SYLLABUS

Academic year 2017/2018

Name of a course / module	**Clinical pharmacology**	
Name of a department where course is held	**Department of Clinical Pharmacology**	
E-mail of department	**clinpnan@umb.edu.pl**	
Faculty of	Medicine with Division of Dentistry and Division of Medical Education in English	
Name of a field of study	Medicine	
Level of education	*First degree studies, Uniform master's degree studies*	
Form of study	full time ■	part time ☐
Language of instruction	Polish ☐	English ■
Type of course	obligatory ■	facultative ☐
Year of study / Semester	I ☐ II ☐ III ☐ IV ■ V ☐ VI ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ■ 8 ☐ 9☐10 ☐ 11 ☐ 12 ☐
Introductory courses with preliminary requirements	Implementation of the learning outcomes in terms of knowledge, skills and competencies of the previous year of study	
Number of didactic hours with specification of forms of conducting classes	Lectures – 10; Classes - 20	
Assumptions and aims of the course	The aim of the course of clinical pharmacology is teaching medical students about the practical principles of rational pharmacotherapy of patients in relation to certain types of diseases and clinical situations. During the course the student, after familiarizing with etiopathogenesis, symptomatology and elements of diagnosis of selected diseases, can propose pharmacotherapeutic intervention. Acquires knowledge about the mechanisms of drug action, their effectiveness, side effects and interactions in specific clinical situations. Recognizes the risks associated with polypharmacy. The student should be able to plan the pharmacotherapy of the patient based on the current standards, with particular emphasis on its individualization, adjust the dosage, take into account aspects of pharmacokinetics, indications for monitoring, predict adverse drug reactions and drug interactions. The student learns the basic issues of pharmacoeconomics.	
Didactic methods	- providing knowledge in a form of a lecture - consultation (both regular and organized in individual cases) - discussion - presentation - case description - clinical classes - with subject and subjective examination of the patient (to plan individual pharmacotherapy)	
Full name of the person conducting the course	employed scientific and teaching staff	
Full name of the person responsible for teaching	Prof. dr hab. Halina Car	

Symbol and number of learning outcomes according to the teaching standards and other learning outcomes	Description of directional learning outcomes	Form of classes	Verification methods for achieving intended learning outcomes
Knowledge			
C.W36	effect of pathological processes on drug's metabolism and elimination	Classes/Lectures/clinical classes	Summary methods, e.g. - written exam (test) Forming methods, e.g. - observation of the student's work - assessment of activity during classes - oral exam - assessment of preparation for classes - oral exam - discussion during classes - partial credits Clinical classes - students are required to write a patient's pharmacotherapy proposition based on physical and subjective examination and analysis of laboratory and imaging data.
C.W37	basic principles of pharmacotherapy	Classes/Lectures/clinical classes	
C.W38	major unwanted responses to drugs and those resulting from drug interactions	Classes/Lectures/clinical classes	
C.W40	indications for genetic test to individualize pharmacotherapy	Classes/Lectures/clinical classes	
C.W41	basic developments of therapy, specifically capabilities of cell therapy and gene therapy	Classes/Lectures/clinical classes	
C.W43	drug groups, the abuse of which can cause poisoning	Classes/Lectures/clinical classes	
C.W44	symptoms of typical acute poisonings; intoxication caused by alcohol, narcotics and psychotropic substances, heavy metals and other drugs	Classes/Lectures/clinical classes	
Skills			
C.U13	making simple pharmacokinetic calculations	Classes/Lectures/clinical classes	Summary methods, e.g. - written exam (test) Forming methods, e.g. - observation of the student's work - assessment of activity during classes - oral exam - assessment of preparation for classes - oral exam - discussion during classes - partial credits Clinical classes - students are required to write a patient's pharmacotherapy proposition based on physical and subjective examination and analysis of laboratory and imaging data.
C.U14	administering a right medication dose in order to remedy pathological phenomena in the organism or an organ	Classes/Lectures/clinical classes	
C.U18	estimating a toxicological risk for certain age groups and of hepatic and renal failure; preventing medicine poisoning	Classes/Lectures/clinical classes	
E.U31	interpreting characteristics of pharmaceuticals and critically evaluating medicine advertisements	Classes/Lectures/clinical classes	
Social competence			
K1	He /She recognizes his/her own diagnostic and therapeutic limitations, educational needs, planning of educational activity		Continuous assessment by the teacher
K2	He /She is able to work in a team of professionals, in a multicultural and multinational environment		
K3	He /She implements the principles of professional camaraderie and cooperation with representatives of other professionals in the range of health care		
K4	He /She observes doctor-patient privilege; and patient rights		

