ODESSA NATIONAL MEDICAL UNIVERSITY
DEPARTMENT OF DRUGS TECHNOLOGY

APPROVE
Head of Department

_____ (Borisyuk I.Yu.)
signature
«27» august 2021 y.

METHODICAL DEVELOPMENT OF INDEPENDENT WORK OF STUDENTS (IWS)

Course 5 Faculty of Pharmaceutical

Course Biopharmacy

Topic №8 **«Conducting clinical trials of drugs.»**

Methodical recommendations on IWS developed by:
assistant

_____ (Akisheva A.S.)
signature

Methodical recommendations of IWS were discussed at the methodical meeting of the department
«27» august 2021 y.
Protocol № 1

Odessa - 2021

Topic: "Conducting clinical trials of drugs" - 4 hours.
Objective: To deepen knowledge in the consideration of clinical trials of drugs.

Basic concepts: Clinical trials

Plan

I. Theoretical questions for the lesson:

Order of the Ministry of Protection
health of Ukraine
from 25.09.2002 № 355

REGISTERED at the Ministry of
Justice of Ukraine on October 14, 2002
for № 825/7113

CHANGES AND ADDITIONS
to the instructions for conducting clinical trials
of drugs
and examination of clinical trial materials

1. In section 2:

1. Sub-clause 2.1.1 of clause 2.1 after the words “patients (volunteers)” shall be supplemented with the words “and (or) healthy volunteers”.
2. Paragraph 2.1 shall be supplemented with sub-clauses 2.1.7, 2.1.8 as follows:

«2.1.7. *Bioavailability* - the speed and degree with which it is active the substance or its active part is absorbed from the dosage form and becomes available at the place of its intended action.

«2.1.8. *Bioequivalence* - two drugs are considered bioequivalent if they are pharmaceutically equivalent or pharmaceutically alternative and their bioavailability after administration in the same molar doses is similar to the extent that they can be expected to be equally effective and safe.

1.3. Paragraph 2.3 shall be supplemented with sub-clause 2.3.1 as follows:

«2.3.1. *A generic drug* is a finished drug that can replace a new drug after the expiration of the patent.

1.4. Paragraph 2.16, after the words "Examination materials" add the words "and preclinical study" and after "assessment of materials" add the words "and pre-clinical study."

2. Section 3 shall be worded as follows:

«3.1. To conduct a clinical trial of a medicinal product, the customer submits to the Center an application of any form, to which are attached:

materials that contain general information about the drug;

the results of its pre-clinical studies and clinical trials (if any);

like drug with a certificate of origin, Approval - Jen customer [1, 2];

information on where the medicinal product submitted for clinical trials was manufactured; [1 2]

information on the technology of manufacturing (production) of the medicinal product and documentation on which the control of the manufacturing and quality of the medicinal product was carried out [2].

3.2. Available materials are subject to examination at the Center, which Provo - is in a manner prescribed by Section 4 hereof. In case of positive conclusions provided by the customer, the Center determines the clinical base (bases), type and scope of clinical trials. The Center informs the customer about the decision.

If a non-mass drug is submitted for clinical trials, the Center may check the conditions of its manufacture.

3.3. After determining the clinical bases, the customer submits to the Center materials:

Protocol clinical trial that will develop - lyayetsya according to the type and phase of drug testing, guidelines and regulations of the Center and the European Economic Community. The structure of the protocol is given in Annex 1;

the researcher's brochure (summary of the results of preclinical and clinical (if any) studies of the drug that are important for its study in humans) or instructions for medical use of the drug. The structure of the researcher's brochure is given in Annex 2;

information for the subject and (or) a form of informed written consent;

individual registration form (if necessary);

the results of previous examinations and (or) decisions of the Center concerning preclinical study and clinical trial of the medicinal product (if any) ".

3. In section 4:

1. The title of section 4 shall be worded as follows: "Examination of materials of preclinical study or clinical trial of medicinal products".
2. In paragraph 4.1, replace the words "in paragraph" with the words "in section".
3. Paragraph 4.2 shall be worded as follows: “Examination of materials of pre-clinical study of a medicinal product or clinical trial shall be carried out under the terms of an agreement between the customer and the Center. The examination of the materials of the pre-clinical study and clinical trial in accordance with the protocol (excluding the number of clinical databases) and amendments to the protocol is subject to payment.
4. Paragraph 4.3 after the words "additional data on" add the words "preclinical study or". The second sentence of paragraph 4.3 to read as follows: "The time required to prepare them, not part of the thermo - well, expert works."

second paragraph after "the materials" with the words - "we preclinical or".

3.5. The first paragraph of paragraph 4.4 after the words "to the materials" add the words "preclinical study or". In the second paragraph of paragraph 4.4 after the words "the materials" delete the words "clinical trial".

