

National University of Tajikistan

FACULTY OF MEDICINE

Department of Pathological Physiology and Pathological Anatomy with Forensic Medicine

## TRAINING PROGRAM

1-79010100 – general medicine;

By specialty

1-79010400 medical diagnostic work;

1-79010700 – dentistry;

1-79013201-fatty products, fats, essential oils and perfumes;

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The curriculum is based on the State Standard on Higher Special Education of the Republic of Tajikistan at the Department of Pathological Physiology and Pathological Anatomy of the Department of Forensic Medicine in the specialties of medical care, medical diagnostic care, dentistry, and cosmetology (in Tajik and Russian languages). Dushanbe, TNU, 2023: .....Page

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**Nuraliev M.D., Saidov I.Z., 2023y**

# "PATHOLOGICAL PHYSIOLOGY"

## Preface

Pathophysiology is the science of the vital activity of a sick organism. Pathophysiology studies the physiological mechanisms of clinical manifestations of diseases. The disease and the diseased organism are the subject of study of many general theoretical medical and all clinical disciplines. The peculiarity of pathophysiology is that it studies the general in the disease, i.e. the general laws (laws) of the occurrence, development, course and outcome of the disease, while other medical sciences study the particular, special, special. Pathophysiology, being the scientific basis of medicine, establishes the etiology and pathogenesis of diseases and on this basis determines the main directions of their prevention and treatment.

As a result of studying the discipline of two courses – biology, anatomy, histology, biochemistry, students received a number of very important ideas about the general laws of animal and human development, about the structure of the human body and its systems, organs, tissues, cells; about chemical processes occurring in the body, about the laws of functioning of systems, organs, tissues of a healthy person. However, the study of these subjects does not explain the most important questions for the future doctor's activity: why do pathological processes arise and how do they develop, what is their subsequent fate. These questions are solved by pathophysiology. Without knowledge of the development of pathological processes, diseases and painful conditions, it is very difficult to understand all the variety of clinical manifestations of the same process when it is localized in different organs. Knowledge of these questions is important for diagnosis. With proper diagnosis, it is possible to purposefully intervene during the disease process and not only treat it effectively, but also predict its occurrence. It can be said that pathophysiology is a source of basic knowledge and skills for the subsequent passage of special clinical disciplines. Pathophysiology is a bridge between functional and clinical disciplines. This is the role of pathophysiology as an initially integrative discipline in the system of higher medical education

## Introduction

The subject and tasks of pathological physiology; its place among other medical sciences. Pathological physiology as a fundamental and theoretical basis of modern medicine. The main sections of pathological physiology: general nosology, typical pathological processes, pathophysiology of body systems. Their characteristics. Methods of pathological physiology. The significance of the experiment in the development of pathophysiology and clinical medicine. Moral and ethical aspects of animal experimentation. Modeling, its types, possibilities, limitations. Features of pathophysiological experiments. The main stages and rules of the experiment: the construction of a plan, tasks and goals of the experiment; a method that provides the possibility of testing the hypothesis of the study; correct evaluation of the experimental results obtained in the experiment - statistical processing, tabulation of the results of experiments in tables, plotting; logging. Brief information from the history of pathophysiology.

The basic concepts of general nosology: norm, health, pre-illness, disease. Disease as a dialectical unity of damage and protective-adaptive reactions of the body. Periods of illness, the main types of course and outcomes of the disease. The concept of a pathological process, reaction, condition, typical pathological process.

The concept of etiology. Characterization and classification of causes and conditions by origin, intensity of action, etc. (examples). The role of causes and conditions in the occurrence, development and outcome of diseases. Theoretical and practical significance of the study of general etiology. The concept of polyetiological diseases.

Pathogenesis, concept. Damage as the initial link of pathogenesis. Damage levels. Primary and secondary damage. Manifestations of damage at various levels of the body. Causal relationships in pathogenesis, the concept of a vicious circle, the main link in pathogenesis; local and general phenomena in pathogenesis, their relationship. The role of the etiological factor in pathogenesis. Theoretical and practical significance of the study of pathogenesis. Terminal states. Death is clinical and biological. Principles of resuscitation. Post-resuscitation disorders. General and local damaging effect of mechanical factors (compression, acceleration, impact, overload, weightlessness). Kinetoses, causes, pathogenesis, manifestations. Overload types, pathogenesis and manifestations.