ECTS points	

Student Workload	
Form of activity	**Number of hours to complete the activity**
Classes that require the participation of a teacher	
1. Realization of the course: lectures (according to the curriculum)	10
2. Realization of the course: classes (according to the curriculum)	20 (10 hours - clinical classes in groups of 6 people + 10 hours - classes in groups of 18 people)
3. Realization of the course: seminars; (according to the curriculum)	
4. Realization of the course: electives	
5. Participation in consultation	
	Total hours: 30
Student self-study *1 punkt ECTS oznacza 25-30 godzin pracy studenta w różnych formach, takich jak np.:*	
1. Preparation for the theoretical and practical classes (realization of projects, documentation, case description etc.)	
2. Preparation for tests/credits	
3. Preparation for an exam/final test-credit	
	Total hours:

Course contents: *proszę wpisać hasłowo tematykę poszczególnych zajęć, pamiętając, aby przekładała się ona na zamierzone efekty kształcenia*

Learning outcomes (symbol and number)	Topics
1. C.W36, C.U13	**Basics of clinical pharmacology.** Drug interactions in the field of clinical pharmacology. Pharmacological implications of patient therapy. Pharmacokinetics: pharmacokinetic concepts and definitions, intravenous drug administration: a) pharmacokinetics of once and repeatedly administered intravenously and extravascularly, b) continuous infusion of the drug; extravascular drug administration, c) administration of the drug with impaired renal function, liver; therapeutic drug monitoring. Pharmacodynamics: mechanisms of drug action, types of receptors and mechanisms of their activation / repression, drug-receptor interactions (dose-effect curves, characteristics of receptor drug binding), clinically relevant factors affecting drug action (genetic variation, polymorphism of metabolic processes, interactions, influence of pathological conditions on pharmacodynamic processes).
2. C.W37, C.W38, C.W40, C.W41, C.W43, C.W44, C.U14, C.U18, E.U31	**Treatment of cardiovascular disorders** Therapeutic strategies of basic states in cardiology: ischemic heart disease and acute coronary syndrome (myocardial infarction and its complications, hypertensive vascular disease, heart failure, supraventricular rhythm disturbances); drugs influencing heart function; vascoactive drugs, the role of vascular endothelium, kidneys, rennin-angiotensin-aldosteron-system, lipoprotein; anticoagulatns. Avitaminosis. Physical and subjective examination of the individual patient for side effects and interactions. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies for cardiovascular diseases. **Pharmacotherapy of respiratory diseases:** strategies of therapy and prophylaxis of selected diseases, in particular bronchial asthma, COPD, inflammation of the respiratory tract. Physical and subjective examination of the individual patient for side effects and interactions. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies for respiratory diseases. **Pharmacotherapy of gastrointestinal diseases:** therapeutic strategies and elements of prevention of selected gastrointestinal disorders, including in particular: peptic ulcer disease, irritable bowel syndrome, motor disorders, gastrointestinal secretion and inflammation. Hepatic insufficiency - treatment, influence on therapies and choice of treatment. Aspects of parenteral and enteral nutrition. Physical and subjective examination of the individual patient for side effects and interactions. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies for gastrointestinal diseases.

