UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Integrated Medical and Surgical Pathology 1

2324-3-H4101D257

Aims

The Medical-Surgical Pathology Course 1 focuses on pathologies of the Cardiovascular and Respiratory systems. It is aimed at achieving the following objectives:

1. acquisition of the various methods of patient assessment with particular attention to the collection of the anamnesis, physical examination and laboratory tests with a view to their subsequent application in the specialist field;
2. knowledge of the main symptoms and signs of the pathologies considered and their pathophysiological bases. The topics of the Course constitute the necessary tools for understanding the semeiological bases and the pathophysiogy of the main morbid conditions, in order to allow an adequate approach to their management in the clinical field. The notions provided represent the indispensable basis for the acquisition of a scientific method applicable to all the fields in which students will be engaged in the course of their professional growth.

Contents

In relation to the cardiovascular and respiratory systems:

- History collection
  -General and specific physical examination
  -Laboratory tests
  Diagnostic reasoning of symptoms, Main clinical signs and symptoms related to medical and surgical pathologies of the cardiovascular and respiratory systems, with guidance in their diagnosis and understanding of their pathophysiology. Role, limitations and purpose of laboratory tests. Differential diagnosis of symptoms of major diseases of the two systems, with guidance on their diagnostic/prognostic evaluation.

Detailed program

Clinical Methodology A and B

Anamnesis

- Anamnesis techniques
- Evaluation of the patient's clinical record
- Function of the patient interview
- Relationship with the patient and physician's behaviour
- Role of family history
- Physiological, remote pathological and forthcoming pathological history
  General physical examination
- Head and neck
- Chest
- Abdomen
  Diagnostic tests in cardiology
- ECG, 24-hour Holter ECG
- Approach to ultrasound techniques
- Exercise tests
- Myocardial scintigraphy
- Coronary CT and cardiac MRI
- Coronarography
  Chest pain
- Correct interpretation, differential diagnosis and instrumental investigations
  Semeiological characteristics of pain
- Somatic pain and visceral pain
- Thoracic, abdominal, radicular and headache pain
  Primary and secondary cardio-vascular prevention
- Dyslipidaemia
- Uric acid
- Chronic inflammation
- Cardiological rehabilitation
- Epidemiology, cardiovascular risk factors and prevention
  -Primary and secondary arterial hypertension
  Management of the hypertensive patient
  Correct interpretation of instrumental investigations
  Therapeutic goals in the hypertensive patient
  International guidelines
  -Main Congenital Heart Diseases
  -Physiological and haemodynamic aspects of structural alterations of the heart muscle and valves

Technical sciences of laboratory medicine

- The concept of evidence-based laboratory medicine (EBLM): diagnostic appropriateness
- Role, limits and purpose of laboratory testing
- Test prescription. Pre-analytical, analytical and post-analytical variability.
- Interpretation of laboratory results: reference values and decision making; sensitivity, specificity and predictive value of the test.
- The marker concept, markers of function, markers of lesion.

Clinical pathology

- Biochemical markers of cardiovascular risk: lipids and C-reactive protein
- Markers of myocardial injury: troponins, biochemical characteristics, clinical use. Troponins in emergency room, search for new markers.
- Heart failure markers: NT-proBNP
- Tumour markers: Biochemical markers of solid tumors
- The laboratory in the pathology of the immune system

**Diseases of the cardiovascular system A , B and C **

Rationale for the correct prescription of instrumental investigations
Measuring blood pressure
-Measurement techniques and modalities

- *Diseases of the pericardium, endocardium and myocardium*
  Pathophysiological mechanisms of pericarditis, endocarditis and myocarditis
  Signs and symptoms of the disease, its evolution and aggravation
  Management of pathology based on current international guidelines
  Follow-up and interpretation of instrumental and laboratory examinations
  -*Ischaemic heart disease*
  Stable and unstable angina
  Myocardial infarction
  Pathophysiological mechanisms
  Signs and symptoms of the disease, its evolution and aggravation
  Acute and chronic management of the patient
  Planning and interpretation of instrumental and laboratory examinations

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  *Pulmonary embolism*
Pathophysiology
Main aetiological factors
 Clinical picture
 Diagnostic procedure and follow-up
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-*Pulmonary hypertension*
Pathophysiology
Main aetiological factors
Clinical picture
Diagnostic procedure and follow-up