Traumatic shock. Pathogenesis, stages, manifestations. Psychogenic pathogenic factors. Iatrogenic diseases.

### **Pathogenic effect of environmental factors**

Damaging effect of high and low temperatures. Hyperthermia, heat and sunstroke, hypothermia. Damaging effect of electric current; factors determining the degree of electric shock. Local and general changes in the body under the action of an electric current. The mechanism of the damaging effect of electric current. Damaging effect of the rays of the solar spectrum (ultraviolet, infrared and visible). Damaging effect of increased and decreased action of barometric pressure. Caisson disease. Mountain and altitude sickness. The effect of ionizing radiation on the body. Radiation sickness. Pathogenesis. The importance of social factors in the preservation of human health and the occurrence of human diseases. The main features of the child's body that determines the specifics of child pathology.

### **Reactivity of the organism and its significance in pathology.**

Reactivity and resistance of the organism, concepts. Types and forms of reactivity, their characteristics. Reactivity indicators, their characteristics. Pathological reactivity, concept, characteristic. Factors affecting reactivity and resistance: genotype, age, gender, constitution and a number of others. The importance of nervous, endocrine, immune and other systems, metabolic features, environmental factors in the formation of reactivity and resistance of the body. Biorhythms and their role in the formation of physiology and pathology of reactivity. The possibilities of the doctor in changing the reactivity of the body to pathogenic influences. Resistance of the body. Forms.

### **Allergy**

Definition of the concept and general characteristics of allergy. The relationship of allergy and immunity, immunity and inflammation. The main types of allergic reactions, their classification by Jell and Coombs. Etiology of allergy. Allergens: species, origin, nature. Full-fledged antigens, haptens. Stages of allergic reactions. Sensitization, types. Etiology and pathogenesis of allergic reactions of types I, II, III, IV. Characteristics of allergens, mediators and their pathogenetic differences. Types of allergic antibodies and their properties. Specific and non-specific hyposensitization. Auto-allergy and autoimmune diseases. Mechanisms of formation of autoallergens. The concept of autoaggression diseases.

## **Fever. Acute phase response**

Fever, the concept. The causes of fever are exo- and endopyrogens. Mechanism of action. Fever mediators. Stages of fever development. Thermoregulation in fever. The mechanism of changing the body's heat balance in different stages of fever. Varieties of temperature decrease in the III stage of fever. The main signs of fever: changes in metabolism and physiological functions. Protective and pathogenic value of fever. Differences between fever and hyperthermia.

Acute phase response, concept. The relationship of local and general reactions of the body to damage. Reasons. The main manifestations of acute phase response (changes in metabolism and physiological functions). Significance for the body. Acute phase response mediators, their origin, role in the development of changes characteristic of acute phase response. Acute phase proteins, origin; diagnostic value. The biological role of C-reactive protein, serum amyloid A, ant proteinases and changes in the synthesis of transport proteins in acute phase response.

Possible complications of acute phase response. Principles of correction (suppression, activation) of acute phase response.

## **Peripheral circulatory and microcirculation disorders.**

Central and peripheral blood circulation, their functions. Concepts of microcirculation, its disorders in peripheral circulatory disorders. Types of peripheral circulatory disorders.

Arterial hyperemia and its types. Causes, mechanisms of development. Changes in microcirculation in arterial hyperemia. Signs and consequences of arterial hyperemia. The value of arterial hyperemia. Venous hyperemia. Causes, signs. Microcirculation in the stagnation area. Consequences of venous hyperemia. The significance of venous hyperemia. Ischemia. Etiology. Types of ischemia. Signs and consequences of ischemia. Microcirculation in ischemia. Collateral circulation and its significance in the outcome of ischemia. Infarcts, types, mechanisms of development. Stasis, types of stasis, mechanism of development, consequences.

### **Violation of microcirculation.**

Thrombosis. Definition. Types of blood clots. Etiology. The main pathogenetic factors of thrombosis (Virchow triad). The process of thrombosis, its phases. Physico-chemical essence of the cellular phase and the phase of blood coagulation. Outcomes and consequences of thrombosis. Embolism (definition). Types of embolisms of endogenous and exogenous origin. Types of embolisms depending on the localization. Embolism of the vessels of the large circulatory circle. Sources. Pathogenesis. Effects. Embolism of the vessels of the small circulatory circle. Sources. Manifestation. Pathogenesis. Effects. Portal vein embolism. Sources. Pathogenesis. Effects. Retrograde and paradoxical embolism and embolism.

### **Pathophysiology of water-electrolyte metabolism. Edema and dropsy.**

The total content and volume of water sectors in an adult and a child in the body. Factors that determine the distribution and movement of water in the body. The concept of the water balance. Neuro-endocrine regulation of water metabolism and its disorders. The value of aldosterone and others in the regulation of water-electrolyte metabolism. Transvascular metabolism (the mechanism of water exchange between blood and tissues). Typical disorders of water-electrolyte metabolism. Dyshydrria, classification. Hypohydration (dehydration): hyper-, hypo- and isoosmolar. Causes, pathogenetic features, manifestations, consequences, principles of correction. Experimental reproduction of dehydration. Hyperhydration: hyper-, iso-, hypoosmolar. Causes, pathogenetic features, manifestations, consequences, principles of correction. Edema, dropsy, the concept. Classification. Signs. Pathogenetic factors of edema: the importance of hydrodynamic, oncotic, osmotic factors, the state of capillary wall permeability, impaired lymph circulation and lymph formation; the role of neuro-humoral mechanisms in the development of edema. Classification of edema by etiology and pathogenesis. Pathogenesis of cardiac edema, renal edema (nephrotic and nephritic), ascites in cirrhosis of the liver.

### **Etiology and pathogenesis of inflammation. Alteration.**

Definition of the concept of "inflammation". The main components of the inflammatory reaction. General and local manifestations of inflammation. Pathogenesis and their relationship. Clinical significance. Etiology: exogenous and endogenous factors. Pathogenesis of inflammation: the main components of the

inflammatory process. Primary alterations and endogenous factors. Pathogenesis of inflammation: the main components of the inflammatory process. Primary alterations. Changes in function, metabolism, state of the membrane and cellular organelles during alterations. Secondary alteration, pathogenesis. Vascular reactions in inflammation. The sequence of reactions of microvessels and changes in blood flow in the area of inflammation. Mechanisms of disorders of peripheral blood circulation and microcirculation in the dynamics of the inflammatory process. Leukocyte emigration, stages and mechanisms.

### **Exudation. Proliferation.**

Inflammatory mediators, types, origin and significance in the dynamics of the development and completion of inflammation. Exudation, its mechanisms and significance. Types and characteristics of exudates. Enzymes of purulent exudate, sources, action. Chemotaxis. Phagocytosis, types, stages and mechanisms. Its role in the pathogenesis of inflammation. The processes of proliferation in inflammation. Stimulants and proliferation inhibitors. Classification of inflammation by pathogenesis. Chronic inflammation. General patterns of development and features of pathogenesis. Biological significance of inflammation. The barrier role of inflammation, the mechanisms of its provision. Outcomes of inflammation.

### **Pathophysiology of the respiratory system.**

Respiratory failure (RF), a concept. Types of RF by etiology, pathogenesis, course, degree of compensation. The main indicators of the day. Changes in the gas composition of blood and ASS at RF. Extrapulmonary and pulmonary etiological factors of RF. Violation of non-gas exchange functions of the lungs. Typical forms of respiratory disorders. Ventilation forms of the bottom. Causes, manifestations, methods of diagnosis of lung ventilation. Etiology and pathogenesis of pulmonary ventilation disorders by obstructive and restrictive type of alveolar hypoventilation. Causes, mechanisms, manifestations. Examples of diseases. The value of the surfactant system. Alveolar hyperventilation. Causes, mechanisms, manifestations. Diffusion forms of RF. Causes, manifestations, examples. Assessment of gas diffusion disorders. Perfusion type RF. Inadequacy of perfusion and ventilation in the development of hyper and hypotension of the small circulatory circle. Their causes, consequences. Changes in ventilation-perfusion relations in norm and pathology; changes in ventilation-perfusion index, its assessment. Violation of neuro-humoral regulation of respiration. Pathological

forms of respiration: remitting and intermittent (periodic); etiology, pathogenesis. The importance in the pathology of the child's body of switching off nasal breathing. Sudden apnea syndrome in children and adults; the mechanism of periodic respiration at an early age. Features of the course of pneumonia in early childhood. Dyspnea. The concept, types, mechanisms of development. Asphyxia. Definition, causes, stages. Changes in blood circulation, respiration and other functions in different stages of asphyxia. Measures for the prevention of respiratory diseases.