3.6. Paragraph six of paragraph 4.7 after the word "(volunteers)" add the words "and healthy volunteers".

4. In section 5:

1. Item 5.1 the following sentence: "The drug is transmitted by an act of transfer, stating the number and batch number of the medicinal product, which were submitted to the Laboratory of Drug Quality Control Center for Quality Control (international multicenter clinical trials according to August - tyfikata quality medicinal product provided by the manufacturer) ".
2. Paragraph 5.8 shall be supplemented with the following sentence: "If necessary, the Center has the right to withdraw the investigational medicinal product in the amount required for re-analysis of quality in the Laboratory of Quality Control of Medicinal Products of the Center, as well as for other examinations."
5. In section 6:
1. Item "6.2. Examination of the results of a clinical trial is free of charge "- to exclude.
2. Paragraph 6.9 shall be worded as follows: "In case of positive conclusions of the examination, the Center approves the results of the clinical trial presented in the report and recommends or does not recommend the continuation of the clinical trial of the medicinal product. The Center informs the customer about the decision made. "
6. To supplement the Instruction on conducting clinical trials and examination of clinical trial materials with section 6 of the following content:

«6. *Features of clinical trials of drugs to establish bioequivalence*

6.1. Clinical trials and examination mat - Live on clinical trials to establish bioequivalence studies conducted in accordance with sections 3-7 hereof.

6.2. The object of study in a clinical trial to establish bioequivalence are generic drugs that are intended for extravascular administration, provided that their action is mediated by the appearance of the substance in the systemic circulation.

6.3. Appropriate drugs with proven bioavailability are used as a comparison drug, the list of which is determined by the Center.

6.4. Patients (volunteers) or healthy volunteers may be involved in a clinical trial to establish bioequivalence.

6.5. Persons between the ages of 18 and 55 may be involved in a clinical trial to establish bioequivalence as healthy volunteers. Healthy volunteers can be people who do not have chronic diseases of the cardiovascular and neuroendocrine systems, liver, kidneys, as well as people who do not have a burdensome history of allergies.

Until research can not involve minors, pregnant women and women who are breastfeeding, people who are in pre iso - modulator, in prisons and military terms - ing service.

6.6. Appropriate studies of antitumor, psychotropic and medicinal products used in HIV infections may be performed with the involvement of patients who are shown the purpose of the study drug.

7. In this regard, section 6 of this Instruction shall be considered section 7.

Questions for self-control

1. The impact factor **and** the environment on pharmacotherapy.
2. Interaction of drugs with food.
3. The concept of therapeutic non-equivalence of drugs and the causes of its occurrence.
4. Brands and generics. Replacement of drugs by their analogues.
5. Types of bioavailability of drugs. Determination of absolute and relative bioavailability of drugs.
6. "In vivo" methods, which are performed on living organisms of laboratory animals, healthy human volunteers and on isolated organs with single and multiple injections.
7. Distinctive features in the reactivity of different species of animals to the introduction of biologically active substances.
8. "In vitro" methods used in biopharmacy (direct diffusion through the membrane, "agar plates", chromatographic, solubility test, etc.).
9. Modern methods for determining the concentration of drugs in biological fluids (blood, urine, and other body secretions).
10. Graphical method of calculating the area of the pharmacokinetic curve and the relative degree of absorption depending on pharmaceutical factors. Determination of absorption and elimination constants

Approximate tasks for the study of theoretical material

1. Make a dictionary of basic concepts on the topic
2. Fill in the orientation card for self-preparation of the student using the literature on the topic :

№ z.p.	**The main tasks**	**Instructions**	**Answers**
1.	Conducting clinical trials of drugs	Define the term	Біофармація : підруч. для студентів закл. вищ. освіти / О. І. Тихонов [та ін.] ; за ред. О. І. Тихонова. – 2-ге вид., перероб. і допов. – Харків : НФаУ: Золоті сторінки, 2019. – 224 с
2.	Generic drug	Define the term	A generic drug is a finished drug that is able to replace a new drug after the expiration of the patent.

II. Practical work (tasks) that will be performed in class:

http://info.odmu.edu.ua/chair/drugs_technology / Tests Step-2 on the following topics: Industrial production of parenteral drugs Quality assessment

III. Test tasks for self-control

IV. Individual tasks for students on the topic of the lesson

Prepare a presentation (abstract):

- In vitro research methods
- In vivo research methods

List of recommended reading

Main:

. 1. Біофармація : підруч. для студентів закл. вищ. освіти / О. І. Тихонов [та ін.] ; за ред. О. І. Тихонова. – 2-ге вид., перероб. і допов. – Харків : НФаУ: Золоті сторінки, 2019. – 224 с

2. Настанова СТ-Н МОЗУ 4242-7.1:2005 «Лікарські засоби. Настанова з клінічних досліджень. Дослідження біодоступності та біоеквівалентності» - Київ, 2018.

3. Настанова СТ-Н МОЗУ 4242-7.1:2005 «Лікарські засоби. Настанова з клінічних досліджень. Дослідження біодоступності та біоеквівалентності» - Київ, 2018.

4. Настанова СТ-Н МОЗУ 42-7.2:2018 Лікарські засоби дослідження біоеквівалентності. – Київ, 2018. – 77 с.