



Department of Biomedical Sciences
Physiotherapy Degree Programme
Pathology of the cardiovascular, respiratory and urinary systems Syllabus

Academic year 2020-2021. Academic term: first semester of second year
Course coordinator: Prof. Enrico Heffler

UROLOGY (1 ECTS)

Prof. Nicolò Buffi	Associate Professor of Urology at Humanitas University and urologist at the Urology Unit of Humanitas Hospital E-mail: nicolo.buffi@hunimed.eu
Objectives	The urology module aims to provide essential knowledge of urological pathology in order to integrate physiotherapy with urology. The learning objectives include basic knowledge of urology and the different pathologies that involve physiotherapy.
Teaching methods	Lectures with classroom discussion. At the end of each lesson, questions concerning the topics covered will be discussed and answered.
Teaching material	Slides presented in class, available on the LMS for physiotherapy students F. Porpiglia "Urologia" Edizioni Minerva Medica

Content

1) Lower urinary tract obstructions: prostatic hyperplasia and other causes

Aetiopathogenesis of benign prostatic hyperplasia. Other causes of lower urinary tract obstruction and LUTS. Clinical signs and symptoms. Diagnosis. Therapy

2) Urinary incontinence

Definition. Epidemiology. Types of urinary incontinence and their physiopathogenetic mechanisms. Types of urinary incontinence. Diagnostic methods and therapeutic strategies of incontinence.

3) Urogenital prolapse

Definition. Epidemiology. Aetiology and risk factors. Functional anatomy of the perineum and pelvic floor. Type of prolapse. Symptomatology. Main interventions for various types of prolapse.

4) Prostate cancer (2 hours).

Epidemiology. Risk factors. Clinical forms. Pathological anatomy. Symptoms and signs. Diagnosis. Staging. Screening. Prostate cancer treatment.

5) Renal colic and urolithiasis

Aetiological and diagnostic classification of renal colic. Classification, causes, diagnosis and medical and surgical treatment of urolithiasis

CARDIOLOGY (1 ECTS)

Dr Giuseppe Ferrante	Department of Cardiovascular Medicine, Humanitas Research Hospital. E-mail: giuseppe.ferrante@humanitas.it
Objectives	This module will cover the main pathologies of the cardiovascular system with a pathophysiological approach. Important: the lectures do not cover all cardiovascular diseases. In particular, the following topics will have to be studied independently: rheumatic fever, restrictive and storage cardiomyopathy, congenital heart disease; arterial hypertension; pathologies of the great vessels (aneurysms and dissection of the aorta, inflammatory pathologies)
Teaching methods	Lectures with classroom discussion. At the end of each lesson, questions concerning the topics covered will be discussed and answered.
Teaching material	Lecture slides, available on LMS for physiotherapy students Testo consigliato: Pathophysiology of Heart Disease, di Leonard S. Lilly, 6 th Edition Editore Wolters Kluwer.

Content

1) Ischaemic heart disease

Fundamental principles of the coronary circulation. Definition and pathophysiology of myocardial ischaemia. Epidemiology, classification and clinical presentation of the different coronary syndromes. Diagnostic and therapeutic pathway of coronary syndromes.

2) Heart failure and cardiomyopathies

Definition and epidemiology of heart failure. Aetiology, classifications and pathophysiology of heart failure, and the distinction between left ventricular systolic and diastolic dysfunction. Symptoms and signs of heart failure. Diagnostic pathway and fundamentals of heart failure treatment. Fundamentals of dilated and hypertrophic cardiomyopathy.

3) Heart Valve Disease

Heart valve dysfunction, in particular of the aortic and mitral valves: definition pathophysiology and epidemiology. Fundamentals of the diagnostic pathway and therapy of the main heart valve diseases.

4) Endocarditis, Myocarditis, Pericardial diseases

Definition and epidemiology of endocarditis, myocarditis and pericardial diseases. Aetiology, pathophysiology and clinical presentation of endocarditis, myocarditis and pericardial disease, in particular acute pericarditis, with emphasis on differential diagnosis with acute coronary syndrome. Diagnostic pathway of endocarditis, myocarditis and pericardial diseases. Treatment of endocarditis, myocarditis and pericardial diseases.

5) ECG and arrhythmias

Normal ECG. Definition and classification and clinical features of the main arrhythmias: bradycardia, tachycardia, supraventricular arrhythmias and ventricular arrhythmias. Fundamentals of cardiac arrhythmia treatment and defibrillation in case of cardiac arrest.

PNEUMOLOGY (2 ECTS)

Prof. Enrico	Associate Professor in Diseases of the Respiratory System at Humanitas
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Marco Heffler	University. Specialist in Allergology and Clinical Immunology, he works at the Centre for Asthma and Allergology at Humanitas Hospital. E-mail: enrico.heffler@hunimed.eu
Objectives	The respiratory system diseases module aims to provide essential knowledge of physiology, pathophysiology and clinical aspects of the main respiratory system diseases, with a focus on clinical situations for which physiotherapy approaches can assist in the overall management of the patient.
Teaching methods	Lectures with classroom discussion. At the end of each lesson, questions concerning the topics covered will be discussed and answered.
Teaching material	Slides presented during the lectures, available on LMS for physiotherapy students E.M.Clini, G.Pelaia - Manuale di Pneumologia - EdiSES 2017

Content

1) Anatomy and physiology of the respiratory system

Upper and lower airways. Pulmonary parenchyma. Breathing and gas exchange. Respiratory mucosa and mucociliary clearance. Nervous and chemical control of respiration. Approach to the patient with respiratory pathologies (anamnesis, physical examination, main symptoms).

2) Main pneumological diagnostic tests

Respiratory function tests (spirometry, plethysmography, pharmacological bronchodilation test, bronchial provocation test, exhaled nitric oxide measurement, DLCO).

3) Respiratory physiotherapy (pulmonary rehabilitation)

Respiratory disability (definition and main causes). Rehabilitation approach to the patient with respiratory disability. Objectives of respiratory physiotherapy. Gait test (6MWT). Bronchial clearance techniques. Exercise reconditioning. Psychological support. Nutritional support.

4) Bronchial asthma

Definition and epidemiology of bronchial asthma. Risk factors. Atopy and allergy. Concept of "united airway disease". Comorbidities of asthma. Symptoms of asthma. Anamnesis and physical examination. Spirometry diagnosis. Measurement of bronchial inflammation. Pathological anatomy of asthma. Asthma phenotypes. Classification of severity. Concept of "control". Principles of treatment. Severe asthma.

5) Chronic obstructive pulmonary disease (COPD)

Definition of COPD. Risk factors. Pulmonary emphysema and chronic bronchitis. Mechanisms of tissue damage. Pathological anatomy. Typical symptoms. Severity classification. Spirometry diagnosis. Asthma-COPD Overlap Syndrome (ACOS). Main comorbidities. Principles of treatment. Respiratory physiotherapy in COPD.

Lecture 6: Bronchiectasis and cystic fibrosis

Bronchiectasis: definition, risk factors, typical symptoms, concept of "exacerbation", anatomical classification, aetiological classification, diagnostic methods, etiopathogenetic mechanisms, comorbidities, concept of airway "colonisation", radiological aspects, principles of treatment, respiratory physiotherapy.

Cystic fibrosis: pathogenesis, clinical manifestations, diagnostic methods (sweat tests, genetic tests), principles of treatment, respiratory physiotherapy.

7) Infectious pneumonias

Alveolar (typical) and interstitial (atypical) pneumonias; Community-acquired, nosocomial, in the immunocompromised; Epidemiology and risk factors of infectious pneumonias; Main aetiological

agents; Anatomical pathological aspects; Clinical course; Diagnostic procedures; Principles of treatment.

8) Interstitial lung disease

Definition and classification; Aetiopathogenesis; Typical clinical features; Diagnostic approach; Idiopathic pulmonary fibrosis as a typical example of interstitial lung disease; Other interstitial lung disease (sarcoidosis, pneumoconiosis, hypersensitivity pneumonitis); Treatment principles; Physiotherapeutic approach

9) Sleep apnoea

Definition and classification; Aetiopathogenesis; Typical clinical features; Diagnostic approach; CPAP and other therapeutic approaches; Physiotherapeutic approach.

10) Respiratory failure

Definition and classification; Aetiopathogenesis; Typical clinical features; Diagnostic approach; Haemogas analysis; Pathologies associated with respiratory failure; Therapeutic approaches; Physiotherapeutic approach.

Examination for the pathology of the cardiovascular, respiratory and urinary systems course. Written examination with multiple-choice questions on the topics of the course (Chairman of the Examination Committee: Prof. Enrico Heffler).