### **Pathophysiology of internal respiration. Hypoxia.**

Characteristics of the concept of hypoxia and hypoxemia. The role of hypoxia in the pathogenesis of various pathological processes and diseases.

Principles of classification of hypoxic states. Types of hypoxia.

Etiology and pathogenesis of the main types of hypoxia: exogenous, respiratory, circulatory, hemic, tissue, substrate, overload and mixed. Indicators of the gas composition of arterial and venous blood in certain types of hypoxia. Emergency and long-term adaptive reactions in acute and chronic hypoxia; their mechanisms.

Disorders in hypoxia: metabolic disorders, cell structure and function, and physiological functions in acute and chronic hypoxia. Manifestations of violations. Principles of prevention and treatment of hypoxia. Hypoxia as a therapeutic agent.

### **Pathophysiology of total blood volume. Hemostasis.**

The volume of circulating blood and methods of its determination. Hematocrit index. Typical forms of violations of blood volume and plasma volume ratios and shaped elements. Normovolemia, a concept. Types, causes, pathogenesis, compensation mechanisms, hematocrit changes, manifestations. Hypervolemia; concept. Types, causes, pathogenesis, compensation mechanisms, hematocrit changes, manifestations. Clinical significance. Hypovolemia; concept. Types, causes, pathogenesis, compensation mechanisms, hematocrit changes, manifestations. Clinical significance. Hemostasis, definition of the concept. Classification of hemostatic disorders.

### **Bleeding. Blood loss. Blood loss, the concept.**



Types of blood loss. Etiology. Pathogenesis. Urgent and non-urgent compensation mechanisms. Mechanisms of activation of compensatory reactions. Pathological disorders in blood loss. The main link of death in acute blood loss.

### **Anemia.**

Anemia. Definition. Classification. General characteristics of anemia. Pathological forms of erythrocytes, their diagnostic and prognostic value. Signs of regeneration of the erythroid bone marrow germ. Iron deficiency anemia: etiology, pathogenesis, clinical and hematological manifestations. B12- and folate-deficient anemia: etiology, pathogenesis, clinical and hematological manifestations. Hypo- and aplastic anemia: etiology, pathogenesis, clinical and hematological manifestations. Hemolytic anemia: types, etiology, pathogenesis, clinical and hematological manifestations. Posthemorrhagic (acute and chronic) anemia. Compensatory-adaptive reactions and changes in the blood picture in different stages of acute posthemorrhagic anemia. Hematological signs characteristic of chronic posthemorrhagic anemia.

### **Leukemia.**

Leukocytoses, leucopenia: types, etiology, mechanisms of development and pathogenetic significance. Agranulocytosis: causes, pathogenesis, consequences. Hematological parameters of myelotoxic and immune forms of agranulocytosis. Qualitative (degenerative) changes in leukocytes in the blood, causes, manifestations. Clinical significance of the analysis of the leukocyte formula. Leukemia: definition, classification, etiology, pathogenesis. Features of hematopoiesis and cellular composition of peripheral blood in different types of leukemia. The main clinical syndromes and signs of leukemia. Prognosis of acute and chronic leukemia. Causes of death.

### **Heart failure. Cardiac arrhythmias.**

Circulatory insufficiency (CI), concept, forms; general etiology and pathogenesis; main hemodynamic parameters and signs of NC. Features of circulatory insufficiency in children. Heart failure (HF), a concept. Forms, etiology, pathogenesis. Mechanisms of urgent and long-term cardiac adaptation in case of volume or pressure overload. Myocardial hypertrophy, types and mechanism of development. Mechanisms its decompensation. Hemodynamic manifestations of HF. Heart failure in pericardial pathology. Acute cardiac tamponade. Violation of hemodynamics. Cardiac arrhythmias,

the concept. Types of arrhythmias. Diagnosis of cardiac arrhythmia. ECG. Causes of arrhythmias. Typical forms of arrhythmias: a) violation of automatism (sinus bradycardia, tachycardia, sinus arrhythmia). Pathogenesis. ECG- signs; b) conduction disturbances (types and degrees of blocks). Pathogenesis. ECG- signs; c) impaired conduction and excitability (extrasystoles, paroxysmal tachycardia, fluttering and flickering of the atria and ventricles). Pathogenesis. ECG indicators. Hemodynamic disorders. Heart failure with arrhythmias. Defibrillation of the heart, the concept of artificial pacemakers.

