MEDTEC SCHOOL

Course: Dermatology, Infectious disease, Rheumatology

Year (1st-2nd-3rd-4th-5th-6th): 5th

Period (1st-2nd semester annual): 2nd semester

Credits: 7

Objectives

This integrated course includes three sections, i.e. dermatology, infectious diseases, and rheumatology and clinical immunology. The goal of the course will be to provide the essential information from the three areas while integrating the shared features and conditions, particularly related to immunology and common treatments or complications, well embedded in the spectrum of internal medicine. Dedicated lessons will be held by two teachers from different modules to highlights the common grounds of the three subjects.

In the Dermatology module, starting from skin anatomy and physiology, the course will proceed to describe the elementary lesions of dermatologic disease and their diagnostic significance in different skin affections. The course will cover all major dermatological diseases such as inflammatory skin diseases, bullous skin diseases, infective skin diseases, congenital and genetic skin diseases and skin cancer.

In the Infectious disease module the teaching will move from the relationship to infectious agents, host and the environment in causing colonization, infection and disease to apply basic infection control interventions and understand the principles of antibiotic use and stewardship. Further, students will be required to analyze the diagnostic dilemmas and management opportunities of a broad range of major syndromes affecting the neurological, respiratory, cardio-vascular, digestive, bone and joint and urinary systems. Finally, the clinical and public health implications of major global endemic diseases, including HIV/AIDS, tuberculosis and malaria will be discussed,

In the Rheumatology and Clinical Immunology module, the bases of immune-mediated conditions will be addressed moving from the approach to patients with a rheumatological condition to the use of diagnostic and e arfr4/F4 4res4JET[ )]TJE-4b-9(re31(2n 0 0 1 436.87267edMCID 82pβ.9 659.5 T ot)4(teiMCI

Lesson contents / learning objectives

DERMATOLOGY

1. Introduction to Dermatology and approach to the dermatologic patient (2 hours):

- Know the basic principles of skin anatomy and histology
- Identify the basic characteristics of patients coming to dermatologic visit;
- Describe the skin elementary lesions
- Propose possible differential diagnosis
- Determine the need for dermoscopic, histologic or other examinations
- Define the general indications for skin excisional surgery

2. Diagnostics, lasertherapy and technological innovation in Dermatology (2 hours):

- Know the basic principles of dermoscopy and total body photography and their role in differential diagnosis and follow up
- Identify the most common dermoscopic patterns of pigmentary lesions and non-melanoma skin cancers;
- Understand when to ask for a skin biopsy or a complete surgical excision
- Know the principles of the most common surgical procedures
- Project a correct wound defect reconstruction
- Know the basic principles and indications of the most common lasers used for surgical and cosmetical dermatology
- Know the basic principles of confocal microscopy, optical coherence tomography, raster scan optoacoustic mesoscopy and their current and potential role in clinical practice
- Know the current and potential use of artificial intelligence in dermatology
- Learn the basic principles and clinical indications of lasers in dermatology

3. Therapies in dermatology (2 hours)

- Identify the major characteristics of the most common treatments used in the dermatology setting;
- Describe the indications and contraindications of topical and systemic steroids;
- Describe the mechanisms of action, indications and contraindications of sTs5rence tomography, raster

5. Cutaneous adverse drug reactions (2 hours):

- Know the most common causes and manifestations of adverse skin drug reactions (Drug-related Maculo-papular rash, Urticaria and Angiodema, Erythroderma, Steven-Johnson syndrome and toxic epidermal necrosis, Fixed drug eruption , Dress syndrome, Acute generalized exanthematous pustulosis, Graft-versus-Host Disease)
- Propose a differential diagnosis;
- Understand when to hospitalize a patient with an adverse cutaneous drug reaction
- Know when to perform blood tests and skin biopsies
- Learn the basic principles for managing cutaneous adverse drug reactions

6. Bullous disorders (2 hours):

- Describe the groups of bullous disorders;
- Understand the pathogenesis and the most common histological findings of bullous disorders
- Understand the role of autoantibodies in bullous disorders
- Propose a diagnosis on the base of the clinical manifestations and histology
- Learn the principles of management of bullous disorders

7. Pigmentary, sebaceous and adnexal disorders (2 hours):

- Know the biology of melanocytes
- Understand the epidemiology and pathogenesis of pigmentary disorders
- Know principles of differential diagnosis of pigmentary disorders
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- Learn the Pathogenesis, clinics and epidemiology of Squamous Cell Carcinoma
- Learn the Pathogenesis, clinics and epidemiology of Basal Cell Carcinoma and hedgehog pathway
- Know the most common Benign Epithelial Tumors, Hamartomas, and Hyperplasias
- Learn the Pathogenesis, clinics and epidemiology of Squamous Cell Carcinoma
- Know Principles of Field and lesion-directed therapies for actinic keratosis and field of cancerization
- Understand the correct approach to Clinical and dermoscopic differential diagnosis of non-melanoma skin cancers
- Learn the most important concepts on Immunotherapy and hedgegog inhibitors for non-melanoma skin cancers

