



HUMANITAS MEDICAL SCHOOL

Course: **System Diseases 3**

Year : 4th

Period (1st semester – annual): 1st semester

Credits: 17

ENDOCRINOLOGY MODULE

Objectives

LEARNING GOALS

Knowledge and understanding:

By the end of the Course, students must have knowledge and understanding skills to be able to describe and correlate the physiopathological aspects as well as the clinical manifestation and consequences of the main endocrine-metabolic diseases

In particular, Students

1. They will know the structure and normal functioning of the endocrine system
2. They will have understood the fundamental endocrine-metabolic mechanisms involved in maintaining body homeostasis
3. They will know the pathophysiological aspects that characterize the main metabolic endocrine pathologies
4. They will know the systemic consequences of endocrine-metabolic alterations

Application of knowledge and understanding:

At the end of the course, students must be able to apply their knowledge to understanding and solving individual health problems related to endocrine-metabolic diseases

In particular, Students

1. They will be able to describe and interpret the signs and symptoms related to endocrine-metabolic diseases
2. They will be able to identify the most appropriate laboratory and instrumental exams for the diagnosis of endocrine-metabolic diseases
3. They will be able to interpret the laboratory data necessary for the diagnosis of endocrine-metabolic diseases
4. They will be able to interpret the results of the instrumental exams that are most widely used in the diagnosis of endocrine-metabolic diseases

Prerequisites

Knowledge of principles of physiology and anatomy of the endocrine system

Knowledge of principles of biochemistry of hormones

Contents

Anterior pituitary diseases

Learning goals

- Describe the conditions of hypopituitarism: aetiology, clinical features and diagnostic testing
- Knowledge of epidemiology of pituitary adenoma
- Describe the clinical features common to pituitary adenomas
- Identify the major clinical manifestations and diagnostic testing related to Acromegaly, Nonfunctioning pituitary adenomas, Prolactin-secreting adenomas, Cushing's disease
- Describe the role of Endocrinologist, Radiotherapist, Neurosurgeon and Radiologist in the multidisciplinary approach to pituitary tumors

Posterior pituitary diseases

Learning goals

- Describe the clinical features and diagnostic testing of hypernatremia Diabetes insipidus
- Describe the clinical features and diagnostic testing of hyponatremia and SIADH

Hypo-hyperthyroidism

Learning goals

- Knowledge of epidemiology and classification of Hypo-hyperthyroidism
- Identify the major clinical manifestations and diagnostic testing related to hypothyroidism
- Identify the major clinical manifestations and diagnostic testing related to hyperthyroidism
- Knowledge of the role of imaging studies in the diagnostic workup of patients with hypo-hyperthyroidism (i.e. Thyroid scintigraphy; Thyroid echography)

Goiter, nodules and thyroid cancer

Learning goals

- Knowledge of epidemiology and classification of goiter, thyroid nodules, and thyroid cancer (including medullary thyroid cancer)
- Identify the major clinical manifestations and diagnostic testing related to goiter
- Identify the major clinical manifestations and diagnostic testing related thyroid nodules and thyroid cancer (including follow up)
- Describe the role of Endocrinologist, Nuclear Medicine Specialist, Surgeon, Pathologist and Radiologist in the multidisciplinary approach to thyroid cancer
- Knowledge of the role of imaging studies in the diagnostic workup and treatment of patients with goiter, thyroid nodules and thyroid cancer

Hyper-hypocortisolism

Learning goals

- Describe adrenal hormones action and regulation
- Identify the major clinical manifestations and diagnostic testing related to hypercortisolism
- Knowledge of the role of imaging studies in the diagnostic workup of patients with hypercortisolism



- Describe the role of Endocrinologist, Radiologist, Surgeon, Radiologist in the multidisciplinary approach to hypercortisolism
- Identify the major clinical manifestations and diagnostic testing related to hypocortisolism

Endocrine Hypertension and adrenal incidentalomas

Learning goals

- Knowledge of epidemiology and classification of adrenal incidentalomas and endocrine hypertension
- Identify the major clinical manifestations and diagnostic testing related to pheochromocytoma
- Identify the major clinical manifestations and diagnostic testing related to primary aldosteronism
- Knowledge of the role of imaging studies in the diagnostic workup and treatment of endocrine hypertension
- Knowledge of the role of genetic studies in the diagnostic workup of endocrine hypertension

