TUBERCULOSIS AND OTHER MYCOBACTERIOSES

CU characterization:

CU name:
Tuberculosis and other Mycobacterioses

Scientific area acronym:
BM

Duration:
Semiannual

Working hours:
78

Contact hours:
23

ECTS:
3

Observations:
Mandatory CU

Teacher in charge and respective teaching load in the CU:
Miguel Viveiros – 8 hours

Other teachers and respective teaching load in the CU:
Ana Armada - 3 hours
Cláudia Conceição - 3 hours
Diana Machado - 6 hours
Isabel Couto - 6 hours
Jorge Ramos - 6 hours
Liliana Rodrigues - 3 hours

Intended learning outcomes (knowledge, skills and competences to be developed by the students):
After this unit, students should be able to:

1. To know the biological characteristics of the etiological agent of TB and other mycobacterial infections.
2. To understand the global epidemiology of tuberculosis (TB) and other mycobacterial infections.

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Intended learning outcomes (knowledge, skills and competences to be developed by the students): (continuation)

3. To understand the role of the mycobacteriology laboratory in the health system and in the prevention of the transmission of resistant strains and their interconnection with the co-infection with HIV.

4. To understand and describe the imunofisiopathology of mycobacterial infections associating it with the clinical manifestations of different forms of TB.

5. To acquire good biosecurity practices in the handling of resistant strains, in determining their resistance and how to manage TB laboratories with quality control.

6. To master the classic techniques of laboratorial mycobacteriology, theoretical and practical knowledge of the laboratory diagnosis of TB, leprosy and other mycobacterial infections.

Syllabus:

I. Clinical, epidemiological and therapeutic aspects of tuberculosis and other mycobacterial infections

II. Genus *Mycobacterium*. Cell wall and pathogenesis, diagnosis, resistance and rational drug development

III. Emerging human Mycobacteriosis

IV. Multi-resistant TB and extensively drug-resistant. Biosafety measures in mycobacteriology laboratories

V. General March of the Mycobacteriological Diagnosis: collection and transport of products, staining, decontamination and concentration, culture techniques. Antibiotic susceptibility assays. Quality control in the laboratory

VI. Immunology of Tuberculosis: protective immunity against tuberculosis. Immunological mechanisms triggered by vaccination with BCG. Immune response to infection with *M. avium* in immunosuppressed patients.

VII. Theoretical-practical and practical classes: Sample processing for recovery of mycobacteria and culture techniques. Methods for Identification. Susceptibility testing to antibiotics.

Teaching methodologies (including assessment):

1) Lectures, slide show based, accompanied with indication of complementary bibliography.

2) Theoretical-practical classes, with presentation and resolution of practical cases of application of some of the methodologies addressed to cases of diagnosis/monitoring/characterization of mycobacterial infections and characterization of their drug resistance profile.

3) Laboratory classes, based on the resolution of case-study based on clinical or laboratory cases.

Assessment is performed by a written exam to students that attended at least 2/3 of classes.

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References for consultation / mandatory existence:

- Portugal, I. & Viveiros M. (2014) Mycobacterium In: Microbiologia Médica, António Meliço-Silvestre, Helena Barroso e Nuno Taveira (Eds), Lidel, Edições Técnicas, Lisboa, Portugal. ISBN: 9789727575763.
- Murray, P.R., Rosenthal, K.S., Pfaller M.A. (2013) Medical Microbiology, 7th Edition. Elsevier-Mosby-Saunders, St. Louis, EUA. ISBN: 978-0-323-08692-9.
- McHugh, T. D. (2012) Tuberculosis: Advances in Molecular & Cellular Microbiology, C A B Intl Press, London, UK. ISBN: 978-1845938079.
- Viveiros M. & Atouguia J. (2008) Tuberculose – Saúde Tropical. Edição Universidade Aberta. ISBN:978-972-674-494-8.
- Palomino J. C., et al (2007) Tuberculosis 2007 - From basic science to patient care, First Edition, 687 pp.