UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Applied Medical Techincal Sciences A

2425-4-H4101D020-H4101D081M

Aims

Learn fondamental of the pharmacological properties of diagnostics medicinal products. Objectives include fundamental of pharmacokinetics, pharmacodynamics, safety and regulatory aspects related to their use in Radiology and Nuclear Medicine. Basic principle development and use of radiotheranostic agents. Introduction to the use of Molecular Neuroimaging in clinical practice and research

Contents

Pharmacology of diagnostic medicinal prodiucts and in particular: pharmacokinetics, pharmacodynamics, safety and regulatory aspects related to their use in Radiology (Iodinated contrast agents, Gadolinium containing contrast agents and ultrasound contrast agents) and Nuclear Medicine (radiopharmaceuticals for diagnostic and therapy) and description of radiotheranostic approach for the cure of cancer. Introduction to the use of Molecular Neuroimaging in clinical practice and research

Detailed program

Pharmacology of Diagnostic Medicinal Products
-Radiological contrast media (Iodinated contrast agents, Gadolinium containing contrast agents and ultrasound contrast agents) : mechanism of action, pharmacokinetics and safety; risk management in contrast media administration in relation to patients, intervention and department oragnization.
-Radiopharmaceuticals for diagnostic and therapeutic use: radionuclides and radiation emitted, bilogical and kinetics requirement, mechanism of action, kinetics of biodistribution and safety; basic concept of radiotheranostic in precision medicine, potential advantages, clinical application and future development.
-Regulatory affairs relative to classification and reimbursement, guide line and Summury of Prodict characteristic

AIFA or EMA focused on off label use and differences between contraindication and precautions for use.
-Introduction to the potential use of Neuroimaging in clinical research
Gender related differences on farmachokinetics properties and tollerability of radiological contrast media; application of Neuroimaging to the study of sex or gender related neurobiology

Prerequisites

Basic knowledge on chemistry, physics and physiology and pharmacology that will be presented during the course if necessary

Teaching form

Lessons will be provided in presence with 10 hours of lesson and 2 hours of interactive teaching organized as questions and answers on the topics presented during the course

Textbook and teaching resource

Slides presented during the course, quiz for self evaluation, gide line, SPC AIFA, paper (neurosciences, gender differences)

Semester

Second semester

Assessment method

see general Syllabus of the Course

Furthermore: evaluation with oral self-assessment test performed during the course; (closed questions or multiple choice) discussed during the course; to test the ongoing learning skills, students will receive a list of question on the various lessons presented; in addition, to verify the exact understanding of the methods presented to answer specific scientific question, guide line, papers and regolatory documents for a bettere understanding of risk minimization will be provided and discussed in class.

Evaluation criteria: theoretical knowledge, ability in the application of diagnostic methods to a specific clinical or experimental contest.

Office hours

By Agreement with the teacher (email: rosa.moresco@unimib.it)

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY | REDUCED INEQUALITIES