial challenges c. Control of hospital-acquired d. (nosocomial) infection
6. Antimicrobial management of wound infections	
7. Principles governing the choice and use of antibiotics	a. Antibiotic policy b. Prophylactic use of antibiotics
8. Management of immunosuppressed patients, including those who have had splenectomy	

Principles of the Surgical Management of Cancer

1. The biology of cancer	a. The adenoma-carcinoma progression b. Invasion and metastasis c. Natural history and estimate of cure
2. The management of patients with cancer	a. Screening b. The cancer patient's journey c. Symptoms that may initiate a patient's cancer journey d. Referral to a specialist/cancer center e. Investigations f. Management g. Follow-up h. Palliation of advanced cancer i. Prognosis and counseling j. Care of the dying

Trauma and Multiple Injury

1. Trauma epidemiology	
2. Injury biomechanics and accident prevention	
3. Alcohol and drugs	
4. Wounds	a. Classification and production b. Gunshot wounds
5. Falls	
6. Injury severity assessment	
7. Pre-hospital care and transport	
8. Trauma Center	
9. Resuscitation in the emergency department	a. The first 10 minutes b. The next phase
10. Imaging and other diagnostic aids	
11. After the resuscitation room	

Pre-operative Assessment, Anesthesia and Post-operative Pain Control

Pre-operative assessment and Investigations	
1. Assessment of fitness for operation	a. Perioperative risk b. The importance of oxygen transport to tissues
2. Systematic approach to the initial assessment of patients	a. Cardiovascular system b. Respiratory system c. Smoking d. Alcohol e. Obesity f. Drug therapy g. Allergies h. Previous operations and anesthetics
3. Pre-operative investigations	a. Blood biochemistry b. Liver function tests c. Full blood count d. Coagulation screen e. Blood cross-matching
4. The high-risk patient	
5. Assessment of the patient for emergency surgery	
6. The pre-operative ward round	a. Pre-medication b. Fasting
7. Implications of chronic disease in the perioperative period	a. Cardiovascular disease b. Respiratory disease c. Jaundice d. Diabetes mellitus e. Chronic renal failure f. Hematological disease g. Abnormal coagulation h. Pregnancy i. Miscellaneous conditions

Anesthesia and Operation	
1. General anesthesia	
2. Local anesthesia	a. Topical anesthesia b. Local infiltration c. Peripheral nerve block d. Spinal anesthesia e. Epidural anesthesia

Post-operative Analgesia	
1. Pain physiology	
2. Pain assessment	
3. Post-operative analgesic strategies	a. Epidural analgesia b. Patient-controlled analgesia c. Parenteral and oral opioid regimes d. Paracetamol, NSAIDs and selective COX-2 inhibitors e. Neuropathic pain f. Post-operative nausea and vomiting

Practical Procedures and Patient Investigation

1. General Precaution	
2. Aseptic Technique	
3. Local Anesthesia	
4. Wound suture	a. Suture the skin b. Suture materials
5. Airway Procedures	a. Maintaining the airway b. Ventilation by mask c. Endotracheal intubation d. Surgical airway e. Changing a tracheostomy tube
6. Thoracic Procedures	a. Intercostal Tube drainage b. Removal of an intercostal drainage tube c. Pleural aspiration
7. Abdominal Procedure	a. Nasogastric tube insertion b. Fine-bore nasogastric tubes c. Gastric lavage d. Oesophageal tamponade e. Abdominal Paracentesis f. Diagnostic peritoneal lavage
8. Vascular procedures	a. Venepuncture b. Safety measures c. Venepuncture for bold culture d. Peripheral venous cannulation e. Venous cutdown f. Central venous catheter insertion g. Arterial blood sampling h. Needle pericardiocentesis
9. Urinary procedures	a. Urethral catheterization b. Suprapubic catheterization
10. Central nervous system procedures	a. Lumbar puncture
11. Drug administration	
12. Imaging	b. Plain radiography c. Contrast studies

	d. Computed tomography (CT) e. Ultrasonography f. Magnetic resonance imaging(MRI) g. Radioisotope imaging h. Positron emission tomography (PET)

Post- operative Care and Complications

1. Immediate post-operative care	a. Airway obstruction b. Haemorrhage
2. Surgical ward care	a. General care b. Tube, drains and catheters c. Fluid balance d. Blood transfusion e. Nutrition
3. Complication of anesthesia and surgery	a. General complication b. Pulmonary complications c. Cardiac complication d. Urinary complication e. Cerebral complication f. Venous thrombosis and pulmonary embolism g. Wound complications

The Abdominal Wall and Hernia

1. Umbilicus	a. Developmental abnormalities b. Umbilical sepsis c. Umbilical tumors
2. Disorders of the rectus muscle	a. Hematomas b. Desmoids tumor
3. Abdominal hernias	a. Inguinal hernias b. Ventral hernias c. Rare external hernias d. Internal hernias e. Complications of hernias f. Management of complicated hernias

The Acute Abdomen and Intestinal Obstruction

1. Aetiology	
2. Pathophysiology of abdominal pain	a. Somatic pain b. Visceral pain
3. Pathogenesis	a. Inflammation b. Obstruction
4. Clinical assessment	a. History b. Examination c. Investigation
5. Management	
6. Peritonitis	a. Primary peritonitis b. Post-operative peritonitis c. Intra-abdominal abscess
7. Intestinal obstruction	
8. Acute appendicitis	
9. Non-specific abdominal pain(NSAP)	
10. Gynecological causes of the acute abdomen	a. Mittelschmerz and ruptured corpus luteum b. Ruptured ectopic pregnancy c. Torsion of an ovarian cyst d. Acute salpingitis

The Oesophagus

1. Surgical anatomy	
2. Symptoms of oesophageal disorder	a. Dysphagia b. Pain c. Regurgitation
3. Examination	
4. Investigation	a. Blood text b. Radiology c. Endoscopy d. Computed tomography e. Ultrasonography f. Laparoscopy g. Manometry and pH studies
5. Impacted foreign bodies	
6. Corrosive oesophagitis	
7. Perforation	
8. Motility disorders	a. Achalasia b. Diffuse oesophageal spasm c. Nutcracher oesophagus
9. Plummer-vinson syndrome	
10. Pouches	
11. Gastro-oesophageal reflux	a. Hiatus hernia b. Barrett's oesophagus
12. Tumours of the oesophagus	a. Benign tumours b. Carcinoma of the oesophagus

Gastroduodenal Disorders

1. Surgical anatomy	a. Stomach b. Duodenum c. Blood supply d. Lymphatics e. Nerve supply
2. Surgical physiology	a. Gastric motility b. Gastric secretions
3. Peptic ulceration	a. Special forms of ulceration b. Management of uncomplicated peptic ulcer disease
4. Complications of peptic ulceration requiring operative intervention	a. Perforation b. Acute hemorrhage c. Pyloric stenosis
5. Gastric neoplasia	a. Benign gastric neoplasms b. Malignant gastric neoplasms c. Other gastric tumors
6. Miscellaneous disorders of the stomach	a. Menetrier's disease b. Gastritis c. Dieulafoy's lesion d. Gastric volvulus e. Bezoars
7. Miscellaneous disorders of the duodenum	a. Duodenal obstruction b. Duodenal diverticula c. Duodenal trauma
8. Surgery for obesity	a. Operations for obesity b. Complications of obesity surgery

The Liver and Biliary Tract

The Liver	
1. Anatomy	a. Segmental anatomy b. Blood supply and function
2. Jaundice	a. Diagnosis
3. Congenital abnormalities	
4. Liver trauma	
5. Hepatic infections and infestations	a. Pyogenic liver abscess b. Amoebic liver abscess c. Hydatid disease
6. Portal hypertension	a. Effects of portal hypertension b. Clinical features c. Acute variceal bleeding d. Ascites
7. Tumors of the liver	a. Benign hepatic tumors b. Primary malignant tumors of the liver c. Metastatic tumors
8. Liver resection	
9. Liver transplantation	

The Gallbladder and Bile Ducts	
1. Anatomy of the biliary system	
2. Physiology	a. Bile salts and the enterohepatic circulation
3. Congenital abnormalities	a. Biliary atresia b. Choledochal cysts
4. Gallstones	a. Pathogenesis b. Pathological effects of gallstones c. Common clinical syndromes associated with gallstones d. Other benign conditions of the gallbladder e. Investigation of patients with suspected gallstones f. Surgical treatment of gallstones g. Complications of cholecystectomy h. Management of acute cholecystitis i. Atypical biliary pain j. Non-surgical treatment of gallstones k. Management of acute cholangitis
5. Other benign biliary disorders	a. Asiatic cholangiohepatitis b. Primary sclerosing cholangitis
6. Tumors of the biliary tract	a. Carcinoma of the gallbladder b. Carcinoma of the bile ducts

The Pancreas and Spleen

The pancreas	
1. Surgical anatomy	
2. Surgical physiology	a. Exocrine function b. Endocrine function c. Pancreatic pain
3. Congenital disorders of the pancreas	
4. Pancreatitis	a. Acute pancreatitis b. Chronic pancreatitis
5. Neoplasms of the pancreas	a. Neoplasms of the exocrine pancreas b. Neoplasms of the endocrine pancreas

The spleen	
1. Surgical anatomy	
2. Surgical physiology	a. Hemopoiesis b. Filtration of blood cells c. Immunological function
3. Indications for splenectomy	d. Trauma e. Hemolytic anemia f. The purpura g. Hypersplenism h. Proliferative disorders i. Miscellaneous conditions j. Other indications for splenectomy
4. Splenectomy	a. Pre-operative preparation b. Technique c. Post-operative course and complications

The Intestine and Appendix

1. Applied surgical anatomy and physiology	a. Anatomy and function of the small Intestine b. Anatomy and function of the large intestine and appendix
2. Disorders of the appendix	a. Appendicitis b. Tumors of the appendix
3. Clinical assessment of the small and large intestine	a. History and clinical examination b. Investigation of the luminal gastrointestinal tract
4. Principles of operative intestinal surgery	
5. Inflammatory bowel disease	a. Crohn's disease b. Ulceration colitis
6. Disorders of the small intestine	a. Small bowel neoplasms b. Peutz-Jeghers syndrome c. Diverticula of the small intestine d. Radiation injury e. ischaemia of the small intestine f. acute small bowel infarction g. chronic mesenteric ischaemia h. Paralytic ileus i. Mechanical obstruction
7. Non-neoplastic disorders of the colon and rectum	a. Colonic diverticular disease b. Ischemia of the large intestine c. Other benign conditions of large bowel
8. Intestinal stoma and fistula	a. Stoma b. Intestinal fistula
9. Polyps and polyposis syndromes of the large intestine	a. Colorectal adenoma b. Familial adenomatous polyposis c. Peutz-Jeghers syndrome d. Juvenile polyposis syndrome e. Metaplastic (hyperplastic) polyposis and MYH- associated polyposis.

	f. Other rare polyposis syndromes. g. Other colorectal polyps.
10. Malignant tumors of the large intestine	a. Colorectal adenocarcinoma b. Management of colorectal Adenocarcinoma c. Other malignant tumours of the large intestine.

Anorectal Conditions

1. Applied surgical anatomy	a. Anal musculature and innervations b. The lining of the anal canal c. The anal (hemorrhoid)cushions d. Lymphatic drainage of the anal canal
2. Anorectal disorders	a. Hemorrhoids b. Fissure-in-ano c. Perianal abscess d. Fistula-in-ano
3. Miscellaneous benign perianal lumps	a. perianal haematoma b. anal warts c. fibroepithelial anal polyp d. anal skin tags
4. Anal cancer	
5. Rectal prolapse	
6. Anal incontinence	
7. Pruritus ani	
8. Pilonidal disease	

Plastic and Reconstructive Surgery

1. Structure and functions of skin	
2. Wound	a. Types of wound b. Principles of wound healing c. Factors influencing wound healing d. Wound infection e. Involvement of other structures f. Devitalized skin flaps g. Wound with skin loss h. Crushing/degloving injuries and gunshot wounds
3 Burns	a. Mechanisms b. Local effects of burn injury c. General effects of burn injury d. Classification e. Prognosis f. Management
4. Skin and soft tissue lesions	a. Diagnosis of skin swelling b. Cysts c. Tumors of the skin d. Epidermal neoplasms arising from basal germinal cells e. Epidermal neoplasms arising from melanocytes f. Vascular neoplasms (hemangoimas) g. Tumors of nerves h. Tumors of muscles and connective tissue i. Disorders of the nails

The Breast

1. Anatomy and physiology	a. Anatomy b. Congenital abnormities c. Hormonal control of breast development and function
2. Evaluation of the patient with breast disease	a. Clinical features b. Clinical examination c. Assessment of regional nodes d. Imaging e. Cytology and biopsy f. One-stop clinics g. Accuracy of investigations
3. Disorders of development	a. Juvenile hypertrophy b. Fibroadenoma
4. Disorders of cyclical change	a. Cyclical mastalgia b. Nodularity c. Non-cyclical breast pain
5. Disorders of involution	a. Palpable breast cysts b. Sclerosis c. Ducts ectasia d. Epithelial hyperplasia
6. Benign neoplasms	a. Duct papillomas b. Lipomas c. Phyllodes tumors
7. Breast infection	a. Lactating infection b. Non-lactating infection c. Skin-associated infection
8. Breast cancer	a. Epidemiology b. Types of breast cancer c. Screening for breast cancer d. Mammographic features of breast cancer e. Staging f. The curability of breast cancer

	g. Presentation of breast cancer h. Management of operable breast cancer i. Complications of treatment j. Psychological aspects k. Follow-up l. Management of locally advanced breast cancer m. Breast cancer in pregnancy n. Management of metastatic or advanced breast cancer o. Miscellaneous tumors of the breast
9. Male breast	a. Gynaecomastia b. Male breast cancer

Endocrine Surgery

1. THYROID GLAND	a. Surgical anatomy and development b. Thyroid function c. Assessment of thyroid gland
2. Enlargement of the thyroid gland (goitre)	a. Non-toxic nodular goitre b. Thyrotoxic goitre c. Thyroiditis d. Solitary thyroid nodules e. Other forms of neoplasia
3. Hyperthyroidism	a. Primary thyrotoxicosis (Grave's disease) b. Toxic multinodular goitre and toxic adenoma
4. Malignant tumors of the thyroid	a. Papillary carcinoma b. Follicular carcinoma c. Anaplastic carcinoma d. Medullary carcinoma e. Lymphoma
5. Thyroidectomy	
6. PARATHYROID GLAND	a. Surgical anatomy b. Calcium metabolism c. Primary hyperparathyroidism d. Secondary and tertiary hyperparathyroidism e. Hypoparathyroidism f. Parathyroidectomy
7. PITUITARY GLAND	a. Surgical anatomy
Anterior pituitary	a. Tumors of the anterior pituitary b. Surgical hypophysectomy c. Radiation therapy d. Maintenance therapy
8. Posterior pituitary	
9. ADRENAL GLAND	a. Surgical anatomy and development
10. Adrenal cortex	b. Cushing's syndrome c. Hyperaldosteronism

	d. Adrenogenital syndrome (adrenal virilism) e. Adrenal feminization
11. Adrenal medulla	a. Phaeochromocytoma b. Non-endocrine adrenal Medullary tumors c. Adrenal 'incidentaloma
12. Adrenalectomy	
13. OTHER SURGICAL ENDOCRINE SYNDROME	a. Apuldomas and multiple endocrine neoplasia b. Carcinoid tumors and the carcinoid syndrome

Vascular and endovascular surgery

1. Pathophysiology of arterial disease	a. Pathology b. Clinical features
2. Chronic lower limb arterial disease	a. Anatomy b. Clinical features c. Intermittent claudication d. Critical limb ischemia e. Management of lower limb ischemia
3. Amputation	a. Indication b. Level of amputation c. Surgical principles d. Rehabilitation and limb fitting e. Phantom pain
4. Arterial disease of the upper limb	a. Overview b. Management
5. Cerebrovascular disease	a. Definitions b. Carotid artery disease c. Vertebrobasilar disease
6. Renal artery disease	a. Atherosclerosis b. Fibromuscular hyperplasia c. Management
7. Mesenteric artery disease	
8 Acute limb ischemia	a. Aetiology b. Classification c. Clinical features d. Management e. Post-ischemic syndromes
9. Aneurysmal disease	a. Classification b. Abdominal aortic aneurysm (AAA) c. Peripheral aneurysms
10. Buerger's disease (thromboangiitis obliterans)	
11. Raynaud's phenomenon	a. primary Raynaud's phenomenon

	b. secondary Raynaud's phenomenon
12. Pathophysiology of venous disease	a. Anatomy b. Physiology
13. Varicose veins	a. Classification b. Epidemiology c. Clinical features d. Aetiology e. Examination f. Investigations g. Management h. Superficial thrombophlebitis
14. Chronic venous insufficiency	a. Pathophysiology b. Assessment c. Management
15. Venous thromboembolism (VTE)	a. Epidemiology b. Pathophysiology c. Aetiology d. Diagnosis e. Venous gangrene f. Prevention g. Management h. Other forms of venous thrombosis
16. Lymphoedema	a. Pathophysiology b. Primary lymphoedema c. Secondary lymphoedema d. Clinical features e. Investigations f. Management

