

Syllabus of PHARMACOLOGY and TOXICOLOGY (1)

Code: KFT/08-Mgr-A/00

Form of study: lectures, seminars

Course: 3rd year, summer semester, 5h/week

Credits: 8

General principles of pharmacology

Introduction, what the pharmacology deals, history of the course, pharmacology today, basic terminology.

How drugs act: general principles and molecular aspects..

Drug absorption and routes of administration. Distribution of drugs in the body, body fluid compartments, redistribution. Drug metabolism and elimination, drug and metabolite excretion. Pharmacokinetics – basic pharmacokinetic parameters and their clinical importance. Pharmacokinetic models of drug elimination.

Pharmacodynamics – how drugs act? Mechanisms of action – nonspecific, specific, agonism, antagonism. Drug receptors, cellular aspects – excitation, contraction and secretion. Effect of drugs on the whole organism – types of doses, factors influencing response of the organism.

Tachyphylaxis, tolerance, withdrawal phenomenon.

Individual variation and drug interactions, harmful effects of drugs. Drug addiction, dependence and abuse.

Methods and measurement in pharmacology – animal models of disease and evaluation of potential medical drugs in experimental pharmacology. Clinical trials.

Chemical mediators and the autonomic nervous system

General principles of chemical transmission. Cholinergic transmission – drugs affecting muscarinic and nicotinic receptors. Noradrenergic transmission – catecholamines, drugs acting of noradrenergic transmission (α -, and β -adrenergic agonists and antagonists).

Other peripheral mediators - 5-hydroxytryptamine and purines.

Local hormones – cytokines, histamine, eicosanoids, PAF, bradykinin, nitric oxide, neuropeptides.

Non-steroidal antiinflammatory drugs (NSAIDs).

Syllabus of PHARMACOLOGY and TOXICOLOGY (2)

Code: KFT/09-Mgr-A/00

Form of study: lectures, seminars

Course: 4th year, winter semester, 7h/week

Credits: 6

Drugs affecting major organ systems

Nervous system – neurotransmission and drug action in the central nervous system.

Anxiolytic and hypnotic drugs, antiepileptics, antipsychotic drugs, antidepressants, CNS stimulants and psychotomimetic drugs, neurodegenerative diseases (antiparkinsonics, drugs against Alzheimer's disease...).

Antiepileptic drugs.

Analgesic drugs – opioids and other pain-relieving drugs.

General anaesthetics.

Local anaesthetics.

Cardiovascular system

Drugs that affect cardiac function (cardiotonics).

Vascular system – vasoactive drugs, RAAS system. Ischemic heart system and antianginal drugs. Antihypertensives. Antidysrhythmic drugs.

Lipid-lowering drugs.

Blood and haemopoietic system

Anticoagulants, antiplatelet drugs, fibrinolytic drugs, antifibrinolytic and haemostatic drugs.

Haematinic agents, haemopoietic growth factors, anaemia treatment.

Gastrointestinal tract

Anacids, laxatives, antidiarrheal agents, antimotility and spasmolytic agents, antiemetics.

Treatment of peptic ulcer disease. Drugs affecting the biliary system.

Uropoietic system

Drugs acting on the kidney – diuretics.

Respiratory system

Antitussive drugs, secretolytics and expectorants, drugs used to treat bronchial asthma – antiasthmatics.

Endocrine system

Pancreatic hormones, insulin and treatment of diabetes mellitus. The pituitary and the adrenal cortex hormones. The thyroid and drugs used in its diseases.

Drugs affecting reproductive function and uterus. Oral contraceptives.

Erectile dysfunction treatment.

Drugs used for the treatment of infection

Antibacterial drugs, antiviral drugs, antifungal, antiprotozoal and antihelminthic drugs.

Anticancer drugs and immunomodulators

Vitamins and minerals

New trends in pharmacology. Biopharmaceuticals and gene therapy.