Hypercalcemia and Multiple Endocrine Neoplasia type 1 and 2 (MEN1 and 2)

Learning goals

- Knowledge of epidemiology and classification of hypercalcemia and hyperparathyroidism
- Knowledge of the condition of hyperparathyroidism: aetiology and diagnostic testing
- Knowledge of the role of imaging studies in the diagnostic workup of primary hyperparathyroidism
- Knowledge of the role of Endocrinologist, Nuclear Medicine Specialist, Surgeon, Radiologist in the multidisciplinary approach to primary hyperparathyroidism
- Knowledge of the role of genetic studies in the diagnostic workup of primary hyperparathyroidism
- Knowledge of the condition of MEN1 and MEN2: aetiology and diagnostic testing
- Knowledge of the role of genetic studies in the diagnostic workup of MEN1 and MEN2

Hypocalcemia and Polyglandular autoimmune disease (PGAs)

Learning goals

- Knowledge of epidemiology and classification of hypocalcemia and hypoparathyroidism
- Describe the condition of hypoparathyroidism: aetiology and diagnostic testing
- Describe the condition of PGAs: aetiology and diagnostic testing
- Knowledge of the role of genetic studies in the diagnostic workup of MEN1 and MEN2

Osteopenia and Osteoporosis

Learning goals

- Knowledge of epidemiology and classification of osteoporosis and osteopenia
- Describe the conditions of osteopenia and osteoporosis: aetiology and diagnostic testing
- Knowledge of the role of imaging studies in the diagnostic workup of osteoporosis

Female Reproductive Endocrinology

Learning goals

- Describe ovarian hormones action and regulation
- Describe the conditions of hypogonadism: aetiology, clinical features and diagnostic testing
- Describe the conditions of hirsutism: definition, aetiology, clinical features and diagnostic testing
- Describe the condition of menopause: definition, clinical features
- Understand the principles underlying current therapeutic management, and the main goals of therapy
- Knowledge of the main drug classes used in reproductive diseases and their rationale
- Knowledge of the indications for each drug class
- Knowledge of the main contraindications and side effects
- Knowledge of the potential development of therapeutical agents in the next future

Male Reproductive Endocrinology

Learning goals

- Describe testicular hormones action and regulation
- Describe the conditions of hypogonadism: aetiology, clinical features, diagnostic testing and follow up
- Describe the condition of gynecomastia: aetiology and diagnostic testing
- Understand the principles underlying current therapeutic management, and the main goals of therapy
- Knowledge of the main drug classes used in reproductive diseases and their rationale
- Knowledge of the indications for each drug class
- Knowledge of the main contraindications and side effects
- Knowledge of the potential development of therapeutical agents in the next future

Diabetes and Dyslipidemia

Learning goals

- Recall of glucose homeostasis regulation
- Describe the conditions of diabetes mellitus: genetics, clinical features, diagnostic testing, complications and follow up
- Recall of lipid metabolism regulation
- Knowledge the main drug classes used in Diabetes and Dyslipidemia treatment
- Understand the indications for each drug class
- Knowledge of the main contraindications and side effects

Teaching Methods

Lectures: the main purpose of lectures is to transfer knowledge to students by guiding them through the most relevant subjects of the disciplines included in the course of Endocrinology. Students are expected to participate to lectures in a proactive manner and to take notes as part of the learning process. All lectures will be held synchronously, either in presence or using Teams.



For the modules **Thyroid Gland Diseases, Adrenal diseases & Endocrine Hypertension** a collaborative activity for small/medium sized groups (e.g. Discussion of Clinical cases in the presence of a Panel of Discussants) will be organized

Texts

Greenspan's Basic and Clinical Endocrinology, Tenth Edition, Lange textbooks

Williams Textbook of Endocrinology (14th Edition) by Shlomo Melmed, Kenneth Polonsky, P. Reed Larsen, Henry Kronenberg. Elsevier

Gastroenterology Module

Objectives

LEARNING GOALS

Knowledge and understanding:

By the end of the Course, students must have knowledge and understanding skills to be able to describe and correlate the physiopathological aspects as well as the clinical manifestations and consequences of the main gastroenterological diseases.

