

Test on the topic:

DRUGS THAT ACT ON INFLAMMATORY METABOLIC AND IMMUNE PROCESSES. DRUGS WITH INFLUENCE ON BLOOD AND HEMATOPOIETIC ORGANS

A. The purpose of the training consists of consolidating the students' knowledge about the pharmacodynamics of these groups of drugs, the choice depending on indications, side effects and first aid measures in drug overdose of drug from the given groups.

B. Learning objectives:

1.) The students must **know**: pharmacological characteristics of drugs from these groups (pharmacokinetics, pharmacodynamics), indications, side effects and the first aid in overdose.

2.) The students must **be able to**: write out the compulsory drugs, administer them in different disturbances and pathological states and, first of all, in emergent cases.

C. Self-training questions:

1. Classification of anti-inflammatory drugs. Non-steroid anti-inflammatory d drugs: classification, mechanism of action, effects, indications, contraindications and side effects.

2. Steroidal anti-inflammatory drugs. Classification according to the rout of administration. Anti-inflammatory mechanism of action. Effects, indications and contraindications. Side effects.

3. Disease-modifying anti-rheumatic drugs (DMARDs). Classification. Mechanism of action. Effects, indications, contraindications and side effects of 4-aminoquinoline derivatives, gold preparations, thiol derivatives, sulfasalazine, monoclonal antibodies and cytostatics.

4. Classification of antiallergic drugs. Medicines used in immediate-type of allergic reactions: anaphylactic shock, bronchial asthma, urticaria, etc. Pharmacodynamic features and indications of α , β -adrenomimetics and β - adrenomimetics, methylxanthines, M-cholinoblockers. Glucocorticoids: antiallergic mechanism of action, effects, indications.

5. Antihistamines. Classifications according to the chemical structure and generation. Mechanism of action, effects, indications, contraindications and side effects. Intoxication with H₁-histaminoblockers: clinical picture, treatment. Particularities of intoxication in children.

6. Mast cell degranulation inhibitors: mechanism of action, effects, indications, contraindications, side effects.

7. Minor immunodepresives. Classification. Mechanism of action, effects, indications, contraindications and adverse reactions of quinolones derivatives, gold salts, thiol derivatives.

8. Major immunodepresives. Classification. Mechanism of action, effects, indications, contraindications and adverse reactions of glucocorticoids and cytostatic.

9. Classification of immunomodulatory preparations (preparations with influence on the immune system).

10. Immunostimulators of bacterial origin: classification, immunostimulatory action, indications, contraindications, adverse reactions.
11. Entomological preparations as immunomodulators.
12. Classification of antithrombotic drugs. Classification of direct anticoagulants.
13. Standard heparin preparations (unfractionated heparin): mechanism of action, effects, indications, contraindications, side effects and pharmacokinetics. Heparin antagonists.
14. Low molecular weight heparins (LMWHs). Pharmacokinetics and pharmacodynamics features, comparative characteristics with standard heparin.
15. Heparinoids: pharmacodynamics properties. Indications, contraindications, side effects.
16. Direct antagonists of thrombin: classification, characteristics, indications.
17. Indirect anticoagulants: classification according to the duration of action, to the mechanism of action. Indications, contraindications, side effects. Their comparative characteristics with direct anticoagulants. Antagonists of indirect anticoagulants.
18. Antiaggregant (antiplatelet) drugs: classification, mechanism of action, indications, contraindications, side effects.
19. Fibrinolytic drugs: classification, mechanism of action, indications, contraindications, side effects.
20. Classification of haemostatic drugs.
21. Classification of local haemostatics. Characteristic of vasoconstrictors, astringents, with thromboplastinic and thrombinic action.
22. Classification of systemic hemostatic drugs.
23. Direct and indirect action coagulants: mechanism of action, indications, side effects.
24. Antifibrinolytic drugs: classification, mechanism of action, indications, side effects.
25. Aggregant drugs: classification, mechanism of action, indications, side effects.
26. Classification of antianaemic drugs.
27. Drugs used in iron deficiency anaemias: classification, pharmacokinetics, indications, side effects.
28. Drugs used in megaloblastic anaemia (vitamin B-12 deficiency and folic acid deficiency): pharmacodynamics and pharmacokinetic properties, indications.
29. Drugs used in hemolytic, hypo or aplastic anaemia: pharmacodynamics and pharmacokinetic properties.
30. Erythropoietin drugs: pharmacodynamics properties, indications, side effects.
31. Classification of drugs with influence on leucopoiesis. Leucopoiesis drugs stimulants: pharmacodynamics properties, indications, side effects.
32. Classification of angioprotectors. Mechanism of action, effects, indications, of vegetal, animal, and synthetic origin drugs.
33. Classification of hormonal drugs according to the sources, chemical structure and mechanism of action. Mechanism of action of polypeptide and steroid hormones on the cellular level.
34. Hormonal drugs of the hypothalamus: classifications, mechanism of action, indications, contraindications and side effects.

