

VOLGOGRAD STATE MEDICAL UNIVERSITY

DEPARTMENT OF PHARMACOLOGY AND BIOINFORMATICS

Methodological recommendations for students for practical classes

«Immunobiological and gene therapy drugs»

Thematic block: **Immunobiological drugs**

Class topic:

Biological medicinal products affecting the blood coagulation system. Enzyme preparations B01AD

Pharmaceutical faculty

1. Class aims

- learn to analyze the action of biological drugs that affect the blood coagulation system and enzyme preparations B01AD based on the totality of their pharmacological properties, mechanisms and localization of action;
- learn to evaluate the possibilities of using biological drugs that affect the blood coagulation system and enzyme preparations B01AD for the purposes of pharmacotherapy;

2. TASKS:

- ability to organize the possibility of using biological drugs that affect the blood coagulation system and enzyme preparations B01AD for the treatment and prevention of diseases;
- ability to assess the possibility of using biological drugs that affect the blood coagulation system and enzyme preparations B01AD depending on the spectrum of their activity
- ability to analyze possible side and toxic effects of biological drugs that affect the blood coagulation system and enzyme preparations B01AD.

Competencies to be developed: YK-1.1.3.; YK-1.2.1, YK-1.2.2, YK-1.2.3.; YK-1.3.1, YK-1.3.2.; YK-6.1.1.; YK-6.2.1, YK-6.2.2.; YK-6.3.1, YK-6.3.2, YK-6.3.3, YK-6.3.4.; OПК-1.1.1.; OПК-1.2.1, OПК-1.2.2.; OПК-1.3.1.; OПК-6.1.1.; OПК-6.2.1.; OПК-6.3.1.; ПК-7.1.1.; ПК-7.2.1.; ПК-7.3.1.

Brief summary of the topic, suggested questions for discussion:

1. Recombinant drugs affecting blood clotting.
 - 1.1 Recombinant
 - 1.2 Kogenate FS
 - 1.3 NovoSeven
 - 1.4 Advate
2. Recombinant drugs stimulating thrombocytopoiesis
 - 2.1 Eltrombopak
 - 2.2 Romiplostim
3. Recombinant drugs reducing blood clotting.
 - 3.1 Hirudin
 - 3.2 Bivalirudin
4. Enzyme preparations B01AD
 - 4.1 Classifications

- 4.2 Streptokinase
- 4.3 Alteplase
- 4.4 Urokinase
- 4.5 Tenecteplase
- 4.6 Fibrinolysin
- 4.7 Indications for use

Independent work in class:

1. Specify the group affiliation of the drugs:

Препарат	Группа (состав)
1. Clopidogrel 2. Streptokinase 3. Warfarin 4. Heparin	A. Direct anticoagulant B. Indirect anticoagulant C. Fibrinolytic D. Antiplatelet agent

2. Select from the following drugs: clopidogrel, nadroparin calcium, thrombin, warfarin, aminocaproic acid, acetylsalicylic acid, lepirudin, alteplase, menadione sodium bisulfite, aprotinin, rivaroxaban octanate, streptokinase, abciximab, fondaparinux, calcium chloride, dipyridamole

a/drugs with antithrombotic action; b/drugs with hemostatic action.

Topics of papers on the topic: Biological drugs affecting the blood coagulation system.

Enzyme preparations B01AD:

1. Blood coagulation system. Main factors, functions. Pathologies.
2. Blood anticoagulation system. Main factors, functions. Pathologies.

List of recommended literature, professional databases, information reference systems, electronic educational resources recommended for preparing abstracts:

1. Sanchez-Garcia L. et al. Recombinant pharmaceuticals from microbial cells: a 2015 update //Microbial cell factories. – 2016. – Т. 15. – С. 1-7.
2. Buckel P. (ed.). Recombinant protein drugs. – Springer Science & Business Media, 2001.
3. Parker M., Li Z. Biotechnology and drugs //Remington. – Academic Press, 2021. – С. 397-415.
4. Клинико-фармакологические характеристики биотехнологических лекарственных препаратов: от классификаций до нежелательных явлений / под общей редакцией Колбина А. С. [Зырянов С. К., Белоусов Д. Ю., Бойченко Э. Г., Бутранова О. И., Емельянова Л. И., Казанова А. М.]. — М. : Издательство ОКИ, 2024. — 84 с.

Independent work of students:

1. Pharmacological characteristics of drugs (required drugs are entered into workbooks).
3. Solving situational problems on the topic. The solutions to the problems are entered into workbooks.
4. Working with advertising brochures of drugs on this topic.