In particular,

1. They will know the structure and normal functioning of the GI Tract, including liver, pancreas and biliary tract.
2. They will have understood the epidemiology and risk factors for gastroenterological diseases
3. They will know the pathophysiological aspects that characterize the main gastroenterological diseases
4. They will know the systemic consequences of gastroenterological diseases

Application of knowledge and understanding:

At the end of the course, students must be able to apply their knowledge to understanding and solving individual health problems related to gastroenterological diseases

In particular,

1. They will be able to describe and interpret the signs and symptoms related to gastroenterological disease
2. They will be able to identify the most appropriate laboratory and instrumental exams for the diagnosis of gastroenterological diseases
3. They will be able to interpret the laboratory data necessary for the diagnosis and differential diagnosis of gastroenterological diseases
4. They will be able to interpret the results of Radiology, pathology and endoscopy in the diagnosis of gastroenterological diseases

Contents

Esophagus

- Signs and symptoms of Esophageal disease
- Benign esophageal diseases
- Motor Disorders of the Esophagus
- Gastroesophageal Reflux Disease
- Eosinophilic Esophagitis and other rare esophagitis
- Neoplasia of the esophagus
- Medical and surgical management of esophageal diseases

Stomach and Duodenum

- Signs and symptoms
- Helicobacter Pylori Infection & Gastritis and Peptic Ulcer Disease
- Upper GI Tumors
- Upper GI Bleeding
- Proton Pump Inhibitors: From Pharmacology to clinical indication

Pancreas

- Pancreatic Secretion
- Acute & Chronic Pancreatitis
- Pancreatic Adenocarcinoma
- Cystic Neoplasms of the Pancreas
- Neuroendocrine Tumors of the Pancreas

Biliary Tract

- Bile Secretion
- Gallstone Disease
- Autoimmune cholestatic liver diseases
- Tumors of the Biliary Tract

Liver

- From Anatomy to Liver function
- Natural History of liver disease
- Acute and Chronic Viral Hepatitis
- Genetic Liver diseases
- Autoimmune liver diseases
- Drug Induced Liver Injury

- Clinical Diagnosis and Complications of Liver Cirrhosis
- Hepato-Cellular Carcinoma: Diagnosis, staging and treatment

Small and Large Intestine

- Epidemiology and genetic of Colorectal Cancer
- Screening for Colorectal Cancer
- Clinical Presentation and Endoscopic Management of CRC
- Surgical approach to colorectal neoplasia

Teaching Methods

- All modules will be aimed at transferring knowledge to students by guiding them through the most relevant subjects of the disciplines included in the course of Gastroenterology. Students are expected to participate to lectures in a proactive manner and to take notes as part of the learning process. All lectures will be held synchronously, either in presence or using Teams.
- Topics which embrace multiple specialists (GI Neoplasms, Complications of cirrhosis ecc) will be characterized by recorded lessons (including Imaging, Pathology, Surgical, Pharmacology clips) and
- collaborative activities for small/medium sized groups (e.g. Discussion of Clinical cases in the presence of a Panel of Discussants). These sessions will be an opportunity to clarify the doubts related to what is proposed in the asynchronous sessions.

Texts

Unigastro- Digestive Diseases 2019-2022 – Editrice Gastroenterologica Italiana

Norton J. Greenberger, Gastroenterology Hepatology & Endoscopy – Current diagnosis & treatment McGraw Hill

Verification of learning

Written exam is based on a MCQ test divided into 5 blocks of 10 questions for each of the following subjects: Gastroenterology, Endocrinology, Pathology, Pharmacology, and Diagnostic Imaging. To pass the written exam, students must answer at least 60% of all questions, without scoring less than 50% in any specific subject. Scores of the written exam will be based on the number of questions answered correctly as indicated in the table below

% of correct answers	Number of correct answers	Mark
> 80%	> 40/50	28/30
75-80%	38-40/50	26/30



70-74%	35-37/50	24/30
65-69%	32-34/50	22/30
60-64%	30-31/50	20/30
< 60%	< 30/50	Fail

Students who pass the written exam will undergo an oral exam for both Endocrinology and Gastroenterology

Oral Exam Oral exam may add up to 3 additional points to the written exam mark. A poor performance at the oral exam may determine a reduction of the overall mark or the failure of the exam.

Final mark

To pass the exam students must pass both Endocrinology and Gastroenterology.

The final exam mark will be the average of the Endocrinology and Gastroenterology marks.

To obtain the “laude” students will need to score > 80% (> 40/50) of correct answers at the written exam, perform an excellent oral exam and have full marks in both OSCE and PPP Portfolio.