### **Pathophysiology of the vascular system.**

General characteristics, terminology characterizing changes in vascular tone and blood pressure: hypertension, hypotension; hyper- and hypotension. Factors determining systemic blood pressure. The main mechanisms of regulation of systemic hemodynamics (vascular and extravascular hypertensive and antihypertensive factors). Arterial hypertension, definitions of the concept. Types of arterial hypertension: according to the main mechanism of development (endocrine, hemic, neurogenic, hypoxic, and mixed): changes in cardiac output (hyper, hypo and kinetic): by predominantly elevated blood pressure, by current, by origin. Primary hypertension. Etiology, risk factors, pathogenesis, stages, factors of stabilization of high blood pressure. Secondary arterial hypertension, types, causes, pathogenesis, manifestations. Complications and consequences of arterial hypertension. Hypertensive crisis. Features of hemodynamics in various types of arterial hypertension. Principles of prevention and treatment of arterial hypertension.

### **Pathophysiology of oral and stomach digestion.**

General etiology and pathogenesis of disorders of the digestive system, risk factors. Functional connections of different parts of the digestive system in pathological conditions. Digestive insufficiency, a concept. Typical forms of pathology of the gastrointestinal tract. Disorders of appetite, taste and taste sensations. Violation of the mechanical processing of food in the oral cavity. Causes and consequences of hyper- and hyposalivation. Violation of secretory functions of the stomach: hyper-, hyposecretion; hyper-, hypo-, achlorhydria, achilia. Reasons. Pathogenesis. Effects. Types of pathological secretion. Violation of the motor function of the stomach: hyper and hypotension, atony, hypo and hyperkinetic states; violation of evacuation. Reasons. Pathogenesis. Manifestations of disorders of the motor function of the stomach.

Violation of the reservoir, excretory, and suction functions of the stomach. Causes and consequences. Peptic ulcer of the stomach and duodenum.

### **Digestive disorders in the intestine**

Typical forms of pathology of intestinal functions. Disorders of the secretory function of the small intestine. Etiology, pathogenesis. Maldigestion syndrome: disorders of abdominal (distant) and parietal (membrane) digestion. Causes, pathogenesis, consequences. Malabsorption syndrome: malabsorption disorders. Primary (hereditary) and secondary (acquired) syndrome; acute and chronic. Causes, pathogenesis, consequences. Violation of the motor function of the intestine: diarrhea, constipation, intestinal obstruction. Types, causes, pathogenesis, consequences. Violation of the intestinal barrier function: intestinal auto-intoxication, colisepsis, dysbiosis.

### **Pathophysiology of metabolism and energy.**

Etiology and pathogenesis of metabolic and energy disorders. Consequences of metabolic and energy disorders. Basic exchange, definition. Disorders of the basal metabolism, causes, pathogenesis. Fasting, definition. Types and causes. Complete starvation, the main stages of changes in metabolism and body functions. Life expectancy during fasting. Incomplete fasting, forms of protein-calorie deficiency. Causes, signs, mechanism of development, life expectancy. Principles of correction of energy metabolism.

### **Pathophysiology of carbohydrate metabolism.**

Typical forms of carbohydrate metabolism disorders. Violation of digestion and absorption of carbohydrates in the gastrointestinal tract; processes of synthesis, deposition and cleavage of glycogen; violation of intermediate metabolism; transport and assimilation of carbohydrates in the cell. Pathological changes in the concentration of glucose in the blood and urine. Hyperglycemic states, their types, mechanisms, values. Hyperglycemic coma. Causes, pathogenesis, manifestations. Diabetes mellitus (DM). Kinds. Etiology and pathogenesis of insulin deficiency in type-1 and type-2 diabetes mellitus. Hypoglycemic effects of insulin action. Violation of carbohydrate metabolism and other types of metabolism in diabetes