-*Valvulopathies*
Congenital and acquired valvulopathies
Etiopathogenetic and physiological mechanisms
Signs and symptoms of the disease, its evolution and aggravation
Follow-up, indications and interpretation of instrumental examinations

-*Cardiac rhythm disorders*
Hypokinetic arrhythmias
Hyperkinetic arrhythmias
Principles of electrophysiology and electrostimulation
Indications for PM and ICD implantation

-*Cardiac insufficiency*

Pathophysiological mechanisms and aetiology of heart failure
Symptoms and signs: from development to disease progression
Acute pulmonary oedema
NYHA classification
Planning and interpretation of laboratory and instrumental examinations
Management of the patient with acute and chronic heart failure in the light of the latest international guidelines

-*Syncope and lipotimia*
Mechanisms and pathophysiological diagnosis of the various forms of syncope
Patient management and follow-up
-*Shock*
Physiology and aetiopathogenesis of the different forms of shock
Clinical presentation, instrumental diagnostic framework and management of the patient in shock

*Cardiovascular effects of sleep disorders and of sleep related breathing disorders *

Diseases of the respiratory system A and B

-Anatomy, physiology and pathophysiology of the lung;

- Basic principles of respiratory endoscopy, respiratory function tests, chest imaging, acute and chronic respiratory failure, including interpretation of arterial haemogasanalysis
- Prevention and diagnosis of pulmonary infections, including pneumonia and tuberculosis;
- Chronic lung disease, including asthma, chronic obstructive pulmonary disease, bronchiectasis and cystic fibrosis
- Pleural pathology, including pneumothorax, pleural effusion and pleural infections. Basic principles of pleural procedures and imaging;
- Diffuse infiltrative pneumopathies, with special focus on sarcoidosis and idiopathic pulmonary fibrosis;
- Epidemiology, diagnosis and staging of major pleural and lung cancers;
- Principles of tobacco cessation.
  -Principles of palliation in chronic lung disease
  -Evidence-based medicine diagnostic guidelines of major lung diseases

**Cardiovascular Surgery **

Atherosclerosis and vulnerable plaque: plaque rupture, embolisation and thrombosis.
Vascular objective examination. Arterial pulses.
Carotid atherosclerosis, pathophysiology of cerebro-afferent pathology, quantification of the degree of stenosis, evaluation of carotid plaque morphology, definition of symptomatic carotid stenosis.
Subclavian steal syndrome. Arterial and venous thoracic narrowing syndrome (TOS).
Chronic obliterative arteriopathy of the lower limbs. Leriche syndrome. Arterial ulcers.
Organ hypoperfusions. Hypoxia, ischaemia, necrosis. Acute limb obliterations. Compartmental syndromes. Ischaemia-reperfusion damage.
Aortic aneurysmal pathology. Aortic collagenopathies (Marfan's s.). Rupture of aortic aneurysm.
Post-catheterisation pseudoaneurysm. Traumatic pseudoaneurysm and isthmic aortic rupture.
Acute aortic syndromes. Aortic dissections, Stanford classification, organ complication. Penetrating aortic ulcer (PAU). Intramural haematoma (IMH).
Venous thromboembolic disease: deep vein thrombosis and superficial thrombophlebitis. Venous ulcers.
Chronic venous disease. Chronic venous insufficiency. CEAP classification.
Differential diagnosis of oedema, pain and inflammation in the lower limbs.

Prerequisites

Knowledge of the propedeutic courses specified in the degree course regulations

Teaching form

Lectures and training at patients' bedside

Textbook and teaching resource

Lectures content
Harrison’s: “Principles of Internal Medicine” Ed. McGraw Hill

other textbooks
HURST- The Heart 12th Ed. McGraw Hill
Dioguardi – Sanna: Moderni aspetti di semeiotica medica - Segni sintomi e malattie Ed.Seu
Sabiston: “Textbook of surgery” Ed. Saunders
Zanussi: “Il metodo in medicina clinica” Ed. Mattioli
McPherson RA, Pincus MR Henry's Clinical Diagnosis and Management by Laboratory Methods, 23a edizione in lingua inglese. Ed. Elsevier, 2016
Antonozzi - Gulletta Medicina di Laboratorio - Logica e Patologia CliniCA. Ed. Piccin 2019

Semester

First Semester

Assessment method

The examination includes an oral test on topics from all modules, which intensively assesses the candidate's preparation on the entire syllabus, with a request for insights and interconnections. The examination does not include any in itinere tests.

Office hours

By appointment (through email)

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING