UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Integrated Medical and Surgical Pathology 2

2425-3-H4101D258

Aims

The general educational objective of the Medical-Surgical Pathology 2 course (PMC 2)is to understand the pathophysiological mechanisms underlying Gastroenterological, Endocrinological, Metabolic, and General Surgical Diseases and related stress conditions, as well as the related diagnostic strategies, particularly in Clinical Biochemistry, and therapeutic approaches, including hormonal, pharmacological, and surgical treatments.
Specific Objectives:

1. Understanding the pathophysiological mechanisms of diseases and their impact on different systems, organs, and their interactions, including adaptive and maladaptive responses.
2. Teaching patient examination and interview techniques, with a special focus on holistic anamnesis collection, lifestyle assessment, well-being evaluation, and specialized physical examination techniques.
3. Recognizing the main symptoms and signs of the diseases covered.
4. Performing semi-quantitative and quantitative risk assessment for metabolic, renal, and cardiovascular diseases and related organ damage, as well as oncological diseases.
5. Implementing primary, secondary, and tertiary screening for complications.
6. Understanding static and dynamic clinical biochemistry diagnostics (stimulation and suppression tests), including the interpretation, validation, and use of biochemical biomarkers for different clinical settings.
7. Applying instrumental diagnostics, particularly conventional and dynamic imaging.
8. Developing hormonal, pharmacological, and surgical therapeutic strategies based on evidence-based medicine, cost-benefit analysis, absolute and relative indications, oncological considerations, contraindications, side effects, possible adverse events, and elective procedures.

The knowledge provided represents the essential foundation for developing a guided clinical reasoning approach to diagnosis and therapy, supported by evidence-based medicine and applicable to PMC 2 specialized disciplines.

Contents

Gastroenterology: Diseases of the liver, bile ducts, and pancreas; Diseases of the esophagus and stomach; Diseases of the small intestine; Diseases of the colon, including case-based learning during small-group practical sessions

Endocrinology and Metabolic Diseases: Diabetes and metabolic diseases, including complications; Hypothalamic and pituitary diseases; Thyroid diseases, including euthyroidism, hypo/hyperthyroidism, thyroid nodules; Phospho-calcium metabolism disorders and osteoporosis; Adrenal cortical and medullary diseases; Neuroendocrine diseases, with case-based learning during small-group practical sessions

Surgical Pathology: Abdominal wall hernias; Diseases of the esophagus and diaphragm; Diseases of the stomach, colon-rectum, and anus; Diseases of the liver, bile ducts, and pancreas; Neuroendocrine tumors and endocrine surgical diseases; Breast pathology

Clinical Biochemistry Essentials: Interpretation of clinical enzymology diagnostics; Enzymes related to liver, pancreatic, muscular, and metabolic function; Serology for acute and chronic viral hepatitis, toxic hepatitis; Bilirubin and hyperbilirubinemia; Biochemical markers of liver fibrosis; Thyroid function and thyroiditis; Diagnosis and monitoring of metabolic control and renal complications in diabetes mellitus; Dyslipidemia; Adrenal gland laboratory diagnostics; Laboratory diagnostics of the pituitary and neurohypophysis; Phospho-calcium metabolism diagnostics and biochemical markers of osteoporosis

Detailed program

Viral hepatitis, chronic non-viral liver disease, liver cirrhosis and portal hypertension, hepatobiliary tumors.
Jaundice, gallstones.
Acute and chronic pancreatitis.
Esophageal motor disorders, esophagitis, gastritis, peptic ulcer.
Malabsorption syndromes, Crohn's disease and ulcerative colitis; celiac disease. Constipation, diarrhea, irritable bowel syndrome, diverticulosis and diverticulitis.
Interactive group discussion of clinical cases focused on ascites, acute and chronic diarrhea, abdominal pain, hematemesis and melena is planned.

Pathogenesis of type 1 and type 2 diabetes mellitus, complexity of clinical pictures, physiopathological mechanisms of micro- and macro-vascular complications of diabetes and hepatological and systemic consequences.
Pathophysiology, clinical manifestations and impact of hypoglycemia.
Pathophysiology of obesity and visceral obesity.
Global cardiovascular risk, primary and secondary dyslipidemias, arterial hypertension and endocrine arterial hypertension.
Pathophysiology of the hypothalamic-pituitary axis, pituitary adenomas (acromegaly/gigantism, prolactinoma, Cushing's disease, TSHoma, gonadotropinoma, non-secreting tumors, craniopharyngioma); hypopituitarism; Sheehan's syndrome.
Neurohypophyseal system and related pathology: diabetes insipidus, syndrome of inappropriate ADH secretion.
MEN and neuroendocrine tumors
Systemic effects of thyroid hormones, hypofunction and hyperfunction syndromes, thyroiditis, thyroid nodule and thyroid neoplasms (papillary, follicular, undifferentiated, medullary carcinoma).
Phospho-calcium metabolism; hyperparathyroidism (primary, secondary, tertiary); hypoparathyroidism and pseudohypoparathyroidism; hypercalcemia
Osteoporosis; Paget's disease of the bone.
Adrenal diseases and related pathology: Cushing's syndrome, Addison's disease; primary hyperaldosteronism. Pheochromocytoma and paraganglioma.

An interactive group discussion is planned on clinical cases focused on the first finding of type 2 diabetes mellitus, the first finding of hypothyroidism and the first finding of hyperthyroidism

Hernias of the abdominal wall: inguinal, crural, umbilical, epigastric, laparocele and rare hernias (spigelian, lumbar).

Benign pathology (achalasia, esophageal diverticula, diaphragmatic hernias and hiatal hernia) and malignant (neoplasms) of the esophagus
Stomach pathology: peptic ulcer and gastric tumors
Colorectal pathology: congenital and adult megacolon, appendicitis, diverticula and diverticular disease of the colon, polyps and polyposis, familial syndromes and precancerous lesions, colorectal tumors, intestinal obstructions, prolapses and hemorrhoids, fissures, fistulas and ano-perianal abscesses.
Benign and malignant lesions (primary and secondary) of the liver
Cholelithiasis and choledocholithiasis, acute cholecystitis, acute cholangitis
Pancreatic tumors, pancreatitis and pseudocysts of the pancreas, cystic lesions and Intraductal mucinous neoplasms (IPMN)
Thyroid nodule and tumor and adrenal nodule and tumor. Neuroendocrine neoplasms: carcinoids, gastrinomas, alpha- and beta-cell pancreatic tumors and multiple endocrine neoplasms
(MEN).
Benign and malignant lesions of the breast

Diagnostic interpretation of clinical enzymology, enzymes of liver, pancreatic, muscular and metabolic function
Serology of acute and chronic viral hepatitis, toxic hepatitis, bilirubin and hyperbilirubinemia, biochemical biomarkers of liver fibrosis
Thyroid function and thyroiditis
Diagnosis and monitoring of metabolic compensation and renal complications of Diabetes Mellitus, Dyslipidemias
Laboratory of adrenal pathology
Laboratory diagnostics of adenohypophysis and neurohypophysis
Laboratory diagnostics of phospho-calcium metabolism and biochemical markers of osteoporosis

Prerequisites

Knowledge related to the preparatory courses indicated in the degree course regulations.
In particular, in-depth knowledge of anatomy, physiology and general pathology, General Genetics, General Biology and Molecular Biology.
Prerequisites: Passing the General Pathology and Immunology Exam.

Teaching form

Within each module, the responsible teacher will use educational activities of a provisional nature, carried out in the form of frontal teaching. The teachers of Endocrinology and Gastroenterology foresee the division of 4 groups of students who each meet in at least 4 different training moments with the provision of interactive teaching carried out in particular as collegial discussion of clinical cases.

The teachers of Endocrinology will provide lessons on dyslipidemia and cardiovascular risk (from physiopathology to therapy through the determination of cardiovascular risk) and on hormone replacement therapy of thyroid function (hypothyroidism and replacement therapy with different formulations of L-thyroxine) performed with the simultaneous presence of their colleagues teaching in Pharmacology

The language of the course is Italian.

Textbook and teaching resource

“Malattie del Sistema Endocrino e del Metabolismo” Giovanni Faglia, Paolo Beck-Peccoz IV edizione giugno 2016, Collana Patologia sistematica medica e chirurgica, Edito da McGraw-Hill ISBN 9788838623929
“Endocrinologia e metabolismo” Giovanni Faglia, Paolo Beck-Peccoz, Anna Spada, Andrea Lania. Edizione 2009, Collana Core Curriculum, Edito da McGraw-Hill. ISBN: 9788838639586.
“HARRISON - Endocrinologia Clinica” J. Larry Jameson Edizione 2007, Edito da McGraw- Hill. ISBN: 9788838639210

UNIGASTRO, Coordinamento Nazionale Docenti Universitari di Gastroenterologia, EDITRICE GASTROENTEROLOGICA ITALIANA

Sabiston - Trattato di Chirurgia Generale, Edra Editore, 2019

Ciaccio e Lippi Biochimica Clinica e Medicina di Laboratorio Edises 2023
McPherson RA, Pincus MR Henry's Clinical Diagnosis and Management by Laboratory Methods, 23a edizione in lingua inglese. Ed. Elsevier, 2016
Marshall W, Lapsley M., Day A Clinical chemistry ed Mosby. 8a edizione in lingua inglese. Ed. Elsevier, 2016

Semester

Secon semester

Assessment method

The exam includes an oral test on topics from all modules, which intensively evaluates the candidate's preparation on the entire teaching program, with requests for further information and connections. There are no intermediate evaluation tests.

Office hours

By appointment (via email) with each individual teacher

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY