MEDICINE AND SURGERY

Course: Clinical Immunology and Dermatology

Year: 4th

Period: 2nd semester

Credits: 4

Objectives

This course addresses the field of Dermatology, Clinical Immunology and Rheumatology and corresponding diseases.

In the Dermatology module, starting from skin anatomy and physiology, the course will proceed to describe the elementary lesions of skin diseases and their clinical significance. The course will cover the majority of common dermatological diseases including inflammatory skin diseases, bullous skin diseases, infectious skin diseases, genetic skin diseases and skin cancer.

In the Clinical Immunology and Rheumatology module, the bases of immune-medianted conditions will be addressed moving from the approach to patients with a rheumatological conditions to the use of diagnostic and therapeutic tools to the discussion of specific conditions. Allergy and immunodeficiencies will also be discussed.

This combined course of Dermatology and Rheumatology will provide the essential core knowledges that are fundamental to understand dermatologic and rheumatologic disease and their interconnections with the human system.

At the end of the course should be able to recognize common ermatologic and rheumatologic disease and to provide specific indications on diagnostic and therapeutic approaches.

Prerequisites

A good Knowledge of Anatomy, Histology, Physiology and General Pathology is required.

Contents

Module of Dermatology

(Main topics to learn)

Topic 1. Approach to Dermatologic Diagnosis

Learning goals:

Recall the general concept of skin anatomy, functional areas.
Describe anatomic organization of horny layer.
Define the concept of skin immunology.
Explain barrier function
Recognize primary and secondary elementary skin lesions
Use the correct terminology to describe primary and secondary elementary skin lesions

Topic 2. Genodermatoses

Learning goals:

Describe genetic skin diseases with particular focus on epidermolytic diseases, ectodermal dysplasias and Ichtyosis
Define pathogenesis and differential diagnostic criteria
Recognize and describe lesions from clinical cases
Understand the principles of systemic and topical therapy

Topic 3. Non-Melamnoma Skin Cancers

Learning goals:

Recall the mains from non-melanoma skin cancers (BCC, SCC,)
Describe non-melanoma skin cancer prevention
Recognize and describe lesions from clinical cases
Explain the clinical management and main treatment therapies

Topic 4. Nevi and melanoma

Learning goals:

Explain pathogenesis and clinical manifestations of:
- Benign Neoplasias and Hyperplasias of Melanocytes
- Atypical (Dysplastic) Melanocytic Nevi
- Cutaneous Melanoma

Recognize and describe melanocytic lesions
Describe diagnostic and therapeutical approaches for benign and malignanyt melanocytic disorders

Topic 5. Atopic Dermatitis

Learning goals:

Describe the major clinical features leading to the suspect of atopic dermatitis;

Understand the epidemiology, pathogenesis, and differential diagnosis of atopic dermatitis
Understand the differential diagnosis of atopic dermatitis (e.g. allergic contact dermatitis);
Understand the major findings that are helpful in the diagnosis and management of patients;
Understand the therapeutic approach to atopic dermatitis with a specific focus on topical, systemic and biologic therapies ;

Topic 6. Bullous Diseases

Learning goals:

Describe Bullous skin diseases (particularly Pemphigus and Bullous Pemphigoid)
Understand the epidemiology, pathogenesis, and differential diagnosis of Bullous skin diseases
Recognize and describe lesions from clinical cases
Understand the principles of systemic and topical therapy

Topic 7. Acne and Hair Follicles diseases

Learning goals:

Describe diseases of cutaneous adnexa (particularly Acne and Alopecia)
Understand the epidemiology, pathogenesis, and differential diagnosis of Bullous skin diseases
Recognize and describe lesions from clinical cases
Understand the principles of systemic and topical therapy

Topic 8. Infectious skin diseases and Sexually transmitted diseases

Learning goals:

Describe pathogenesis and clinical manifestations of the following infectious disorders:
Syphilis
Endemic (Nonvenereal) Treponematoses
Chancroid
Lymphogranuloma Venereum
Granuloma Inguinale
Gonorrhea, Mycoplasma, and Vaginosis
Leishmaniasis and Other Protozoan Infections
Helminthic Infections
Scabies, Other Mites, and Pediculosis
Bites and Stings of Terrestrial and Aquatic Life
Arthropod Bites and Stings
Describe clinical and therapeutical Approach to patients affected by these infectious diseases.

Topic 9. Psoriatic Disease

Learning goals:

Describe the major symptoms/syndromes leading to the suspect of psoriatic disease;
Understand the epidemiology, pathogenesis, and differential diagnosis of psoriatic disease;
Understand the differential diagnosis of psoriatic disease;

Understand the major findings that are helpful in the diagnosis and management of patients;
Understand the therapeutic approach to psoriatic arthritis with a specific focus on systemic and biologic therapies.

Topic 10. Cutaneous lymphomas

Learning goals:

Describe the major cutaneous manifestations leading to the suspect of B cell an T cell primary cutaneous lymphoma (particular focus on diagnosis of Mycosis fungoides);
Understand the epidemiology, pathogenesis, and differential diagnosis of cutaneous lymphomas;
Understand the differential diagnosis of cutaneous lymphomas;
Understand the major histopatological and clinical findings that are helpful in the diagnosis and management of patients;
Understand the therapeutic approach to cutaneous lymphomas with a specific focus on systemic and biologic therapies.

Topic 11. Dermatology of dark skin

Learning goals:

Describe differences in skin lesions appearing of different phototypes
Recognize and describe skin diseases on dark skin
Lepromarosis and Atypical Mycobacteriosis

Module of Rheumatology and Clinical Immunology

(Main topics to learn)

Topic 1. Introduction to Rheumatology: approach to the patient with rheumatic diseases

Learning goals:

Identify the major features of patients attending a rheumatology clinic;
Formulate possible differential diagnoses;
Determine the best areas for specific diagnostic tests (lab and imaging)
Describe the major symptoms/syndromes leading to the suspect of arthritis, vasculitis, connective tissue disease;
Discriminate between diagnostic and classification criteria

Topic 2. Introduction to Rheumatology: biomarkers

Learning goals:

Identify the major serum patterns and lab abnormalities of patients attending a rheumatology clinic;
Formulate possible differential diagnoses based on lab results;
Determine the ideal lab tests based on the clinics;
Describe the established associations between autoantibodies and disease

Topic 3. **Introduction to Rheumatology: medical treatments**

Learning goals:

> Identify the major characteristics of the treatments used in the rheumatology setting;
> Describe the indications and contraindications of steroids and NSAIDs;
> Describe the mechanisms of action, indications and contraindications of DMARDs;
> Describe the mechanisms of action, indications and contraindications of biologics and small molecules;
> Describe the impact of comorbidities on treatment choices

Topic 3. **Rheumatoid arthritis.**

Learning goals:

> Determine the epidemiology and risk factors of rheumatoid arthritis, seronegative and seropositive;
> Determine the pathogenesis of rheumatoid arthritis, seronegative and seropositive, with a specific focus on autoantibodies, TNFalpha, IL6, JAKs;
> Understand the differential diagnosis of rheumatoid arthritis;
> Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients with rheumatoid arthritis;
> Understand the therapeutic approach to rheumatoid arthritis with a specific focus on recommendations / guidelines;

Topic 4. **Back pain and ankylosing spondylitis**

Learning goals:

> Describe the major symptoms/syndromes associated with back pain;
> Define spondyloarthritis;
> Understand the epidemiology, pathogenesis, and differential diagnosis of ankylosing spondilytis and spondyloarthritis;
> Understand the differential diagnosis of ankylosing spondilytis and spondyloarthritis;
> Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients;
> Understand the therapeutic approach to ankylosing spondilytis and spondyloarthritis with a specific focus on recommendations / guidelines;

Topic 5. **Reactive and IBD-associated arthritis**

Learning goals:

> Describe the major symptoms/syndromes leading to the suspect of reactive arthritis;
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> Describe the major symptoms/syndromes leading to the suspect of IBD associated arthritis;

Understand the epidemiology, pathogenesis, and differential diagnosis of reactive, enteropathic arthritis;

Understand the differential diagnosis of reactive, enteropathic arthritis;

Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients;

Understand the therapeutic approach to reactive, enteropathic arthritis with a specific focus on recommendations / guidelines;

Topic 6. Psoriatic disease

Learning objectives

Describe the major symptoms/syndromes leading to the suspect of psoriatic arthritis;

Understand the epidemiology, pathogenesis, and differential diagnosis of psoriatic arthritis;

Understand the differential diagnosis of psoriatic arthritis;

Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients;

Understand the therapeutic approach to psoriatic arthritis with a specific focus on recommendations / guidelines;

Topic 7. Connective tissue diseases: systemic lupus erythematosus

Learning goals:

Describe the groups of connective tissue disease (i.e. systemic lupus, scleroderma, inflammatory myositis, Sjogren syndrome, undifferentiated and mixed connective tissue disease) and their peculiar features;

Understand the epidemiology, pathogenesis, and differential diagnosis of systemic lupus erythematosus;

Understand the differential diagnosis of systemic lupus erythematosus;

Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients with systemic lupus erythematosus;

Understand the cardiovascular, neoplastic, obstetric, and thrombotic complications of systemic lupus erythematosus

Understand the therapeutic approach to systemic lupus erythematosus;

Topic 8. Connective tissue diseases: systemic sclerosis

Learning goals:

Understand the epidemiology, pathogenesis, and differential diagnosis of systemic sclerosis;

Understand the therapeutic approach to systemic sclerosis;

Understand the differential diagnosis of systemic sclerosis;

Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients with systemic sclerosis;

Understand the cardiovascular, neoplastic, obstetric, and thrombotic complications of systemic sclerosis

Topic 9. Connective tissue diseases: polymyositis / dermatomyositis

Learning goals:

Understand the epidemiology, pathogenesis, and differential diagnosis inflammatory myositis;

Understand the therapeutic approach to inflammatory myositis;

Understand the differential diagnosis of inflammatory myositis;

Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients with inflammatory myositis;

Understand the cardiovascular, neoplastic, obstetric, and thrombotic complications of inflammatory myositis

Topic 10. Connective tissue diseases: Sjogren's syndrome

Learning goals:

Understand the epidemiology, pathogenesis, and differential diagnosis of Sjogren's syndrome;

Understand the therapeutic approach to Sjogren's syndrome;

Understand the differential diagnosis of Sjogren's syndrome;

Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients with Sjogren's syndrome;

Understand the cardiovascular, neoplastic, obstetric, and thrombotic complications of Sjogren's syndrome

Topic 11. The mechanisms of localized and generalized pain

Learning goals:

Understand the mechanisms and pathways leading to pain sensitivity;

Describe the diagnostic and therapeutic approach to localized and generalized pain syndromes;

Understand the features of fibromyalgia and chronic fatigue syndrome with particular attention to the differential diagnosis and therapeutic approaches;

Topic 12. Articular cartilage disease: self distruction and others

Learning goals:

Describe the major symptoms/syndromes leading to the suspect of osteoarthritis and its complications;

Describe the risk factors for osteoarthritis;

Understand the differential diagnosis of osteoarthritis;

Understand the epidemiology, pathogenesis, and differential diagnosis of osteoarthritis;

Understand the therapeutic approach to osteoarthritis, including non pharmacological treatments;

Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (arthrocentesis, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients with osteoarthritis;

Understand the cardiovascular and metabolic comorbidities of osteoarthritis

Topic 13. Immunodeficiencies

Learning goals:

Describe the major symptoms/syndromes leading to the suspect of acquired and congenital immunodeficiency;

Understand the classification of acquired and congenital immunodeficiency;

Understand the epidemiology, pathogenesis, and differential diagnosis of acquired and congenital immunodeficiency;

Understand the therapeutic approach to acquired and congenital immunodeficiency, including the prevention of infections;

Understand the major laboratory findings that are helpful in the diagnosis and management of patients with acquired and congenital immunodeficiency;

Topic 14. Vasculitidies

Learning goals:

Describe the major symptoms/syndromes leading to the suspect of vasculitis;

Understand the new classification of vasculitidies;

Understand the epidemiology, pathogenesis, and differential diagnosis of vasculitidies;

Understand the therapeutic approach to vasculitidies, including non pharmacological treatments;

Understand the major imaging (X ray, CT, MRI, ultrasound), invasive (vascular biopsy, etc), and laboratory (autoantibody, CRP) findings that are helpful in the diagnosis and management of patients with vasculitidies;

Understand the systemic complications and sequelae of vasculitidies

Teaching Methods:

Lectures including "flipped classrooms", case discussions and practicals, seminars. During the academic year, some topics of both modules including melanocytic lesions and atopic dermatitis will be given as flipped classroom. After a 1-hour lecture, the students will be asked to describe the elementary lesions that charatcterize these two groups of skin diseases from a set of simulated clinical cases. In addition, the students will have to be able to formulate a diagnostic hypothesis given the clinical features of each simulated patient. Students are encouraged to actively participate to the lectures with questions and comments.

Verification of learning

Assessment of the content of this course will be evaluated with a final exam composed of a written multiple-choice question test followed by an oral exam. The written examination will be evaluated with a score from 0 to 30. In case the candidate will obtain a score below 25/30 in the written examination, the candidate will have to sustain the oral exam. In case the candidate will obtain a score equal to or above 25/30 in the written test, the oral exam will be at discretion of the candidate. In both cases, if the candidate takes the oral exam, the score obtained in the written test might be confirmed or changed (with an inferior or superior score) based on the oral exam performance.

Content of written test (30 questions): dermatology (15), rheumathology (15). Questions will include the whole program of the course.

Oral exam evaluation: oral discussion about topics from the Dermatology and Rheumatology and Clinical Immunology program of the course starting from one clinical case discussion.

Texts

Dermatology
Sewon Kang et al.
Fitzpatrick's Dermatology,
9th Edition, 2-Volume Set (Fitzpatricks Dermatology in General Medicine)
McGraw-Hill Education, 2019

Klauss Wolff, Richard Johnson
Fitzpatrick's color atlas & synopsis of clinical dermatology
8th Edition
McGraw-Hill Education, 2017

Rheumatology
Oxford Textbook of Rheumatology, 4th edition, 2013; Edited by Richard A. Watts, Philip G. Conaghan, Christopher Denton, Helen Foster, John Isaacs, and Ulf Müller-Ladner

EULAR Textbook on Rheumatic Diseases:
http://www.eular.org/index.cfm?framePage=/edu_textbook.cfm
Review articles provided during the course.

Clinical Immunology and Allergy
Specific sections on the Harrison's principles of Internal Medicine