	Pharmacotherapy of urinary tract diseases: Pharmacotherapy of acute and chronic renal failure, functional vs. acute renal failure. Nephrotic syndrome, nephrolithiasis, acute and chronic nephritis, urination disorders. Selection and modification of therapy depending on the degree of inefficiency. Treatment of urinary dysfunction, practical aspects of urinary pH modification. Physical and subjective examination of the individual patient for side effects and interactions. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies for urinary tract diseases. **Pharmacotherapy of diseases of internal secretion systems.** Therapeutic treatment and prophylaxis in diabetes mellitus, in the metabolic syndrome. Pathologies in the secretory system of adrenocortical and thyroid hormones - clinical implications and therapy. Physical and subjective examination of the individual patient for side effects and interactions. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies. **Pharmacotherapy for pain and inflammation.** Drugs affecting the metabolism of bone tissue, inflammation, autoimmune diseases and dysfunctions in the osteoarticular system. Strategies for the treatment of pain of various origins (acute and chronic). Treatment of cancer pain, WHO analgesic ladder, pharmacotherapy in terminal conditions, palliative care. General characteristics of drugs used in anesthesiology. Hypnotics, muscle relaxants, central pain analgetics, intravenous anesthesia. Physical and subjective examination of the individual patient for side effects and interactions. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies. **Pharmacotherapy of the central nervous system (CNS) diseases** Clinical implications of the use of antipsychotics, antidepressant and antianxiety drugs. Pharmacotherapy of mood disorders, anxiety syndromes, principles of treatment of sleep disorders, seizures. Therapy of old-age diseases: Alzheimer's disease, Parkinson's disease. Physical and subjective examination of the individual patient for side effects and interactions. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies. **Basic principles of chemotherapy:** Individualized pharmacotherapy of bacterial, viral, fungal, protozoan infections, elements of parasitology - interactions, side effects, combination therapy. The influence of pathological and physiological processes on the choice of therapy. Life threatening infections: sepsis, infective endocarditis, meningitis, pneumonia. Antibiotic resistance problems, nosocomial infections. Prophylaxis. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies. **Pharmacotherapy in the course of cancer.** Principles of combination chemotherapy in oncology, algorithms of diagnostic and therapeutic procedures in the most common human cancers. Ability to plan and retrieve information from a patient's clinical data in the context of patient individual therapy as well as pharmacovigilance assessment. New therapeutic strategies. **Pharmacoeconomics.** Basic concepts in the field of pharmacoeconomics.

Obligatory textbook: *(1-2 pozycje)*
1/,, Basic & clinical pharmacology" Bertram G. Katzung, Anthony J. Trevor. McGraw-Hill Companies, cop. 2015. 13th ed. 2/ "Brody's human pharmacology molecular to clinical" Eds. K.P. Minneman, L. Wecker (4th ed.) Elsevier, Philadelphia 2005
Optional textbook: *(1-2 pozycje)*
1/ "Goodman & Gilman's The pharmacological basis of therapeutics" Eds. L.L. Brunton, J.S. Lazo, K.L. Parker (11th ed.) McGraw-Hill Companies, USA 2006 2/ "Pharmacology" Eds. G.M. Brenner, C.W. Stevens (3rd ed.) Saunders Elsevier, Philadelphia 2010

Criteria for assessing the achieved learning outcomes and the form and conditions for receiving credit: *Należy określić w szczególności: zasady dopuszczenia do egzaminu, zwalniania z egzaminu, sposób i warunki zaliczenia zajęć, łącznie z określeniem zasad zaliczania nieobecności oraz określeniem liczby godzin nieobecności kwalifikujących do niezaliczenia przedmiotu oraz możliwości i formy wyrównywania zaległości*
Written exam, active participation on the classes and their credit

27.09.2017 *Emil Trofimiuk*……..

(date and signature of the person preparing the syllabus)

27.09.2017 …… ……

(date and signature of the Head of the Department where the course is held) *and* *(course coordinator)*