



UNIVERSITÀ
degli STUDI
di CATANIA

DEPARTMENT OF GENERAL SURGERY AND MEDICAL-
SURGICAL SPECIALTIES
Master's Degree in Medicine and Surgery
Academic Year 2019/2020 - 3° Year

FARMACOLOGIA CLINICA - INDICAZIONI TERAPEUTICHE - channel 2

BIO/14 - 3 CFU - 2° Semester

Teaching Staff

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LEARNING OBJECTIVES

Knowing what the drugs are and the role they have in the therapeutic field

Understanding how medications change the patient's health status

Know the factors that can change the response to a drug

Know the risks associated with the use of drugs

Know the general principles of pharmacotherapy

Know the pharmacokinetic parameters

Know the pharmacokinetics and pharmacodynamics

COURSE STRUCTURE

Part I: Pharmacokinetic;

Part II: Pharmacodynamics

DETAILED COURSE CONTENT

Drug concept, Definition of pharmacokinetics, pharmacodynamics, toxicology Development of a drug and the phases of clinical trials, Pharmacovigilance, clinical trials, Adverse drug reactions (ADR), Tolerance, tachyphylaxis, resistance, Routes of drug administration, factors that modify the absorption of drugs, the biological barriers (hematoencephalic, hemoliquorale, hemato-ocular hemato-placenta etc.), passage through biological membranes; transport processes, drug biotransformation: phase I and phase II reactions; farmacoinduzione; cytochromes, drug excretion, dose concept; "average effective" dose (DE50) and "mean lethal" dose (LD50); therapeutic index (IT). Dose-effect relationships. Variation of the action of drugs with doses, Agonists and antagonists, Definition and meaning of the main pharmacokinetic parameters: area under the curve (" AUC "), half-life (" half-life ", $t_{1/2}$), volume of

distribution; clearance. Bioequivalence; bioavailability; Receptors: structure, transduction systems, regulation mechanisms (concept of down-regulation and upregulation); binding forces in drug-receptor interactions. - Orthostatic and allosteric sites. Receptor classification ; Neurotransmitters, Ionic channels - G protein coupled receptors (GPCR) - kinase coupled receptors - Nuclear receptors; Cholinergic system; Adrenergic system

TEXTBOOK INFORMATION

Rossi-Cuomo "Farmacologia: principi di base e applicazioni terapeutiche" Minerva Medica Edizione III;
Goodman & Gilman's "The Pharmacological Basis of Therapeutics, Twelfth Edition.