Cardiothoracic Surgery

1. Basic consideration	a. Pathophysiological assessment b. Assessment of risk c. Specific aspect of surgical technique d. Post-operative care
2. Acquired cardiac disease	
Ischaemic heart disease	a. Coronary artery disease b. Surgery for the complications of coronary artery disease
4. Cardiac valvular disease	a. Assessment b. Surgical management c. Endocarditis d. Aortic valve disease e. Mitral valve disease f. Tricuspid valve disease g. Multiple and repeat valve procedures
5. Aortic aneurysm	a. Tubulosaccular aneurysms b. False “aneurysms” c. Aortic dissection d. Aorto-annulo ectasia e. Assessment f. Surgery for aortic pathology
6. Pericardial pathology	a. Pericardial effusion b. Pericardial constriction
7. Congenital cardiac disease	a. Atrial septal defect b. Ventricular septal defect c. Patent ductus arteriosus d. Coarctation of the aorta e. Tetralogy of fallot
8. Thoracic surgery	a. Assessment b. Bronchogenic carcinoma c. Assessment for pulmonary resection. d. Metastatic disease e. Other lung tumours f. Mesothelioma

	g. Mediastinum h. Pneumothorax i. Emphysema j. Interstitial lung disease

Urological Surgery

1. Assessment	a. General points b. Urinary tract symptoms & Hematuria c. Examination d. Investigation
2. Upper urinary tract (kidney and ureter)	a. Anatomy b. Physiology c. Trauma d. Renal tumors e. benign tumors f. nephroblastomas g. Renal and ureteric calculi h. transitional cell carcinoma of the upper tracts i. renal and ureteric calculi j. Upper tract obstruction k. Pelviureteric junction obstruction (idiopathic hydronephrosis) l. retroperitoneal fibrosis m. Miscellaneous causes of obstruction
3. Lower urinary tract (bladder, prostate and urethra)	a. Anatomy b. Physiology c. Trauma d. Bladder tumors e. Carcinoma of the prostate f. Benign prostatic hyperplasia g. Bladder neck obstruction h. External sphincter obstruction i. Urethra stricture
4. Disorders of micturation- incontinence	a. Structural disorders b. Neurogenic disorders c. Principles of management
External genitalia	a. Anatomy b. Physiology c. Circumcision d. Congenital abnormalities of the penis e. Disorder of erection (impotence) f. Priapism g. Peyronie's disease

	h. Carcinoma of the penis i. Inflammation of the penis j. Undescended testis (cryptorchidism) k. Torsion of the testis l. testicular tumours m. Epididymo-orchitis n. Hydrocoele o. Cyst of the epididymis p. Varicocoele q. Infertility r. Vasectomy and vasectomy reversal

Neurosurgery

1. Surgical anatomy and physiology	a. The skull b. The spine c. The brain d. The meanings and cerebrospinal fluid e. The cranial nerves f. The spinal cord
2. Blood supply	a. Anterior circulation b. Posterior circulation
3. Intracranial pressure	a. Brain herniation syndromes
4. Investigations	a. Plain X-ray b. Computed tomography c. Magnetic resonance imaging d. CT and MR angiography
5. Cerebrovascular disease	a. Subarachnoid hemorrhage b. Primary intracerebral hemorrhage c. Arteriovenous malformations d. Cavernomas
6. Neurotrauma	a. Assessment b. Management c. Skull fracture d. extradural haematoma e. subdural haematoma f. intracerebral haematoma and contusions g. Diffuse axonal injury h. Trauma spinal injury
7. Intracranial infections	a. Bacterial infections
8. Intracranial tumors	a. Tumors of the skull b. Pediatric neuro-oncology
9. Spinal dysraphism	a. Open spinaldysraphism
10. Hydrocephalus	
11. Malformation of the skull	
12. Functional neurosurgery	a. Movement disorders b. Epilepsy

13. Vertebral column	a. Spinal degenerative disease
14 peripheral nerve lesions	a. Carpal tunnel syndrome b. Ulnar nerve compression at the elbow c. Meralgia paraesthetica
15. Evidence-based neurosurgery	

Transplantation

1. Transplant immunology	a. Phases of the recipient's immune b. Response to the donor organ c. Patterns of allograft rejection d. Immunosuppression
2. Organ donation	a. Brain-stem death b. Multi- organ retrieval c. Strategies to increase organ donation
3. Renal transplantation	a. Indications and patient assessment b. The operative procedure c. Post- operative management and complications d. Outcome
4. Liver transplantation	a. Indication and patient assessment b. The operative procedure c. Post-operative management and complications d. Outcome
5. Pancreas transplantation	a. Indication and patient assessment b. The operative procedure c. Outcome
6. Heart and lung transplantation	a. Indication and patient assessment b. The operative procedure c. Post-operative management and complications d. Outcome