### **Pathophysiology of fat metabolism.**

Violation of fat metabolism at various stages of its transformations. Violation of digestion, absorption and excretion of fat. Causes, pathogenesis, manifestation, consequences. The transport of fats in the body (the role of albumins, apoproteins) and its disorders. Characteristics of chylomicrons and lipoproteins. Hyperlipemia. Types, causes, pathogenesis. The significance of violations of the transport of fats in the blood. Violation of lipid metabolism in adipose tissue. Fatness. Types, causes. The main pathogenetic links in the development of obesity. Adverse effects of obesity. Violation of fat oxidation in tissues: fat transformation and fatty degeneration. Violation of intermediate fat metabolism. Hyperketonemia. Causes, pathogenesis, consequences.

### **Pathophysiology of vitamin metabolism.**

Violation of vitamin metabolism. Primary and secondary hypovitaminoses. Hypervitaminosis. The main forms of vitamin metabolism disorders are vitamin deficiency, hypovitaminosis, hypervitaminosis and disvitaminosis. The most common causes of vitamin deficiency. Hypovitaminosis is the most frequent and ubiquitous form of vitamin metabolism disorders. Exogenous (primary) and endogenous (secondary) hypovitaminoses. The direct cause of exogenous (primary) hypovitaminosis.

Endogenous hypovitaminosis: acquired, inherited and congenital.

The cause of hypervitaminosis. Dysvitaminoses are pathological conditions.

### **Pathological physiology of the liver.**

Features of portal blood circulation. Significance in pathology. General etiology of liver diseases, classification. Liver failure. Definition. Kinds. Etiology. Pathogenesis. Experimental modeling of liver failure. Etiology and pathogenesis of symptoms and syndromes in liver diseases: cholestasis syndrome (primary and secondary), acholia, cholemia, hepatolienal syndrome,

hypovitaminosis, portal hypertension and a number of others. Portal hypertension. Forms. Clinical symptoms of portal hypertension.

### **Jaundice**

Hepatic cell insufficiency syndrome, causes, manifestations, mechanisms of their development: violations of various types of metabolism; violations of the composition and physico-chemical properties of blood; violations of the barrier and detoxification function of the liver. Hepatic encephalopathy and coma, pathogenesis, manifestations. Jaundice, definition, types. . Mechanical jaundice, causes, pathogenesis, clinical manifestations and laboratory parameters. Hemolytic jaundice, causes, pathogenesis, clinical manifestations and laboratory parameters. Parenchymal jaundice, causes, pathogenesis, clinical manifestations and laboratory parameters.

### **Violation of glomerular filtration, tubular reabsorption and secretion in the kidneys.**

Violations of the main processes in the kidneys: filtration, reabsorption, secretion, incretion and excretion. Etiology and pathogenesis. The value of clearance for evaluation of filtration and excretory functions of the kidneys. Assessment of renal blood flow and the magnitude of tubular reabsorption. Renal symptoms and syndromes in kidney diseases. Changes in daily diuresis: poly -, oligo-, anuria. Causes, pathogenesis. Hypo-, hyper-, isostenuria, their causes, diagnostic significance. Evaluation of the concentration functions of the kidneys. "Urinary syndrome": proteinuria, hematuria, leukocyturia, cylindruria, their types, causes, diagnostic significance. Extrarenal symptoms and syndromes in kidney diseases. Pathogenesis and values of azotemia, anemia, hypertension, edema and hemocoagulation disorders.

### **Renal and extrarenal symptoms and syndromes. ARK. CRF**

Renal insufficiency, concept, types. Acute renal failure (acute renal failure). Forms. Etiology, pathogenesis, stages, principles of treatment. The importance of

hemodialysis in the treatment of acute kidney injury. Indications. Chronic renal failure (CRF). Etiology, stages, features of the pathogenesis of CRF. Uremia. Principles of treatment. Kidney transplantation, indications. Nephrotic syndrome. Types, causes, pathogenesis, manifestations. Nephrolithiasis. Etiology (causes and conditions contributing to stone formation), pathogenesis, clinical manifestations. Prolonged crushing syndrome. Reasons. Pathogenetic mechanisms.

### **Pathological physiology of the endocrine system.**

The main types and forms of endocrine disorders. General etiology and pathogenesis of endocrine disorders. Violations of the central mechanisms of regulation of the endocrine system. The role of feedback mechanism disorders in endocrine disorders.

Pathological processes in the glands themselves. Peripheral mechanisms of endocrine system regulation disorders.

### **Pathophysiology of endocrine glands. Stress and general adaptation syndrome (GAS).**

Pathophysiology of the neurohypophysis and adenohypophysis: hyper-, hypofunction. Types, causes, manifestations and their mechanisms. Pathophysiology of the adrenal glands: hyper-, hypofunction. Types, causes, manifestations and their mechanisms. Pathological physiology of the thyroid gland: hyperthyroidism, hypothyroidism, endemic goiter. Types, causes, manifestations and their mechanisms. Pathological physiology of the parathyroid glands: hypoparathyroidism, hyperparathyroidism. Types, causes, manifestations and their mechanisms. The concept of stress, stressors. Types of stress. The role of the hypothalamic-pituitary-adrenal and sympathoadrenal systems in the development of stress. General adaptation syndrome as a nonspecific reaction of the body to the effects of stressors. The Selye Triad. Stages of stress. Changes in

neuro-humoral regulation and metabolism in the stages of anxiety, resistance and exhaustion. The role of catecholamines, glucocorticoids, aldosterone and other hormones in the development of stress. Their positive and negative effects on the body. Protective-adaptive and pathogenic

### **Pathological physiology of the nervous system.**

General etiology and pathogenesis of disorders of the nervous system. Disorders of the motor functions of the nervous system, hyperkinesia, hypokinesia. Types, causes, pathogenesis, manifestations. Disorders of the sensitive functions of the nervous system: hypersthesia, hyposthesia, anesthesia. Types, causes, pathogenesis, manifestations.

### **Pain. Neuroses.**

Pain. General characteristics, concept. Types of pain and pain syndromes. Causes, manifestations. Mechanisms of pain formation. The biological significance of pain. Antinociceptive system, values. Pathophysiology of the higher nervous system. Neuroses. Reasons. Pathogenesis. Manifestations.

### **Literature**

Basic literature:

1. Pathological physiology./ Ed.A.D. Ado and V.V. Novitsky - Ed.Tomsk Univ.
2. Pathophysiology/ Edited by P.F. Litvitsky - Ed. GEOTAR- MED.,
3. Pathological physiology./ Edited by A.And Volozhin, G.V. Ordin- M: MEDpress,
- 4.Methodological guidelines for practical classes in pathological physiology of Dushanbe
5. Pathophysiology/ Edited by V. V. Navitsky and E. D. Goldberg, Tomsk Publishing House. univer,
6. Zaiko N.N.–Pathological physiology. Kyiv,
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9. Rubtsovenko A.V.–Pathological physiology. M., M., MEDpress- inform, 2006,

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1. Pathophysiology of blood - Shiffman F.J.-M., St. Petersburg: Binom-Nevsky dialect,
1. Essays on the adaptation syndrome - Silje G- M., M.,
2. Leykak J.F., Weiss P.G. – Fundamentals of endocrinology. M., M., 2000
3. Leites S.M., Lapteva N.N. – Essays on the pathophysiology of metabolism
4. V.A. et al. Clinical pathophysiology Moscow : VUNMC, 1999,
5. Azhaev A.A., Zhmurkin V.P. – Fever. MME, 1992,
6. Horizons P.D., Maizelis M.Ya. – The importance of the constitution for development
7. Kornienko I.A. – Age-related changes in energy metabolism and thermoregulation. Moscow: Nauka, 1979,
8. Dedov I.I., Dedov V.I. – Biorhythms of hormones. M., M., 1992,
9. Kavetsky R.E. – Reactivity of the body and the type of nervous system. Kyiv. Publishing House of the Academy of Sciences of the Ukrainian SSR, 1961,
10. Zhirnov V.D. – General and internal in etiology and pathogenesis. West. USSR Academy of Medical Sciences, 1965,
11. Hands on general human pathology. Edited by N.K. Khitrov and coauthors M., M., 1999
12. Negovsky V. A. and co. – Postreanimats

**"PATHOLOGICAL ANATOMY"**

Preface Pathological anatomy is the most important medical discipline in the system of medical education, in the scientific and practical activities of a doctor of any specialty. Without a clear knowledge of what changes in the human body cause the disease in all its phases of development, it is impossible to correctly diagnose it, make a clear idea of how it proceeds and what it can lead to.



