**T.C.**

**ATILIM UNIVERSITY MEDICAL FACULTY**

**EDUCATION IN 2021-2022 ACADEMIC YEAR**

**ACADEMIC CALENDAR**

**Laboratory Lessons:**

1. Determination of hemoglobin / Erythrocyte sedimentation rate / Bleeding, clotting time / Blood group determination (1 hour, Dr. Sarıkaya)
2. Preparation of peripheral blood smear, staining (1 hour, Dr. Sarıkaya)
3. Evaluation of peripheral blood smear (1 hour, Dr. Sarıkaya)
4. White Blood Cells Neoplasms (1 hour, Dr. Boduroğlu)
5. Blood parasites (1 hour, Dr. Tülek & Dr. Acar)
6. The thoracic wall & the heart and the pericardium (1 hour, Dr. Öktem)
7. Cardiovascular system histology (1 hour, Dr. Süzer)
8. Normal alectrocardiogram (1 hour, Dr. Dursun)
9. The mediastinum, the great vessels, the posterior and the diaphragm (1 hour, Dr. Öktem)
10. Clinical Skill: Blood pressure measurement (1 hour, Dr. Dursun)
11. Vascular and cardiac pathology (1 hour, Dr. Boduroğlu)
12. Medical Biology\* (2 hours, Dr. Özalp)

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| **COMMITTEE NAME** | **STARTING DATE** | **COMPLETION DATE** |
| **MED 202 Cardiovascular System** | 07.02.2022 | 15.04.2022 |

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|  | **MED 201** | **MED 202** | **MED 203** | **MED 204** |
| **ANATOMY PRACTICAL EXAM** |  | 14.04.2022 |  |  |
| **CLINICAL SKILLS** |  | 11.04.2022 |  |  |
| **COMMITTEE EXAM -1** |  | 24.02.2022 |  |  |
| **COMMITTEE EXAM -2** |  | 15.04.2022 |  |  |

**MED 202 CARDIOVASCULAR SYSTEM**

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| **PHASE II COORDINATOR** | Prof. Dr. Ali ACAR | | | |
| **PHASE II COORDINATOR ASSISTANT** | Asst. Prof. Dr Badegül Sarıkaya | | | |
| **CHAIRMAN OF THE MED 202 COMMITTEE** | Asst. Prof. Dr Badegül Sarıkaya | | | |
| **MED 202 COMMITTEE DATE RANGE** | 07.02.2022 - 15.04.2022 | | | |
| **ACADEMIC STAFF AT THE MED 202 COMMITTEE** | Prof. Dr. Necla TÜLEK - Medical Microbiology  Prof. Dr. Nedret KILIÇ - Medical Biochemistry  Prof. Dr. Gamze YURDAKAN - Medical Pathology  Prof. Dr. Ali ACAR - Medical Microbiology  Prof. Dr. Veli Cengiz ÖZALP - Medical Biology  Prof. Dr. Ahmet SALTIK- Public Health  Prof. Dr. Fikriye Figen AYHAN – Physical Medicine and Rehabilitation  Prof. Dr. Celal KERVANCIOĞLU– Cardiology  Prof. Dr. Hüseyin AYHAN- Cardiology  Assoc. Prof. Dr. Hale ÖKTEM – Anatomy  Assoc. Prof. Dr. Filiz KORKMAZ ÖZKAN – Biophysics  Assoc. Prof. Dr. Bilge Duran KARADUMAN- Cardiology  Assoc. Prof. Dr. Ersin SARIÇAM - Cardiology  Asst. Prof. Dr. Ali Doğan DURSUN – Physiology  Asst. Prof. Dr. Esin BODUROĞLU - Medical Pathology  Asst. Prof. Dr. Badegül Sarıkaya - Physiology  Asst. Prof. Dr. Gökşen ÖZ – Medical Pharmacology  Asst. Prof. Dr. M.F. Tolga SOYAL- Cardiovascular Surgery  Asst. Prof. Dr. Ayşegül Süzer - Histology and Embryology  Asst. Prof. Dr. Murat Can GÜNEY-Cardiology | | | |
| |  |  | | --- | --- | |  |  |   **ACADEMIC STAFF** | **THEORETICAL LESSON TIME** | **PRACTICAL LESSON TIME** | **INTERACTIVE EDUCATION**  **TIME** | **TOTAL TIME** |
| **Anatomy** | 8 | 2 | - | 10 |
| **Histology and Embryology** | 7 | 1 | - | 8 |
| **Medical Microbiology** | 17 | 1 | 5 (3 hours Student Panel, 2 hours CBL) | 23 |
| **Medical Pharmacology** | 13 | - | - | 13 |
| **Medical Biochemistry** | 6 | - | - | 6 |
| **Medical Pathology** | 13 | 2 | 4 (1 hour CBL, 3 hours PBL (6 hours in total)) | 19 |
| **Physiology** | 20 | 5  (1 hour Clinical Skill) | 3 (PBL (6 hours in total)) | 28 |
| **Medical Biology** | - | 2 | - | 2 |
| **Cardiology** | 18 | - | - | 18 |
| **Physical Medicine and Rehabilitation** | 1 | - | 2 (CBL) | 3 |
| **Cardiovascular Surgery** | 2 | - | - | 2 |
| **Biophysics** | 15 | - | - | 15 |
| **TOTAL** | 120 | 13 | 14 | 147 |

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| **CONTENT OF THE MED 202 COMMITTEE** | | |