10. Cutaneous Lymphomas (

3. Central nervous System Infections (2 hours)

- Acute bacterial meningitis. Deepened knowledge of the disease. Epidemiology, microbiology, pathogenesis, clinical features, diagnosis, principles of treatment, chemoprophylaxis
- Viral infections of the CNS. Epidemiology, microbiology, clinical features, diagnosis, principles of treatment

4. HIV, AIDS (2 hours)

- History and social stigma. Deepened knowledge of the disease. Pathogenesis, diagnosis, clinical presentation, principles of therapy
- AIDS-
- Pneumocystis jirovecii pneumonia, cytomegalovirus infection, toxoplasmosis, progressive

and principles of therapy

5.

- Malaria. Deepened knowledge of the disease. Epidemiology, control strategies, parasite life cycle, clinical findings, diagnosis, principles of treatment, prophylaxis
- Epidemiology, microbiology, clinical presentation. Diagnosis and principles of treatment of:
- Rickettsiosis
- Brucellosis
- Leishmaniosis
- Lyme disease
- American and African trypanosomiasis

11. Emerging Infectious Diseases (2 hours)

- Epidemiology, transmission, knowledge of the main clinical features and key-points of the different diseases. Principles of diagnosis.
- West Nile
- Zika Virus
- Ebola
- Dengue
- Chikungunya

12. Appropriate use of antibiotics (2 hours)

- Classes, pharmacokinetics and pharmacodynamics of antibacterial agents
- Principle of correct use of antibiotics
- Interpretation of antibiotic susceptibility test

RHEUMATOLOGY AND CLINICAL IMMUNOLOGY

1. Introduction to Rheumatology: approach to the patient with rheumatic diseases (2 hours)

- 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

2. Introduction to Rheumatology: biomarkers (1 hour)

- 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

3. Introduction to Rheumatology: medical treatments (1 hour)

- 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

4. Rheumatoid arthritis (2 hours)

- 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;

5. Back pain and spondyloarthritis (1 hour)

- 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

- 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;

12. Degenerative cartilage disease (2 hours)

- 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

13. Immunodeficiencies (2 hours)

- 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;

JOINT LECTURES

1. Cutaneous and Soft tissue Infections (Dermatology + Infectious disease, 2 hours)

- Knowledge of the main clinical features and key-points to distinguish the different forms of skin and soft tissue infections. Epidemiology, diagnosis, principles of treatment
- Impetigo, Cellulitis, Erysipelas
- Staphylococcal Toxic Shock Syndrome
- Necrotizing fasciitis and gas gangrene
- Animal bite infection

- Learn the correct approach to diagnose and treat the exanthematous diseases
- Diagnose and manage Erisipela and cellulitis

2. Infectious and sexually transmitted diseases (Dermatology + Infectious disease, 2 hours)

- Learn pathogenesis,epidemiology and clinics of sexual transmitted diseases (Syphilis, HPV infections, Herpes virus infections)
- Principles of diagnosis and treatment of sexual transmitted diseases
- Learn the differential diagnosis and treatment of yeast infections
- Learn the differential diagnosis and treatment of infestations (scabies and pediculosis)

3. Bone and joint infections (Rheumatology + Infectious disease, 2 hours)

- Haematogenous and nonhaematogenous osteomyelitis: pathogenesis, clinical findings, diagnosis and principles of treatment
- Infective ar*thritis:* Clinical findings, diagnosis, treatment of septic arthritis

4. **Psoriatic disease (Dermatology + Rheumatology, 2 hours)**

From the dermatology viewpoint:

- Psoriasis epidemiology and pathogenesis
- Distinguishing the different clinical forms of psoriasis
- Basic principles of psoriasis management based on the most recBT/F4/MCID 47/Lang (en-US)>BDC q0.0

Assessment

Assessment of the knowledge of the contents of this course will be evaluated with a final exam composed of a written multiple-choice question test followed by an oral exam when indicated.

Content of written test (60 questions): dermatology (20), infectious diseases (20), rheumathology (20). Questions will include the whole program of the course as well as clinical vignettes with suggested diagnostic or therapeutic decisions being most likely. The written examination will be evaluated with a score from 0 to 30 by adding 0.5 points with each correct answer.

In case the candidate obtains a score below 18/30 in the written exam, the exam will be failed and no oral exam will be allowed.

In case the candidate obtains a score below 25/30 in the written exam, she/he will have to necessarily sustain the oral exam of all three sections and a positive evaluation must be obtained in all to pass.

In case the candidate obtains a score equal to or above 25/30 in the written test, the oral exam will be at discretion of the candidate.

Oral questions will refer to all topics from program of the course and will also include clinical case discussions.

In all cases, if the candidate takes the oral exam, the score obtained in the written test might be confirmed or changed (becoming higher or lower