**Modul 2.**

**Pharmacology of agents affecting organs and systems function. Hormones, vitamins, anti-inflammatory, antiallergic, immunotropic and enzymic agents**

1. Disadvantages concerning oral drugs administration (all answers are correct EXCEPT):
   1. The drug taken orally has the highest bioavailability
   2. The drug taken orally may cause emesis
   3. The drug taken orally may be destroyed by gastric acidity
   4. The drug taken orally may be metabolized by gastrointestinal flora
   5. The drug taken orally may be in consistently absorbed due to the presence of food

ANSWER: A

1. Which of the following drug-mechanism of action pairs is properly matched?
   1. digoxin - inhibits Na+- K+ ATPase pump
   2. dobutamine - inhibits MAO
   3. amrinone - inhibits ACE
   4. dopamine - inhibits ACE
   5. acebutolol - stimulate beta2-adrenergic receptors

ANSWER: A

1. Indications for glucocorticoid administration (all answers are correct, except one):
   1. Shock
   2. Hypertensive disease
   3. Allergic diseases
   4. Inflammatory diseases
   5. Complicated intoxications

ANSWER: B

1. What pharmacological effect is not character for Prednisolone:
   1. Vasodilation
   2. Antiallergic
   3. Anti-inflammatory
   4. Immunosuppressant
   5. Antitoxic

ANSWER: A

1. Calcium channel blocker for arrhythmia treatment is
   1. Verapamil
   2. Metoprolol
   3. Dipiridamole
   4. Aspirin
   5. Captopril

ANSWER: A

1. Reflex tachycardia is associated with such group of drugs
   1. cholinoblockers
   2. calcium channel blockers
   3. beta 2 – agonists
   4. ACE–inhibitors
   5. M-cholinoreceptors agonists

ANSWER: B

1. Reflex tachycardia is associated with such drug
   1. Propranolol
   2. Metoprolol
   3. Nifedipine
   4. Timolol
   5. Salbutamol

ANSWER: C

1. Prinzmetal’s angina, variant angina, hypertension, paroxysmal supraventricular tachycardia – the pathological statuses which need uses of
   1. Lozartan
   2. Captopril
   3. Nitroglycerin
   4. Diltiazem
   5. Dopamine

ANSWER: D

1. A drug of a first choice for acute angina attack is:
   1. Atenolol
   2. Captopril
   3. Diltiazem
   4. Dopamine
   5. Nitroglycerin

ANSWER: E

1. Indicate an antihistaminic agent that does not cause expressed sedative action
   1. Suprastine
   2. Diprasine
   3. Dimedrole
   4. Paracetamol
   5. Diazoline

ANSWER: E

1. A patient diagnosed with a deep venous thrombosis is begun on a heparin infusion of 1000 U/HR after a 5000 U Bolus. Duration of action of heparin is:
   1. 4 hours
   2. 10 hours
   3. 12 hours
   4. 24 hours
   5. None of the above

ANSWER: A

1. The direct-acting plasminogen activator and fibrinolitic drug is:
   1. streptomicine
   2. urokinase
   3. epsilon-aminocaproic acid
   4. vikasol
   5. heparin

ANSWER: B

1. The antithrombotic drug which inhibits cyclooxygenase enzymes is:
   1. prednisone
   2. dipyridamole
   3. ascorbic acid
   4. aspirin
   5. vikasol

ANSWER: D

1. Correct statements about the action of warfarin include: 1.warfarin is not structurally similar to vitamin K; 2. warfarin inhibits vitamin K epoxide reductase; 3. the onset of warfarin action may be prolonged due to the long half-life of factor VII; 4. strong headache may appear if warfarin is administered in therapeutic doses
   1. 1,2,3
   2. 1,3
   3. 2,4
   4. 4 only
   5. All of the above

ANSWER: C

1. Manifestations of overdose with dimedrole may include:
   1. blurred vision
   2. dry mouth
   3. hallucinations
   4. sinus tachycardia
   5. All of the above

ANSWER: E

1. Histamine-1 receptor antagonists include:
   1. ranitidine
   2. nizatidine
   3. famotidine
   4. terfenadine
   5. cimetidine

ANSWER: D

1. An agent used to decrease LDL (low density lipoproteins) is:
   1. Lovastatin
   2. neomycin
   3. aspirin
   4. nitroglycerine
   5. paracetamol

ANSWER: A

1. Gallstones, abdominal pain and myalgia are side effects of such lipid-lowering drug:
   1. neomycin
   2. aspirine
   3. levamisole
   4. ascorbinic acid
   5. clofibrate

ANSWER: E

1. Indicate lipid-lowering drug which indirectly enhance the activity of the hepatic enzyme HMG CoA reductase:
   1. paracetamol
   2. L-thyroxine
   3. cholestyramine
   4. levomycetine
   5. gentamycine

ANSWER: C

1. Agents primarily used to treat hypercholesterolemia which work by inhibiting the HMG-CoA reductase enzyme include:
   1. lovastatin
   2. gentamycine
   3. nialamide
   4. ascorbinic acid
   5. amlodipine

ANSWER: A

1. The agent which is thought to lower triglycerides by inhibiting hepatic VLDL (very low density lipoproteins) secretion and suppressing VLDL synthesis is:
   1. neomycin
   2. nicotinic acid
   3. fluconasole
   4. caffeine
   5. beta adrenoblocker

ANSWER: B

1. Gynecomastia, hyperkalemia, and menstrual abnormalities are potential adverse effects associated with such diuretic drug:
   1. Furosemide
   2. captopril
   3. acebutolol
   4. Spironolactone
   5. Digitoxine

ANSWER: D

1. Diuretic which may result hypokalemia when used in a patient not receiving potassium supplementation include:
   1. spironolactone
   2. Furosemide
   3. triamterene
   4. Potassium chloride
   5. None of the above

ANSWER: B

1. 24. Beta blockers which are relatively cardioselective include: 1. metoprolol 2. propranolol(anapriline) 3. atenolol 4. amlodipine
   1. 1,2,3
   2. 1,3
   3. 2,4
   4. 4 only
   5. All are correct

ANSWER: B

1. Propranolol may cause all of the following EXCEPT:
   1. bradycardia
   2. bronchiolar constriction
   3. bronchiolar dilation
   4. reduced myocardial contractility
   5. ortostatic colaos

ANSWER: C

1. A 48-year old salesman with hypertension complaints on mood disorders and depression. His blood pressure is normal. Which antihypertensive drug most likely to be the cause of his new complaints:
   1. papaverine
   2. acebutolol
   3. Reserpine
   4. hydrochlorothiazide
   5. guanidine

ANSWER: C

1. Clonidine hydrochloride (clofeline) lowers blood pressure by reducing sympathetic tone. It is believed to act by inhibiting sympathetic outflow from the vasomotor center in the medulla. A potentially serious adverse reaction that has been reported is:
   1. myelosuppression
   2. anemia
   3. irreversible nephrotoxicity
   4. withdrawal syndrome resembling hypertensive crisis
   5. systemic lupus erythematosus

ANSWER: D

1. Propranolol produces most of its important effects by antagonizing the beta adrenergic effects of catecholamines released by sympathetic nerve stimulation or from the adrenal medulla. It therefore results in all of the following EXCEPT:
   1. negative inotropic effect on the heart
   2. bronchoconstriction
   3. lowering plasma renin activity
   4. strong diuretic effect
   5. negative chronotropic effect on the heart

ANSWER: C

1. An agent which produces its antihypertensive effect by blocking autonomic ganglia, thus lowering the sympathetic tone of blood vessels, is:
   1. hygronium
   2. diazoline
   3. aspirin
   4. nifedipine
   5. alpha-methyldopa

ANSWER: A

1. The most useful drugs in the long-term treatment of essential hypertension, which decrease the quantity of sodium ions in blood vessels and eliminate them via the kidneys are:
   1. thiazide diuretics
   2. osmotic diuretics
   3. Sympatholitics
   4. sedative agents
   5. Cardiac glycosides

ANSWER: A

1. Antihypertensive agents have different modes of action. The expected onset of action of IV nitroprusside is:
   1. seconds
   2. 45 minutes
   3. 15 to 30 minutes
   4. several hours
   5. 12 to 24 hours

ANSWER: A

1. Antihypertensive agents must be used with caution. The medical condition for which propranolol is most contraindicated is:
   1. renal insufficiency
   2. congestive heart failure
   3. mental depression
   4. liver disease
   5. asthma

ANSWER: E

1. Antihypertensive agents must be used with caution. The medical condition for which Reserpine is most contraindicated is:
   1. renal insufficiency
   2. coronary insufficiency
   3. mental depression
   4. liver disease
   5. asthma

ANSWER: C

1. Propranolol is a potent blocker of beta-adrenergic sympathetic activity. It has been found to be detrimental, however, in patients with:
   1. bronchial asthma
   2. hypertension
   3. hyperthyroidism
   4. atrial fibrillation
   5. ventricular arrhythmias

ANSWER: A

1. It is important to understand the mechanism of action of the various drugs used in the treatment of hypertension. The antihypertensive action of propranolol involves all of the following EXCEPT:
   1. decreased stroke volume
   2. inhibition of renin releas
   3. block adrenergic receptors
   4. depletion (decrease of syntesis) of catecholamines
   5. decreased heart rate

ANSWER: D

1. Propranolol is indicated in all of the following EXCEPT:
   1. bronchial asthma
   2. Tachycardia
   3. IHD
   4. Hypertensive disease
   5. Hyperthyroidism

ANSWER: A

1. Tachycardia is a prominent side effect of:
   1. nifedipine
   2. aspirin
   3. acebutolol
   4. all of above
   5. None of above

ANSWER: A

1. A diuretic agent which is associated with hearing loss is:
   1. spironolactone
   2. triamterene
   3. Furosemide
   4. digitoxine
   5. glucose

ANSWER: C

1. A diuretic agent which is antagonist of aldosterone, it is potassium sparing:
   1. Spironolactone
   2. Furosemide
   3. ethacrynic acid
   4. chlorothiazide
   5. glucose

ANSWER: A

1. The potassium sparing diuretic agent which acts by inhibiting aldosterone at the distal tubular renal cell is:
   1. Spironolactone
   2. Furosemide
   3. ethacrynic acid
   4. chlorothiazide
   5. digitoxine

ANSWER: A

1. A diuretic agent which is potassium-sparing and does not depend upon the adrenal cortex for action is:
   1. furosemide
   2. triamterene
   3. ethacrynic acid
   4. chlorothiazide
   5. teophylline

ANSWER: B

1. Which of the following diuretic agents may produce hypokalemic alkalosis but is a very useful drug in the treatment of volume-dependent hypertension?
   1. spironolactone
   2. triamterene
   3. aspirine
   4. dichlothyazide
   5. teophylline

ANSWER: D

1. Complications of treatment of edema with thiazides include all of the following EXCEPT:
   1. hyperuricemia
   2. hyperkalemia
   3. hyperglycemia
   4. hyponatremia
   5. alkalosis

ANSWER: B

1. Which of the following diuretics may cause hyperkalemia:
   1. ethacrynic acid
   2. furosemide
   3. thiazides
   4. triamterene
   5. teophylline

ANSWER: D

1. Triamterene:
   1. antagonizes aldosterone
   2. can produce systemic hyperkalemia
   3. is classified as a sodium-sparing diuretic
   4. is of no clinical usefulness
   5. has diuretic activity as furosemide

ANSWER: B

1. Which of the following drugs may be hazardous if give to a patient receiving spironolactone?
   1. epinephrine
   2. propranolol
   3. potassium chloride
   4. monoamine oxidase inhibitors
   5. All of the above

ANSWER: C

1. A side effect of spironolactone, when utilized to treat hypertension is:
   1. hyperkalemia
   2. acne
   3. hypomagnesemia
   4. male pattern baldness
   5. bronchospasm

ANSWER: A

1. The principle site of action of furosemide is the:
   1. ascending loop of Henle
   2. All of abole
   3. proximal tubule
   4. distal tubule
   5. None of the above

ANSWER: A

1. The site of action of mannitol is:
   1. loop of Henle
   2. All of above
   3. tubule of kidney
   4. liver
   5. None of the above

ANSWER: C

1. Antihistaminic preparation with somnolent effect
   1. Phenobarbital
   2. Dimedrole
   3. Sodium oxybutas
   4. Bromisovale
   5. Diazepam

ANSWER: B

1. Agents for treatment of anaphylactic shock
   1. Anaprilin
   2. Adrenaline
   3. Morphine
   4. Codeine
   5. Analgine

ANSWER: B

1. Mechanism of antiallergic actions of antihistaminic preparations is
   1. Inactivation of histamine
   2. Block cholinoreceptor of peripheral ganglions
   3. Block of Н1-histamine receptors
   4. Activation of Н2-histamine receptors
   5. Diminish formation of antibodies

ANSWER: C

1. Indicate antihistaminic drug without sedative effect
   1. Tavegil
   2. Diazoline
   3. Dimedrole
   4. Suprastine
   5. Diprasine

ANSWER: B

1. Agents, applied in therapy immediate allergic reactions are
   1. Analeptics
   2. Adrenomimetics
   3. Sympathomimetics
   4. Cholinomimetics
   5. NSAID

ANSWER: B

1. Hormonal preparation applied in case of immediate allergic reactions
   1. Insulin
   2. Tireoidine
   3. Vasopressine
   4. Dexametasone
   5. Cromoline sodium

ANSWER: D

1. Indicate, that characteristically for Diazoline
   1. Acts shortly
   2. Connect with Н2-histamine receptors
   3. Stimulate secretion of salivary glands
   4. Does not penetrate through BBB (blood brain barrier)
   5. Possesses expressed sedative action

ANSWER: D

1. Indicate a distinctive property of Dimedrole and Diprasine
   1. Stimulate histamine Н1-receptors
   2. Increase secretion of salivary glands
   3. Possess local anesthetic activity
   4. Do not cause sedative and somnolent action
   5. Do not possess M-cholinoblocker properties

ANSWER: C

1. Cromoline sodium mechanism of action:
   1. Stabilization of mast cells membranes
   2. Block Н1-receptors
   3. Block Н2- receptors
   4. Bronchia dilative action
   5. Stimulation of adrenergic receptors

ANSWER: A

1. What is not characteristically for Dimedrole:
   1. The effect is 2-3 hours
   2. Possesses the local anesthetic activity
   3. Penetrates through BBB (blood brain barrier)
   4. Oppresses a secretion of salivary glands
   5. Possess M-cholinoblocker properties

ANSWER: A

1. Hormonal preparation applied in case of anaphylactic shock:
   1. Anaprilin
   2. Prednisolone
   3. Morphine
   4. Codeine
   5. Analgin

ANSWER: B

1. Antihistaminic agents of III generations, doesn’t have sedative action
   1. Dimedrole
   2. Diprasine
   3. Suprastine
   4. Loratadine
   5. Phencarole

ANSWER: D

1. Antihistaminic drug – phenothiazine derivative with alpha –adrenoblocking activity
   1. Dimedrole
   2. Diazoline
   3. Suprastine
   4. Diprasine
   5. Phencarole

ANSWER: D

1. Indicate the adverse effect of antihistaminic preparations of I generation
   1. Excitation of the central nervous system
   2. Dryness in oral cavity
   3. Reduction of effect of sedative drugs
   4. Acceleration of psychiatry reactions
   5. Cramps

ANSWER: B

1. Diazoline unlike Dimedrole:
   1. Causes a somnolent effect
   2. Acts shortly
   3. Does not penetrate through BBB (blood brain barrier)
   4. Possesses expressed cholinolitic action
   5. Blocks histamine receptors

ANSWER: C

1. Calcium channel blocker for tachyarrhythmia is
   1. Verapamil
   2. Metoprolol
   3. Dipiridamole
   4. Aspirin
   5. Captopril

ANSWER: A

1. High degree of reflex tachycardia is associated with
   1. calcium channel blockers (dihydropyridines)
   2. beta - blockers
   3. beta 2 – agonists
   4. ACE – inhibitors
   5. M-cholinoreceptors agonists

ANSWER: A

1. High degree of reflex tachycardia is associated with
   1. Propranolol
   2. Metoprolol
   3. Nifedipine
   4. Timolol
   5. Salbutamol

ANSWER: C

1. Prinzmetal’s angina, variant angina, hypertension, paroxysmal supraventricular tachycardia – the pathological states which need uses of
   1. Lozartan
   2. Captopril
   3. Nitroglycerin
   4. Diltiazem
   5. Dopamine

ANSWER: D

1. A drug of a first choice for acute angina attack is:
   1. Propranolol
   2. Captopril
   3. Diltiazem
   4. Dopamine
   5. Nitroglycerin

ANSWER: E

1. The onset of action of Reserpine is:
   1. 2-3 weeks after initiation of therapy
   2. Immediatly
   3. 2-5 days after initiation of therapy
   4. 1-3 hours after initiation of therapy
   5. 1 month after initiation of therapy

ANSWER: C

1. Which calcium channel blocker have a long half-life and suitable for once-a- day dosing?
   1. Nifedipine
   2. Amlodipine
   3. Nitroglycerin
   4. Atropine
   5. Dopamine

ANSWER: B

1. ACE – inhibitor is
   1. Nitroglycerin
   2. Nifedipine
   3. Captopril
   4. Metoprolol
   5. Hygronium

ANSWER: C

1. Nitrate is
   1. Nitroglycerine
   2. Nifedipine
   3. Captopril
   4. Metoprolol
   5. Hygronium

ANSWER: A

1. Calcium channel blocker is
   1. Nitroglycerin
   2. Nifedipine
   3. Captopril
   4. Metoprolol
   5. Hygronium

ANSWER: B

1. Beta-adrenoreceptors antagonist is
   1. Nitroglycerin
   2. Nifedipine
   3. Captopril
   4. Metoprolol
   5. Hygronium

ANSWER: D

1. What mechanism of action of angiotensin II receptor antagonists
   1. Competitively bind to the angiotensin II receptors
   2. Competitively bind to the beta-adrenoreceptors
   3. Competitively bind to the alpha-adrenoreceptors
   4. Inhibit angiotensin-converting enzyme (ACE)
   5. Dilate the veins

ANSWER: A

1. What is mechanism of action of ACE-inhibitors
   1. Competitively bind to the angiotensin – II receptors
   2. Competitively bind to the beta-adrenoreceptors
   3. Competitively bind to the alpha-adrenoreceptors
   4. Inhibit angiotensin-converting enzyme (ACE)
   5. Dilatation the veins

ANSWER: D

1. What mechanism of action of nitrates for ischemic heart disease?
   1. Competitively bind to the angiotensin II receptors
   2. Competitively bind to the beta-adrenoreceptors
   3. Competitively bind to the alpha-adrenoreceptors
   4. Inhibit angiotensin-converting enzyme (ACE)
   5. Dilatation of the peripheral vessels

ANSWER: E

1. Therapeutic use of calcium channel blockers is
   1. Therapy of hypertension
   2. Therapy of angina
   3. Therapy of arrhythmias
   4. Prevention of heart’s ischemia
   5. All mentioned above

ANSWER: E

1. Nifedipine is
   1. Calcium channel blocker
   2. Beta-adrenoreceptor antagonist
   3. Beta- adrenoreceptor agonist
   4. ACE inhibitor
   5. Angiotensin II receptors antagonists

ANSWER: A

1. Amlodipine is
   1. Calcium channel blocker
   2. Beta-adrenoreceptor antagonist
   3. Beta- adrenoreceptor agonist
   4. ACE inhibitor
   5. Angiotensin II receptors antagonists

ANSWER: A

1. Verapamil is:
   1. Calcium channel blocker
   2. Beta- adrenoreceptor antagonist
   3. Beta- adrenoreceptor agonist
   4. ACE inhibitor
   5. Angiotensin II receptor antagonists

ANSWER: A

1. Verapamil is used for treatment of:
   1. Tachyarrhythmia
   2. congestive heart failure
   3. bronchial asthma
   4. bronchitis
   5. hepatitis

ANSWER: A

1. Adverse effects of calcium channel blockers are:
   1. Flushing (dilatation of skin vessels)
   2. Hypertension
   3. Bronchial spasm
   4. Heart ischemia
   5. Dry mouth

ANSWER: A

1. Dihydropyridine – type calcium channel blockers (nifedipine, amlodipine)
   1. Have prominent vascular effects, rather than cardiac effects
   2. Have prominent cardiac effects, rather than vascular effects
   3. Have antiarrythmic effect
   4. Have antiallergic action
   5. Are used for headache

ANSWER: A

1. Which calcium channel blockers are most effective in the control of supraventricular arrhythmias?
   1. Verapamil, diltiazem
   2. Verapamil, atropine
   3. Diltiazem, nifedipine
   4. Verapamil, metoprolol
   5. Metoprolol, lidocaine

ANSWER: A

1. Prinzmetal’s angina is due to coronary vasospasms, that’s why the most effective drugs for treatment are
   1. Atropine
   2. Calcium channel blockers
   3. Beta-adrenoreceptor agonists
   4. ACE inhibitors
   5. Angiotensin II receptor antagonists

ANSWER: B

1. Prinzmetal’s angina is due to coronary vasospasms, that’s why the most effective drugs for treatment are
   1. Amlodipine
   2. Nitroglycerin
   3. Metoprolol
   4. Captopril
   5. Losartan

ANSWER: A

1. Sublinglival nitroglycerin is used for
   1. Acute angina attacks
   2. Acute attacks of bronchospasme
   3. Arrhythmias
   4. Hepatitis
   5. Bronchitis

ANSWER: A

1. Mechanism of action of class I antiarrhythmic drugs
   1. Block sodium channels
   2. Block alpha-adrenoreceptors
   3. Increase intracellular potassium amount
   4. Are calcium channels blockers
   5. Block beta – adrenal receptors

ANSWER: A

1. Mechanism of action of class II antiarrhythmic drugs
   1. Block sodium channels
   2. Block alpha-adrenoreceptors
   3. Increase intracellular potassium amount
   4. Block calcium channels
   5. Block beta-adrenoreceptors

ANSWER: E

1. Mechanism of action of class III antiarrhythmic drugs
   1. Block sodium channels
   2. Block alpha-adrenoreceptors
   3. Prolong the cardiac potential by increase in intracellular potassium
   4. Are calcium channels blockers
   5. Block beta-adrenoreceptors

ANSWER: C

1. Mechanism of action of class IV antiarrhythmic drugs
   1. Block sodium channels
   2. Block alpha – receptors
   3. Prolong the cardiac potential by increase in intracellular potassium
   4. Block calcium channels
   5. Block beta-adrenoreceptors

ANSWER: D

1. Mechanism of action of cardiac glycosides
   1. Increase the myocardium contractility
   2. Block the beta-adrenoreceptors
   3. Block the activity of adenosine-triphosphatase (ATPase)
   4. Block the activity of COX2
   5. Cause the dilatation of coronary vessels

ANSWER: C

1. Main sign of action of cardiac glycosides:
   1. Increase the force of contraction of the cardiac muscles
   2. Decrease the force of contraction of the cardiac muscles
   3. Increase the sensitivity of heart to epinephrine
   4. Cause tachycardia
   5. Cause the dilatation of heart’s vessels

ANSWER: A

1. Digitalis glycosides:
   1. Increase contractility of myocardium
   2. Increase urinary elimination
   3. Block the sodium-potassium ATPase
   4. Increase intracellular quantity of calcium ions
   5. All mentioned above

ANSWER: E

1. What anticoagulant activates antithrombin III?
   1. Heparin
   2. Warfarin
   3. Aspirin
   4. Alteplase
   5. Streptokinase

ANSWER: A

1. Heparin is
   1. Anticoagulant
   2. Analgesic
   3. Cardiac glycoside
   4. Antianginal medicine
   5. Drug for treatment of bronchial asthma

ANSWER: A

1. Drugs that disrupt the clotting cascade, thus inhibiting clot formation are
   1. Anticoagulants
   2. Nitrates
   3. Coagulants
   4. Antihypertensive drugs
   5. Cardiac glycosides

ANSWER: A

1. Sulfonylurea drugs for diabetes mellitus:
   1. are active in the absence of the pancreas
   2. increase insulin release
   3. are given subcutaneously
   4. are used for type 1 diabetes
   5. are used for bronchial asthma

ANSWER: B