35. Pituitary hormonal preparations. Adenohypophysis hormones: mechanism of action, indications, contraindications and side effects. Neurohypophysis hormones: influence on the tone of myometrium, bowels and blood vessels, influence on diuresis. Indications.
36. Thyroid hormon preparations. Mechanism of action, influence on organs' functions and metabolism. Indications, contraindications, side effects, pharmacokinetics. Particularities of action and dosage of levothyroxine in children.
37. Antithyroid drugs: classification, mechanism of action, indications, side effects.
38. Parathyroid hormonal preparations: mechanism of action, effects, indications, side effects.
39. Calcitonin: drugs, mechanism of action, indications, side effects.
40. Classification of anti-diabetic drugs according to the mechanism of action.
41. Insulin preparations: classification according to the duration of action, mechanisms of action. Influence of insulin on carbohydrate, protein, lipid, hydrosaline metabolism, on the liver, skeletal muscles and adipos tissue. Indications, side effects and their pharmacokinetics.
42. Human insulin drugs: peculiarities of action, indications. Drugs used in diabetic coma (hyperglycemia) and hypoglycemia.
43. Glucagon: mechanism of action, indications.
44. Classification of oral antidiabetics. New oral antidiabetic drugs.
- Sulfonylureas derivatives as antidiabetics: mechanism of action, hypoglycemic effect, others effects, indications, side effects.
 - Biguanides as antidiabetics: mechanism of action, hypoglycemic effect, others effects, indications, side effects.
 - Meglitinides: mechanism of action, hypoglycemic effect, others effects, indications, side effects.
 - Thiazolidinediones: mechanism of action, hypoglycemic effect, others effects, indications, side effects.
 - Tetrazaccharides: mechanism of action, hypoglycemic effect, others effects, indications, side effects.
 - GLP-1 receptor agonists: mechanism of action, hypoglycemic effect, others effects, indications, side effects.
 - DPP-4 inhibitors: mechanism of action, hypoglycemic effect, others effects, indications, side effects.
45. Mineralocorticoids: mechanism of action, influence on the body, indications, side effects.
46. Glucocorticoids. Classification according to the rout of administration, duration of action, basic effects and potency. Genomic and nongenomic action. Influence on carbohydrates, proteins, lipids, and hydrosalin metabolism, on mesenchymal tissue, cardiovascular system, CNS, muscles and blood. Anti-inflammatory, antiallergic, immunodepressive and antishock action of glucocorticoids.
47. Indications of glucocorticoids. Principles of dosage. Side effects.

48. Estrogens and progestins: classification, mechanism of action, effects, indications, side effects.
49. Antiestrogens and antiprogestins: classification, mechanism of action, indications.
50. Contraceptives: classification, mechanism of action, effects, indications, side effects.
51. Androgen and antiandrogen medications: classification, mechanism of action, effects, indications, side effects.
52. Classification of anabolic drugs. Steroid and nonsteroidal anabolics: effects, indications, contraindications, side effects.
53. Classification of drugs that influence the tonus and the contractibility of the myometrium.
54. Uterine stimulants (ocitocic drugs): classification, mechanism of action, indications, contraindications and adverse reactions.
55. Tocolytics : classification, mechanism of action, effects, indications, side effects.
56. Drugs that increase the tonus of the myometrium (ergot alkaloids): mechanism of action, effects, indications, side effects.
57. Drugs that reduce the tonus of the cervix: mechanism of action, effects, indications, side effects.

