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Degree in Medicine and Surgery
Integrated course: SYSTEMATIC PATHOLOGY I (10 CFU)

SSD : MED/10, MED/11, MED/21, MED/22, MED/23
Coordinator: Francesco Prati

Cardiovascular diseases
MED/11
CFU: 2
Professor's name: Francesco Prati (2 CFU) francesco.prati@unicamillus.org

Respiratory diseases
SSD: MED/10
CFU: 2
Professor's name:
Paola Rogliani (1 CFU) paola.rogliani@unicamillus.org
Coppola Angelo (1 CFU) angelo.coppola@unicamillus.org

Cardiac Surgery
SSD: MED/23
CFU: 2
Professor's name: Ruggero DePaulis ruggero.depaulis@unicamillus.org

Vascular Surgery
SSD: MED/22
CFU: 3
Professor's name: Eugenio Martelli eugenio.martelli@unicamillus.org

Toracic Surgery
SSD: MED/21
CFU: 1
Professor's name: Edoardo Mercadante edoardo.mercadante@unicamillus.org

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PREREQUISITES

Although there are no prerequisites, in order to understand the topics covered in the course, knowledge of human anatomy, histology, microbiology, human physiology and general pathology are required.

LEARNING OBJECTIVE

The aim of the course is to provide the students with the adequate knowledge about epidemiology, etiology, pathogenesis, diagnosis, prognosis and treatment of the cardiac diseases, known to be the main cause of premature deaths. All the cardiovascular diseases, whether ischemic or of different ethiologies, are responsible for reduced quality of life, reduced physical capacity, disability and eventually death. Understanding the pathology and learning how to reach a timely diagnosis will help in achieving the best form of treatment, avoiding progressive worsening of the pathology and of the symptoms. Knowledge of the main diagnostic and/or therapeutic techniques most commonly used in clinical practice completes the course.

Moreover, the course provides to the students with the knowledge of diseases related to the extreme consequences of the main pathology linked to aging, namely atherosclerosis, is central to the training of the modern health worker. In fact, it is important to keep in mind the progressive increase in the average age and the progressive growth of the diabetic "pandemic", which is one of the most serious determinants of atherosclerosis. The knowledge, therefore the prevention and treatment, of peripheral vascular diseases is able to increase the average age of the population (e.g. by preventing the rupture of aortic aneurysms) and to improve their quality of life by avoiding their disability (p. e.g. preventing cerebrovascular accidents and lower limb loss due to gangrene). In recent years, there has been a steady growth in the demand for angiological training by General Medicine, as well as in the demand for mass diagnostic tests (such as ultrasound Doppler), and vascular specialists.

Finally, at the end of the course, the students must demonstrate that they have acquired adequate knowledge of the topics covered by the study program regarding the main clinical, diagnostic and therapeutic aspects of respiratory system diseases.

LEARNING OUTCOMES

Knowledge and understanding

Knowledge of the basic principles of the course, mainly focusing on the diseases, their etiology and pathogenesis, their symptoms, diagnosis and treatment. At the end of the course, the student will be able of:

- know the topics of the course
- know the principles of instrumental and differential diagnostics
- know the fundamental principles of the treatment of the pathologies studied

Applying knowledge and understanding:

Students must be able to apply their knowledge to the understanding and resolution/management of the studied diseases, also regarding new issues and broad and interdisciplinary contexts.

Communication skills

Students must be able to communicate their conclusions, knowledge and rationale concerning the studied diseases, integrating them with scientific language properties.

Making Judgments

Students must have the ability to integrate knowledge and manage complexity, as well as to make judgments based on the acquired information, including surgical indication and decision making.

Learning Skills

Students will develop those learning skills that allow them to continue to study mostly in a self-directed and autonomous way. More specifically, they should be able to collect, organize and critically interpret new scientific knowledge from the various resources and available databases, and identify their training needs, possibly planning self-training courses.

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COURSE SYLLABUS

Cardiovascular diseases

(From the text Hurst 14th edition)

- Atherosclerosis and vulnerable plaque (Chapter 32)
- Coronary Thrombosis, Coronary Blood Flow (Chapter 33)
- Hypertension (Chapter 23)
- Cardiovascular Risk Factors: Diabetes, Hyperlipidemia, Smoking (Chapter 28-29-30)
- Evaluation and Managment of Stable Ischemic Heart Disease (Chapter 43)
- Cardiovascular Pharmacology
- Acute Coronary Syndromes: Definition, Evaluation and Management of Non-ST Segment Elevation Myocardial Infarction and ST-Segment Elevation Myocardial Infarction, Sudden Cardiac Death (Chapter 36, 37, 39, 40)
- Cardiovascular Diagnostics: electrocardiography, electrocardiographic exercise testing, echocardiography, computed tomography, magnetic resonance, cardiac catherization and cardiac angiography
- Heart Failure: pathophysiology, diagnosis and management (Chapter 68, 70, 71)
- Atrial Fibrillation, Atrial Flutter and Atrial Tachycardia (Chapter 83)
- Wolff-Parkinson-White Syndrome Ventricular Arrhythmias (Chapter 85)
- Classification of Cardiomyopathies (CMP), Dilated CMP, Hypertrophic CMP, Restrictive CMP and Arrhytmogenic CMP (Chapter 57, 58, 59, 61, 62)
- Bradyarrhythmias, Pacemakers and Defibrillators (Chapter 86, 89)
- Myocarditis and Pericardial Diseases (Chapter 63, 66)

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Respiratory diseases

1 Introduction to pathologies of the respiratory system. Special anatomy and physiology of the respiratory system, clinical semeiotics of the main symptoms and signs of respiratory diseases: cough, dyspnoea, haemophtoe and chest pain, rales, wheezing, cyanosis, digital hippocratism. Other non-specific symptoms and signs associated with respiratory disease

2 Techniques and basic principles of interpretation of laboratory tests and respiratory physiopathology, respiratory function tests, arterial blood gas analysis and oximetry; walk test; polygraphic monitoring during sleep, clinical semiotics of the main symptoms and signs of respiratory diseases: cough, dyspnoea, haemophtoe and chest pain, rales, wheezing, cyanosis, digital hippocratism. Other non-specific symptoms and signs associated with respiratory disease

3 Respiratory infectious diseases: community acquired (CAP) and nosocomial (HAP) pneumonia, pneumonia in the immunocompromised host, aspiration pneumonia (ad ingestis), lung abscess. Definition, Epidemiology, Main Pathogens, Risk Factors, Pathophysiology, Pathological Anatomy, Clinical and Instrumental Diagnosis, Natural History, Complications and Therapy

4 Pulmonary tuberculosis. Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy

5 Lung Cancer: definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy

6 Acute and chronic respiratory failure. Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy. Oxygen therapy and non-invasive mechanical ventilation: basic principles, indications, side effects.

7 Pulmonary embolism, pulmonary arterial hypertension and other pathologies of the pulmonary circulation: definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy

8 Diffuse infiltrative lung diseases: idiopathic pulmonary fibrosis, sarcoidosis and other pulmonary interstitial diseases; definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy

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9 Bronchial asthma and respiratory immunoallergic diseases: definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy

10 Chronic obstructive pulmonary disease (COPD): definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy

11 Pleural Pathology: pleurisy and pleural effusions; pneumothorax; mesothelioma. Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy. Thoracentesis and management of pleurostomy.

12 Bronchiectasis. Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy.

13 Obstructive sleep apnea syndrome (OSAS). Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy.

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Vascular surgery

1) Atherosclerosis and principles of Hemodynamics.

2) Clinical semiotics and instrumental diagnosis of vascular apparatus and pathologies

3)Peripheral vascular disease.

4) Acute limb ischemia.

5) Cerebrovascular insufficiency.

6) Celiac-mesenteric insufficiency, acute and chronic.

7) Renovascular hypertension.

8) Aortic aneurysms.

9) Peripheral aneurysms

10) Aortic dissections.

11) Vascular trauma.

12) Diseases of the venous system.

13) Diseases of the lymphatic system.

14) Thoracic outlet syndrome.

15) Vasospastic diseases.

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Chest surgery

- Basics of surgical anatomy of chest
- Fundamentals of diagnosis and imaging examinations in thoracic surgery
- Preoperative physiological evaluation
- Chest wall diseases: Pectus deformities, Thoracic outlet syndrome, chest wall tumors
- Pleura: Pneumothorax, Chylothorax, Empyema, Pleural effusion, Solitary fibrous tumors, Malignant pleural mesothelioma
- Trachea: tracheobronchial injuries, stenosis and fistulae, Tracheal tumors
- Mediastinum: Myasthenia gravis, Thymic tumors, Mediastinal germ cell tumors, Lymphomas, and other hematologic diseases
- Lung: Surgery for emphysema, Lung abscess, Lung cancer screening, Solitary pulmonary nodule, Staging
- lung cancer, Lung cancer, Superior sulcus tumors, Carcinoid tumors, Metastatic tumors of the lung
- Esophagus: Benign tumors, esophageal malignancies, Staging, Indications to surgery, Esophageal functional diseases, Differential diagnosis, Decision making process and Indication to surgery of functional diseases of foregut

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Cardiac surgery

1) Ischemic heart diseases. Surgical therapies. Rationale and methodology

2) Valvular disease

Main causes of valve diseases

Congenital, Rheumatic disease, Ischemic disease, Endocarditis, Degenerative

Aortic stenosis

Ethiology, Physiopathology

Diagnosis: Symptoms, Semeiotic, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Valvuloplasty, TAVI, Surgical

Aortic insufficiency:

Ethiology, Physiopathology

Diagnosis: Symptoms, Semeiotic, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, TAVI, Surgical

Mitral stenosis:

Ethiology, Physiopathology

Diagnosis: Symptoms, Semeiotic, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Valvuloplasty, TAMI, Surgical

Mitral insufficiency:

Ethiology, Physiopathology

Diagnosis: Symptoms, Physical examination, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Percutaneous Interventional , Surgical

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Tricuspid insufficiency:

Ethiology, Physiopathology

Diagnosis: Symptoms, Semeiotic, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Percutaneous Interventional , Surgical

Tricuspid stenosis and pulmonary disease

Ethiology, Physiopathology

Diagnosis Symptoms, Semeiotic, Lab. Tests, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Percutaneous Interventional , Surgical

Infective endocarditis

Aneurismi dell' aorta ascendente

Ethiology, Physiopathology

Diagnosis Symptoms, Semeiotic, Lab. Tests, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Percutaneous Interventional , Surgical

3) Congenital disease

Atrial septum defect (physiopathology, diagnosis and treatment)

Ventricular septum defect (physiopathology, diagnosis and treatment)

Tetralogy of Fallot (physiopathology, diagnosis and treatment)

Aortic coarctation (physiopathology, diagnosis and treatment)

Pulmonary atresia (physiopathology, diagnosis and treatment)

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COURSE STRUCTURE

The course is divided into lectures. The teachers use didactic tools such as powerpoint presentation with explanatory diagrams, illustrations and images to describe the pathologies. Attendance is mandatory.

COURSE GRADE DETERMINATION

Students will sustain an oral and written (multiple choice quiz) exhamination. The multiple choice quiz exhamination will be structured with a sinle correct answer to the multiple questions on the selected topics. Questions will be relevant to the topics that are part of the didactic program. Students will provide answers to N 60 multiple choice quiz pertinent to the five subjects of the integrated course. The score will equal 1 for every correct answer. A minimum score of a score of 36 /60 in the multiple choice quiz part is a required to qualify for the oral part. The multiple choice quiz will serve as a barrage to the next oral part. It is during oral test that the Examining Committee will evaluate student's autonomy of judgement (making judgements), communication skills and learning skills of the student according to the Dublin descriptors. The final evaluation will be mainly based on the result of the oral part.

READING MATERIALS

cardiovascula diseases

Hurst's. The Heart, 14 edizione
ESC Textbook of Cardiovacular Medicin

respiratory diseases

Harrison's Principles of Internal Medicine, 20e J. Larry Jameson, Anthony S. Fauci, Dennis

L. Kasper, Stephen L. Hauser, Dan L. Longo, Joseph Loscalzo

Vascular surgery

Handbook of Patient Care in Vascular Diseases (6th edition), by Rasmussen/Clouse/Tonnessen.

Wolters Kluwer (Lippincott Williams & Wilkins Handbook

Chest Surgery

Pocket Manual of General Thoracic Surgery. Amin Madani, Lorenzo Ferri, Andrew Seely (Eds). 2015 Edition. Springer. ISBN-13: 978-3319174969, ISBN-10: 3319174967

Decision making in Thoracic Surgery. An algorithmic approach. Wickii T Vignesvaran, John A Odell. Jaipee The Health Sciences Publisher Ltd. First Edition 2018. ISBN:978-93-5270-038-7

Cardiac Surgery

Cardiac Surgery, Kirklin /Barrat-Boyes. Ed Churchill, Livingstone