UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Pharmacology - 1

2526-1-I0102D005-I0102D015M-T1

Aims

The main objective of the course is to give the students the basic criteria that need to be applied for a correct pharmacological therapy according to evidence-based medicine. Initially, the student must acquire an integrated view of the pharmacokinetic and pharmacodynamics principles that are necessary to study the special pharmacology. In particular, at the end of the course the student will learn the molecular targets and the mechanisms of drug action. In addition, the student will learn the pharmacokinetic features underlying the destiny of drugs within the organism, including their biotransformation and elimination, and the most relevant pharmacodynamic and pharmacokinetic interactions. By attending formal lectures, seminars, and small-groups, the students will develop autonomous and update learning abilities that will form the basic approach to correctly use drugs in their professional activity.

Contents

The course will examine: the principles underlying pharmacodynamics and pharmacokinetics, and drug biotransformation, distribution, and elimination; the determinants of the variability of drug responses; the preclinical and clinical phases of drug development.

Detailed program

GENERAL PRINCIPLES - Concept of drug and placebo. - Drug development (preclinical and clinical research) - Drug history - Ways of reporting adverse drug reactions (pharmacovigilance) to the appropriate authorities - Ethical and socioeconomic aspects of pharmacology.
PHARMACOKINETICS - ADME - Basis for different response to drugs at different ages and in pregnancy.
PHARMACODYNAMICS - Mechanisms of drug action, molecular targets and cascade of events by which a drug

produces a response at the cellular level - Agonists and antagonists and principles of structure/activity relationship - Pharmacodynamic parameters (efficacy, potency) - Therapeutic index and evaluation of the risk/benefit ratio of a drug therapy - Factors of variability of a drug response in relation to both concomitant diseases and therapies and at-risk populations, role of gender.
SPECIAL PHARMACOLOGY - Pharmacology of the respiratory system - Pharmacology of the cardiovascular system - Pharmacology of the Central Nervous System

Prerequisites

Knowledge acquired during all preparatory courses indicated in the medical degree course plan

Teaching form

10 lectures of 2 hours in-person
3 hours in interactive mode (in-person)
To complete the module and integrate with the teaching of Clinical Methodology in Obstetrical Gynecological and Neonatal Sciences, an activity is planned, co-presence of the lecturers, with discussion of clinical cases, exercise of Calculation for dilution, preparation and administration of drug therapy, with interactive mode in presence.

Textbook and teaching resource

Amico-Roxas M., Caputi A.P., Del Tacca M. (2021) Compendio di farmacologia generale e speciale. Torino, UTET Scienze mediche

Semester

Second Semester

Assessment method

Written examination composed of multiple choice questions and open questions.
Biomedical Sciences 2 exam consists of 4 parts: GENERAL PHARMACOLOGY, GENERAL PATHOLOGY, MICROBIOLOGY, CLINICAL BIOCHEMISTRY AND MOLECULAR BIOLOGY.
To pass the exam the student must obtain sufficiency in each of the 4 parts.

Office hours

by appointment agreed by email

Sustainable Development Goals

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