D. Independent work (is done in written form while preparing for the concluding session)

1.) Questions on medical prescriptions

To prescribe the following drugs in all possible medicinal forms: Diclofenac. Indomethacin. Ibuprofen. Meloxicam. Nimesulid. Celecoxib. Auranofin. Diphenhydramine. Mebhydroline. Cetirizine. Clemastine. Loratadine. Levamisole. Chloroquine. Azathioprine. Interferon. Infliximab. Imupurin. Sodium cromoglicate. Ketotifen. Dexamethazone. Heparin. Nadroparin. Enoxaparin. Protamine sulfate. Ethylbiscoumacetate. Warfarin. Alteplase. Streptokinase. Ticlopidine. Acetylsalicylic acid. Fibrinogen. Menadione. Aminocaproic acid. Aprotinine. Carbazochrome. Ferrous sulphate. Fercoven. Cyanocobalamin (B₁₂). Folic acid. Sodium nucleinate. Corticotropin. Oxytocin. Desmopressin. Chorionic gonadotropin. Levothyroxine. Thiamazole. Parathyroidin. Calcitonine. Insulin. Glibenclamide. Metformin. Glucagon. Desoxycorticosterone acetate. Hydrocortisone acetate. Prednisolone. Dexamethasone. Fluticasone. Estradiol. Hexestrol. Progesteron. Ethisterone. Methyltestosterone. Trisiston. Clomiphene citrate. Cyproterone. Finasteride. Nandrolone. Dinoprost. Dinoprostone. Ergotamine. Methylergometrine. Fenoterol. Ritodrine.

Drugs used in (for): rheumatoid arthritis, ankylosing spondylitis, acute gout, deforming osteoarthritis, myositis, fever, arthralgia, neuralgia, collagenosis, lupus erythematosus, pollinosis, urticaria, postoperative vomiting, motion sickness, asthma attack, treatment of bronchial asthma, , anaphylactic shock, contact dermatitis, chronic infections, prophylaxis of transplant rejection,

immunodeficiency, prophylaxis of recurrent respiratory infection, treatment and prevention of deep vein thrombosis, treatment and prevention of pulmonary artery thromboembolism, disseminated intravascular coagulopathy, overdose with indirect anticoagulants, overdose with direct anticoagulants, prevention of postoperative thromboembolism, prophylaxis of peripheral artery thrombosis, thrombosis prophylaxis in myocardial infarction, thromboembolism prophylaxis in atrial fibrillation, prophylaxis of cerebrovascular thrombosis, stopping parenchymatous and capillary bleeding, haemophilia, gastrointestinal and lung bleeding, hemorrhages caused by hyperfibrinolysis, iron deficiency anemia, B₁₂ deficiency anemia, folic acid deficiency anemia, aplastic anemia, hemolytic anemia, leucopenia, type I diabetes mellitus, type II diabetes mellitus, diabetes insipidus, diabetic coma, myxedema, hyperthyroidism, hypoglycaemic coma, diabetes mellitus and obesity, tetany, ovarian hypofunction, prostate cancer, male genital hypoplasia, myocardial infarction, alimentary-infectious dystrophy in children, Addison's disease, rheumatism, anaphylactic shock, eczema, acute suprarenal failure, bronchial asthma, rheumatoid arthritis, status asthmaticus, lupus erythematosus, hemolytic anaemia, inducing and augmenting labor, prevention of unwanted pregnancy, postpartum uterine atony, metrorrhagia, relaxation of the uterine cervix, to induce abortion, postpartum hemorrhages, prophylaxis and treatment of imminent abortion and premature labor.

2.) Tests (Guidance for Laboratory Work in Pharmacology).

3.) Clinical case (Guideline for laboratory work in pharmacology).

4.) Virtual Situations (Guidelines for Laboratory Work in Pharmacology.).