| Introduction to Cardiovascular System Committee, Functions, and properties of blood, General physical properties of biophysical materials, solids and fluids, Fluid properties of blood, Bone marrow, development and histology of blood cells, Erythrocytes, Hemoglobin, Platelets; endothelium-platelet relationship, and hemostatic mechanisms, Fluid & hemodynamic disorders, Determination of hemoglobin / Erythrocyte sedimentation rate / Bleeding, clotting time / Blood group determination, Neoplastic Proliferations of White Cells (Lymphoma/Leukemia), PBL, Blood parasites, Drugs Used in Coagulation Disorders, Staphylococcus and related Gram positive cocci, Preparation of peripheral blood smear, staining, Evaluation of peripheral blood smear, Vector borne disease, White Blood Cells Neoplasms, PBL, Blood parasites, Red blood cells diseases, Case Discussion (CBL): Arboviruses, The thoracic wall, Development of heart and vessels; and conjenital malformations, The heart and the pericardium, Heart and vessel histology, Physiological properties of the heart muscle,cardiac electrophysiology and myocardial contraction, The basic principles of electrical potentials recorded from the body surface, Streptococci and related diseases, Heart cycle, heart sounds, The heart's special impuls- electrical conduction system, Heart dipole and ECG, Einthoven triangle, Symptomatology in heart diseases, Cardiac examination, The mediastinum, the great vessels and the posterior mediastinum, The diaphragm, The thoracic wall & the heart and the pericardium, Cardiovascular system histology, Fungemia, The concept of preload in the heart and its effect on the stroke volume, Concepts of afterload, inotropy in the heart and its effect on stroke volume, Heart volume-pressure relationship, oxygen consumption, Introduction to autonomic pharmacology, Sympathomimetics, Adrenoreceptor blockers, Electrocardiogram, Cardiac output, Normal electrocardiogram, The mediastinum, the great vessels, the posterior and the diaphragm, Definitions and mechanism of Sepsis, Bernoulli's Principle, Poiseuille's Law and its relation to the circulation dynamic, Circulation Dynamics: Laplace's Law, transverse extensibility, surface tension, Arterial, capillary and venous circulation; Local control mechanisms of blood flow regulation, Regulation of arterial blood pressure, Causes and Findings of Sepsis, Treatment of Sepsis, Electrocardiogram, ECG and Rhytm Disorders, Student Panel: Endocarditis, Viral myocarditis agents microorganisms diagnosis and treatment, Free radical metabolism and related diseases, Special circulations, Biochemistry of atherosclerosis, Catheter infection and biofilm, Arteriosclerosis and atherosclerosis, Acute Coronary Syndromes, Chronic coronary artery disease, Peer Education: What have we learnt?, Drugs Used in the Treatment of Angina Pectoris, CBL: Vasculitis, Disorders of lymphatics and blood vessels, veins, Pericardial diseases, Cardiac & vascular neoplasms, Sectional and clinical anatomy, Blood pressure measurement, ascular and cardiac pathology, Lymphatic system and lymphedema, Case Discussion: Primary and secondary lymphedema and complications, Hypertension Etiopathogenesis, Diagnosis of Hypertension and Blood Pressure Measurement, Drugs Used in Hypertension, Medical Biology, Antiarrhythmic Drugs, Drugs Used in Heart Failure. | | |
| **MED 202 COMMITTEE AIM** | | |
| To understand the structure, components and functions of blood tissue, which has functions such as the transport of various substances between tissues, control of bleeding and coagulation; to learn the normal structure, function and hemodynamic properties of the circulatory system, the heart and the vascular system involved in pumping blood to tissues; to gain knowledge about the etiopathogenesis, pathology, symptoms and signs, prevention, diagnosis and treatment principles of disorders; to gain basic medical skills for the circulatory system. | | |
| **MED 202 COMMITTEE LEARNING OBJECTIVES** | | |
| Explains the functions of blood.  Defines the contents, proportions, physical and functional properties of blood.  Explains the content of plasma, and the functions of plasma proteins.  Explains the morphological features and functions of erythrocytes.  Defines the maturation steps of erythrocytes.  Defines the definition and normal values of the parameters belonging to erythrocytes.  Explains how erythrocyte surface antigens constitute A B O blood typing and Rh factor, explains the differences between Rh system and ABO system.  Describes the structure, types, properties, synthesis, destruction of the hemoglobin molecule and products formed as a result of destruction.  Explains the differences arising from the structure of hemoglobin and the clinical tables that may ocur.  Explains hemolysis event and its causes, explains the steps of catabolism.  Explains the transportation, storage and metabolism of iron.  Explains the structural features and related functions of platelets.  Defines the endothelium-platelet relationship.  Describes hemostasis, explains its importance.  Explains the coagulation mechanisms, defines extrinsic and intrinsic pathways.  Explains the fibrinolytic system and its regulation by Protein C.  Interprets the structure, electrical activity, electrophysiological features of the heart muscle and the relationship of these features with the heart's pump function.  Explains the contraction mechanisms of the heart muscle  Explains the heart's excitation systems  Explains the regulation of the heart study.  Describes heart sounds and foci.  Shows the cardiac cycle on the diagram, compares mechanical and electrical properties.  Defines the principles of electrocardiography recording.  Explains the normal electrocardiogram (ECG) components.  Explains the electrophysiological basis underlying the formation of the normal ECG pattern, and recognizes the normal ECG wave, segment and intervals.  Defines cardiac output and explains the factors affecting cardiac output  Describes the functional properties of arteries, arterioles, capillaries, venules, veins.  Interprets the flow-pressure-resistance relationship in the circulatory system, explains the cooperation of the heart and vascular system, the pressure-flow relationship in the vascular system, and the control mechanisms of microcirculation in ensuring proper tissue perfusion.  Explains the neurogenic and hormonal mechanisms that function in the regulation of blood pressure  Describes fetal circulation  Measures, and interprets hemoglobin levels, sedimentation rate, bleeding-clotting time. Detects blood groups.  Prepares and stains the blood smear.  Evaluates peripheral blood smear, leukocyte count, leukocyte formula.  Draws ECG and calculates heart rate on ECG, evaluates heart rhythm and makes vector analysis.  Explains the physiological basis of blood pressure measurement, measures blood pressure.  Define the main components of peripheral blood  Be able to recognize all of the cellular components found in peripheral blood by light and electron microscopy to define the aplastic anemia.  Define the approximate abundance of various types of blood cells.  Be familiar with the general process of hematopoiesis and discriminate between lymphoid and myeloid cell lineages.  Describe the organization of the bone marrow.  Be able to recognize megakaryocytes in the bone marrow and understand their function in platelet production to define the bleeding disorders.  Be able to distinguish successive parts of the circulatory pathway, and explain how the structure of the vessel wall meets the functional needs that are present in each of the parts to define some diseases such as Deep vein thrombosis, Chronic Coronary Artery disease\*, Vascular malformation/ hemangioma.  Describe how structural differences in capillaries influence the passage of diverse material across the endothelium.  Recognize features in the heart (such as cardiac muscle, valves, cardiac skeleton) that allow it to serve as a pump to define some diseases such as endocarditis, Heart valve diseases, congenital heart diseases, Myocarditis/cardiomyopathy, Pericardial diseases.  Determine the bones related with thoracic skeleton  Determine the joints of the thoracic wall  Caunts the types of the joints of the thoracic wall  Determine the related ligaments  Determine the parts of pericardium, innervation and blood supply  Describe clinical anatomy of pericardium  Describe the external features of the heart  Describe the chambers, valves, great vessels and the pathway of blood flow  Identify the anatomical structures of the four chambers  Says the layers of the heart wall (endocardium, myocardium, pericardium)  Describe the course and distribution of the coronary arteries and cardiac veins  Determine the coronary dominance in regard to the posterior interventricular artery  Describe the cardiac plexus and its contribution to heart innervation on cardiac myocardium, cardiac cycle, and coronary arteries  Outline the conducting system of the heart, including the location and function of the SA node, AV node, AV bundle, and Purkinje fibers  Describe the boundaries of mediastinum  Describe the boundaries and contents of the superior, anterior, middle, posterior mediastinum  Describe the course of the thoracic part of the aorta, organizing its branches according to pattern of dispersal and parietal and visceral targets  Describe the azygos venous system, explaining the pattern of tributaries draining the left and right intercostal veins  Describe the major tributaries (trunks) of the thoracic duct, and the course of the thoracic duct through the posterior mediastinum.  Describe the courses and major branches of the vagus nerves (CN X) in the thorax  Describe the sympathetic trunks in the thorax.  Descibe the parts of the diaphragm  Describe the attachments of the parts  Determine the apertures and the levels of these apertures according to the vertebral column  Counts the structures passing from the apertures  Describe the innervation and vessels of the diaphragm  Descibe the diaphragm hernia  Understand the structure of materials having different phases  Understand the properties of biophysical materials  Define stress, strain, elastic and plastic deformation  Define viscosity  Know that blood is a non-Newtonian fluid  Know the factors affecting blood viscosity  Define pressure and the factors affecting pressure  Understand fluid movement under pressure gradient  Understand the nature of potential difference in the body  Understand the working principle of a voltmeter and the meaning of potential difference  Able to draw depolarization vectors  Know 12-lead ECG lead positions  Identify phases of heart contraction from an ECG reading  Know the axes of leads  Calculate the heart axis using an ECG reading  Determine the rate, rythm and axis from an ECG reading  Know the positions of bipolar limb leads  Draw the recording of bipolar limb leads during a full cycle of heart contraction  Understand the relation between three limb lead recordings  Define stroke volume  Define preload  Know the factors affecting preload  Define afterload, inotrpy and inotropic agents  Know the factors affecting the afterload  Know the average pressure values in four chambers of the heart during each phase of the contraction  Know that the heart provides pressure energy to blood in ventricles  Define Frank-Starling law  Understand the relation between contractility and stroke volume  Know the laws governing the fluid dynamics; i.e., continuity equation, Bernoulli’s principle  Discriminate laminar flow and turbulent flow in terms of the forces involved  Know the factors affecting the Reynold’s number to estimate turbulence  Know that the blood pressure difference is the product of cardiac output and total circulatory resistance, i.e., Poiselle’s equation.  Know that cardiac output is the product of stroke volume and heart rate.  Define how the blood pressure and velocity change during circulation and identify the factors affecting blood pressure.  Know the average pressure values at different vessel types for a resting adult heart  Define the factors affecting vessel resistance  Know the importance of parallel branching in capillaries.  Define compliance and know the meaning of high/low compliant chamber  Know the relation among pressure, surface tension, wall thickness and radius (Laplace’s eqn)  Know that distensibility is related with compliance but they are not the same.  Know that veins are more distensible than arteries.  Know that pulmonary arteries are more distensible than systemic arteries.  Know autoregulation mechanisms of blood flow  Understand the burden of malaria in the world  Describes the plasmodium types and differences between them according to the structure, life cycle, pathogenesis and clinical diseases.  Become familiar with signs and symptoms of malarial illness.  Understand the basic steps in the diagnosis and management of malaria.  Explain the prevention and control of malaria  Classify and describe the structure of each parasite  Explain the parasites’ life cycles. Discuss the relationship between each parasite and its host.  Explains the sources of infection, pathogenesis, become familiar with clinical manifestations, methods of diagnosis, prevention and control.  Describe the general characteristics of the genus Staphylococcus.  Describe the significance of the virulence factors of Staphylococcus aureus.  Examine the clinical, epidemiological and laboratory findings associated with the infections including.toxic shock syndrome, subacute bacterial endocarditis  Describe what a vector-borne disease is and the role of the host reservoir on parasite transmission.  Explain the causes, modes of transmission, clinical manifestations, prevention and control of vector-borne diseases  Define the public health importance, identify the risk groups and exposure risks  Understand and appraise control strategies for vector-borne diseases  Describe the distribution of these arthropods and diseases transmitted dengue, zika, chkv and yellow fever, Rift Valley fever, Japanese encephalitis.  The global and regional disease burden of each study disease  Identify the main factors that affect arthropod-borne transmission and describe risk groups and exposure risks, and define the symptoms  Explain the prevention and control of arthropod-borne diseases  Describe signs, symptoms and transmission of Crimean-Congo Haemorrhagic Fever Explains the emergency approach  List prevention and control measures, risky behaviours; and describe areas where CCHF is a public health concern.  Name the clinically important species within the Streptococci genera and describe the diseases they typically produce.  To understand streptococcic infectious diseases through the study of the general microbiology concepts of structure, growth and metabolism of streptococci and their interrelationship with humans.  Describe the mechanisms of bacterial invasion of hosts and virulence factors.  Explain the complications such as rheumatic fever, AGN. and preventive approach.  List common agents.  Define candidemia. Identify risk factors.  Explain the diagnosis and main principles of treatment.  Name the organisms that commonly cause endocarditis  Explain the epidemiological factors, and underlying specific etiologics in particular patients  Describe the clinical findings.  Explain how laboratory procedues could distinguish between these various oganisms  Explain preventive measures, prophylaxis.  Define bacteremia, sepsis, severe sepsis, schock and criteria for sepsis, septic shock.  Review basic pathophysiology of sepsis.  Recognize the signs of sepsis  Expains when to suspect sepsis in a patient presenting acutely as an emergency or in a hospital inpatient who suffers a sudden deterioration.  Describes how to assess level of risk in patients with possible sepsis.  Describe best practices in early detection and management of sepsis  Identify optimal antibiotic therapy and adjunctive treatments for sepsis  Describe the most common infectious cause of myocarditis  Describe the epidemiology and pathogenesis of coxsackievirus infections and others  List the stages of biofilm formation and maturation.  Explain the role of biofilms in chronic diseases/infections.  Predict conditions that would favor biofilm formation and where they might be found. Predict conditions that would favor catheter-related infections.  List the common agents. Explain the patient management.  Defines bleeding, explains normal hemostasis, and describes thrombus development mechanisms, cells and products involved in thrombus development.  Explain the coagulation mechanism.  Defines emboli, arterial and venous thrombus differences, explains the special thrombus structures seen in the cardiovascular system.  Explain the types of emboli and their development mechanisms. Describe the physiopathological features of disseminated intravascular coagulation.  Defines infarction and its types.  Describe the etiopathogenesis of shock and explain the relationship between its physiopathological features and clinical reflections.  Defines red blood cell disorders, explains the classification of anemia according to the underlying mechanisms.  Defines anemias according to their morphological appearance and clinical reflections.  Defines common causes of hemolytic anemia and explains the physiopathological features of these disorders.  Describes anemia due to decreased erythropoiesis and defines its etiopathogenetic features.  Identify the causes of red blood cell increase.  Defines the classification principles of neoplastic proliferation of white cells.  Describe the general features of white cell tumors  Defines the most common types of lymphoma/leukemia and their pathogenesis.  Explains the histopathological diagnostic criteria in lymphoma/leukemia and defines the etiopathogenetic features.  Defines myeloid and histiocytic neoplasms in general.  Explain the etiopathogenetic features of special classifications of myeloid and histiocytic neoplasms.  Describe the genetic changes that constitute the morphological and clinical features of myeloid and histiocytic neoplasms.  Explain the features and importance of prognostic factors in myeloid and histiocytic neoplasms.  Defines ischemic heart disease and cardiac syndromes with clinical presentations.  Explain the pathogenesis of acute plaque change.  Defines the developmental mechanisms of angina pectoris and myocardial infarction.  Describes myocardial response to ischemia and infarct patterns, explains complications with mechanisms.  Defines morphological changes in cardiac syndromes.  Describe the pathogenesis of arrhythmia and sudden cardiac death.  Explain the features and development mechanisms of systemic and pulmonary hypertension.  Describe the etiological and morphological features of rheumatic valve diseases.  Explain the typical features of infectious endocarditis and non-infectious vegetations.  Defines the concept of cardiomyopathy and myocarditis.  Explain the differences between dilated and restrictive myocardiopathy.  Explain myocarditis with its etiopathogenetic features.  Explain arteriosclerosis and its subtypes.  Defines the epidemiological features and risk factors of atherosclerosis and determines the effects of these factors on pathogenesis.  Describe the main components of atherosclerosis pathogenesis and explain their relationships.  Describe the morphology of atherosclerosis and defines the clinical consequences and developmental processes of atherosclerosis.  Explain vasculitides and define their forms according to their etiopathogenesis.  Defines the types of infectious and noninfectious vasculitis  Explains the development mechanisms of noninfectious vasculitis  Describes the localization, etiopathogenesis and morphological features of special types of vasculitis  Explain the concepts of Raynaud's phenomenon and myocardial vessel vasospasm.  Defines the general features of varicosities in lower extremity and other areas.  Describes inflammatory and obstructive pathologies seen in lymphatics and veins with their etiopathogenesis.  Defines pericardial effusion and hemopericardium.  Explain the etiopathogenetic features of pericardial inflammations.  Defines common cardiac tumors.  Explain the cardiac effects of noncardiac neoplasms.  Describes the general characteristics of common benign and malignant vascular tumors and explains their etiopathogenetic mechanisms.  Describe how free radicals are generated in the body.  Defines free radical metabolism.  Explains oxidative stress and what diseases it is associated with.  Describes free radicals.  Identifies various free radical detoxifying enzymes and antioxidants.  Discusses the causes, consequences and biochemical basis of disorders/diseases associated with free radical metabolism briefly.  Defines the biochemistry of atherosclerosis.  Describes the increasing incidence of obesity and diabetes and its impact on atherosclerosis.  Identifies the agents/factors as the main therapeutic intervention in atherosclerosis.  Discusses the biochemical mechanism background of atherosclerosis at cell and tissue level.  Explains diagnostic tests in heart diseases  Describes the diagnosis of the underlying cardiac abnormalities with biochemical testing.  Defines the biochemical pattern of diagnostic tests in cardiac diseases.  Describe the steps in the synthesis, storage, release, and termination of action of the major autonomic transmitters.  Name the major types and subtypes of autonomic receptors and the tissues in which they are found.  Describe the organ system effects of stimulation of the parasympathetic and sympathetic systems.  Name examples of inhibitors of acetylcholine and norepinephrine synthesis, storage, and release.  List the determinants of blood pressure and describe the baroreceptor reflex response for the following perturbations: (1) blood loss, (2) administration of a vasodilator, (3) a vasoconstrictor, (4) a cardiac stimulant, (5) a cardiac depressant.  Name a typical nonselective α agonist; a selective α2 agonist; a nonselective β agonist; a selective β1 agonist; selective β2 agonists; an α1, α2, β1 agonist; and an α1, α2, β1, β2 agonist.  List tissues that contain significant numbers of α1 or α2 receptors.  List tissues that contain significant numbers of β1 or β2 receptors.  Describe the major organ system effects of a pure α agonist, a pure β agonist, and a mixed α and β agonist.  Consider drugs or procedures that deplete catecholamine stores.  List the major clinical applications of the adrenoceptor agonists  Describe and compare the effects of an α blocker on the blood pressure and heart rate responses to epinephrine, norepinephrine, and phenylephrine.  Compare the pharmacodynamics of propranolol, labetalol, metoprolol, and pindolol.  Compare the pharmacokinetics of propranolol, atenolol, esmolol, and nadolol.  Describe the clinical indications and toxicities of typical α and β blockers.  List major groups of antihypertensive drugs, and give examples of drugs in each group.  Describe the compensatory responses, if any, to each of the 4 major types of antihypertensive drugs.  List the major sites of action of sympathoplegic drugs in research or clinical use  List the mechanisms of action of vasodilator drugs.  List the major antihypertensive vasodilator drugs and describe their effects.  List the major toxicities of the prototype antihypertensive agents.  Describe the pathophysiology of effort angina and vasospastic angina and the major determinants of cardiac oxygen consumption.  List the strategies and drug targets for relief of anginal pain.  Contrast the therapeutic and adverse effects of nitrates, β blockers, and calcium channel blockers when used for angina.  Explain why the combination of a nitrate and sildenafil is potentially dangerous.  Contrast the effects of medical therapy and surgical therapy of angına  Describe the differences between HFrEF and HFpEF.  Describe the strategies and list the major drug groups used in the treatment of acute heart failure and chronic failure.  Describe the mechanism of action of digitalis and its major effects. Indicate why digitalis is no longer considered a first-line therapy for chronic heart failure.  Describe the nature and mechanism of digitalis’s toxic effects on the heart.  List positive inotropic drugs other than digitalis that have been used in heart failure.  Explain the beneficial effects of diuretics, vasodilators, ACE inhibitors, and other drugs that lack positive inotropic effects in heart failure  Describe the distinguishing electrophysiologic action potential and ECG effects of the major groups of antiarrhythmic drugs and adenosine.  List 2 or 3 of the most important drugs in each of the 4 groups.  List the major toxicities of those drugs.  Describe the mechanism of selective depression by local anesthetic antiarrhythmic agents.  Explain how hyperkalemia, hypokalemia, or an antiarrhythmic drug can cause an arrhythmia.  List the major classes of anticlotting drugs and compare their usefulness in venous and arterial thromboses.  Name 3 types of anticoagulants and describe their mechanisms of action.  Explain why the onset of warfarin’s action is relatively slow.  Compare the oral anticoagulants, standard heparin, and LMW heparins with respect to pharmacokinetics, mechanisms, and toxicity.  Give several examples of warfarin’s role in pharmacokinetic and pharmacodynamic drug interactions.  Diagram the role of activated platelets at the site of a damaged blood vessel wall and show where the 4 major classes of antiplatelet drugs act.  Compare the pharmacokinetics, clinical uses, and toxicities of the major antiplatelet drugs.  Compare and contrast the mechanism of action, clinical uses, and toxicities of the oral anticoagulants (warfarin, rivaroxaban, and dabigatran).  List 3 drugs used to treat disorders of excessive bleeding  Describe the proposed role of lipoproteins in the formation of atherosclerotic plaques.  Describe the dietary management of hyperlipidemia.  List the main classes of drugs used to treat hyperlipidemia. For each, describe the mechanism of action, effects on serum lipid concentrations, and adverse effects.  Explains the causes (genetic, developmental, environmental, autoimmune, neoplastic, etc.) and physiopathology of circulatory system disorders.  Takes history of the patient presenting with circulatory system complaints using effective communicative skills and performs appropriate physical examination (inspection, basic auscultation, palpation and pulse evaluation, blood pressure measurement technique and evaluation, systemic examination).  Basic principles of electrocardiography, rules for obtaining the correct ECG and understanding and interpretation of parameters in normal ECG  Diagnoses heart rhythm disorders, performs emergency treatment and refers the patients to advanced health care unit appropriately (classification, symptoms, examination, diagnosis, treatment and follow-up)  To understand the pathophysiology, etiology and systemic effects of hypertension  To learn the diagnosis of hypertension, risk stratification, and measurement and methods of blood pressure  Diagnoses heart failure, applies prevention measures, performs emergency treatment, knows proper referral procedures and performs the primary health care level follow-up (diagnosis, classification, treatment, tracking)  Concludes the diagnosis of angina pectoris and myocardial infarction, applies preventive measures, performs emergency treatment and refers the patients to advanced health care unit appropriately.  Pre-diagnoses heart valve diseases preventive measures and refers the patients to advanced health care unit (diagnosis, treatment, for the problems of aortic, mitral, tricuspid, pulmonary valve physiopathology and follow-up).  Selects and sorts the tests used in the diagnosis and monitoring of diseases of the circulatory system (electrocardiography, exercise electrocardiography, myocardial perfusion scintigraphy report, chest radiography, echocardiography report, computed tomography, ankle-brachial index measurement, vascular doppler ultrasound report, conventional angiography reports, electrophysiological work, describes full blood, biochemical tests) in appropriate order and interprets the results. | | |
| RECOMMENDED BOOKS   1. Bailey & Scott’s Diagnostic Microbiology (13th Edition); Patricia M. Tille; Elsevier Mosby, St. Louis, 2014. 2. Emery's Elements of Medical Genetics (15th Edition); Peter D. Turnpenny, Sian Ellard; Elsevier, Philadelphia, 2017. 3. Harper’s Illustrated Biochemistry (31st Edition); Robert K. Murray, David A. Bender, Kathleen M. Botham, Peter J. Kennelly, Victor W. Rodwell, P. Anthony Weil McGrawHill-Lange, 2018 4. Jawetz, Melnick & Adelberg’s Medical Microbiology (27th Edition);‎ Karen C. Carroll,‎ Stephen A. Morse, Timothy Mietzner, Steve Miller; McGraw-Hill, China, 2016. 5. Lippincott Illustrated Reviews: Biochemistry (7th Edition); Denise R. Ferrier; Lippincott Wilwims & Wilkins; Philadelphia, 2017. 6. Marks’ Basic Medical Biochemistry A Clinical Approach (5th Edition); Michael Lieberman, Alisa Peet; Wolters Kluwer, Philadelphia, 2018. 7. Sherris Medical Microbiology (6th Edition); Kenneth Ryan, C. George Ray; McGraw-Hill, New York, 2014. 8. Teaching and Learning Communication Skills in Medicine (2nd Edition); Suzanne Kurtz,‎ Juliet Draper, Jonathan Silverman; Radcliffe Publishing, Abingdon, 2005. 9. Thompson & Thompson Genetics in Medicine (8th Edition); Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Willard; ; Elsevier, Philadelphia, 2016. 10. Histology and Cell Biology: An Introduction to Pathology (4th Edition); Abraham Kierszenbaum Laura Tres, Elsevier Saunders, Philadelphia, 2015. 11. Basic & Clinical Pharmacology (13th Edition); Bertram G. Katzung,‎ Anthony J. Trevor; McGraw-Hill, 2015. 12. Robbins Basic Pathology (10th edition); 2018 [edited by] Vinay Kumar, Abul K. Abbas, Jon C. Aster 13. Cell and Molecular Biology (2nd edition); Nalini Chandar, PhD, Susan Viselli, PhD, Lipincot Wiliams & Wilkins, 2019. 14. Molecular Cell Biology (8th edition); Harvey Lodish, W.H.Freeman & Co Ltd, 2016. 15. Molecular Biology of the Cell (6th edition); Bruce Alberts, W. W. Norton & Company, 2015. 16. Jawetz, Melnick, & Adelberg's Medical Microbiology, 28e, McGraw-Hill Education, 2019. 17. Medical Microbiology (8th Edition); Murray, Rosenthal, Pfaller, 2016. 18. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases (9th Edition); Bennett, JE, Dolin R, Blaser MJ. Elsevier, 2019. 19. Lehninger Principles of Biochemistry (7th Edition), David L. Nelson, Michael M. Cox W H Freeman & Co, 2017. 20. Textbook of Biochemistry with Clinical Correlations (7th Edition); Thomas M. Devlin (Editor) John Wiley & Sons, 2011. 21. Integrative Medical Biochemistry: Examination and Board Review, 1st Edition Michael W. King Mc Graw Hill | | |
| **MED 202 COMMITTEE EXAM WEEK** | | |
| **DATE** | **EXAM NAME** | **EXAM HOUR** |
| 24.02.2022 | MED 202 Committee Exam-1 | 09:30-11:20 |
| 11.04.2022 | Clinical Skills | 09:30 – 12:20 |
| 14.04.2022 | Practical Examination | 09:30 – 12:20 |
| 15.04.2022 | MED 202 Committee Exam-2 | 09:30-12:20 |
| **Teaching Methods and Techniques** | |  |  |  |  | | --- | --- | --- | --- | | Lecture | Case based learning | Case discussion | Student presentation | | Discussion | Problem based learning | Project | Homework | | Role playing | Experiment | Report preparing | Self Learning | | Laboratory practice |  |  |  | | |
| **Evaluation Method** | Theoretical Exam-1 (20%), Theoretical Exam-2 (65%), PBL 5%, Clinical Skills 5%, Practical Exam (Anatomy 5%) | |
| **Language of lectures, practicals and all other applications** | English | |