The teaching of pathological anatomy is based on the following principles: unity of structure and function as a methodological basis for the study of pathology in general; clinical and anatomical direction of pathological anatomy. The first principle allows us to see the connection of pathological anatomy with other theoretical disciplines and the need for knowledge of anatomy, histology, physiology and biochemistry to understand the basics of pathology. The second principle proves the need for knowledge of pathological anatomy for the study of clinical disciplines and the practice of a doctor, regardless of the future specialty.

The study of pathological anatomy consists of two sections: general pathological anatomy and private pathological anatomy. In the section of general pathological anatomy, the general pathological processes characteristic of different pathologies are analyzed. In the section private pathological anatomy, human diseases are studied using clinical and anatomical analysis. The purpose of the discipline is to study the structural foundations of the disease, necessary for in-depth study of clinical disciplines and the use of acquired knowledge in practical work.

### **Introduction**

Goals, objectives, methods of pathological anatomy. Death Methods of pathological anatomy. Biopsy, types of biopsy. The structure of the morgue. Death and its types. Physiological, pathological and violent death. Causes of death. Signs of death and thanatogenesis. Autopsy, autopsy technique. Ethics of autopsy.

### **Necrosis. Apoptosis.**

Necrosis. Etiology and pathogenesis of necrosis. Traumatic, toxic, trophoneurotic, allergic and vascular necrosis. Microscopic changes in cells during necrosis. Karyopycnosis, karyorexis va karyolysis. Morphogenesis of necrosis; paranecrosis, necrobiosis, cell death, autolysis. Clinical and morphological forms of necrosis; coagulation necrosis (dry); colliquation necrosis (wet); gangrene, infarction; sequester. Consequences of necrosis. Apoptosis. Description and study of macropreparations.

### **The general doctrine of dystrophies. Parenchymal dystrophy.**

Parenchymal dystrophy: protein (dysproteinosis), fat (lipidosis), carbohydrate. Parenchymal protein dystrophy; hyaline-drip, hydropic, horny. Morphological classification, causes, pathogenesis. Hereditary dystrophy caused by a violation of amino acid metabolism: systinosis, tyrosinosis, phenylketonuria. Parenchymal fatty

degeneration. Fatty degeneration of the myocardium, liver, kidneys. Morphological classification, causes, pathogenesis. Hereditary lipidoses: serebrosidoses (Gaucher disease), sphingomyelinoses (Niemann-Pick disease), gangliosidoses (Tay-Sachs disease), sulfatidoses: Gierke, Pompe, McArdle, Gers, Forbes and Anderson disease. Dystrophy associated with impaired glucoprotein metabolism. Mucous (colloidal). Morphological classification, pathogenesis. Cystic fibrosis. Studies and descriptions of macropreparations.

### **Stromal vascular dystrophy**

Causes of mesenchymal dystrophy. Types of vascular stromal dystrophy. Morphological changes of tissues under the microscope during mesenchymal strophy. Changes in the kidneys, heart during mucoïd swelling and fibrinoid swelling. The mechanism of development of amyloidosis, types of amyloidosis, the meaning of amyloidosis. Studies and descriptions of macropreparations.

### **Mixed dystrophy.**

Reasons. Classification. Violation of the exchange of chromoproteins. Classification: Hemoglobinogens; Proteinogens and tyrosinogens; Lipidogens and lipopigments. Violation of the metabolism of ferritin, hemosidirin, bilirubin, hematin, hematoidin, porphyrin. Types of jaundice. Violation of the metabolism of melanin, adrenochrome, and the pigment of enterochromaphin cells.

### **Violation of mineral metabolism**

The causes of the development of mineral metabolism disorders. Violation of calcium metabolism. Violation of potassium metabolism. Violation of copper metabolism. Violation of iron metabolism. Violation of zinc metabolism.

Violation of blood circulation and lymph circulation. Full of blood. Stasis. Ischemia. Bleeding. Causes of circulatory disorders. Types of circulatory disorders, such as fullness, stasis, ischemia and bleeding. Morphological changes in tissues under the microscope during stasis, fullness of blood. Changes in the liver, kidneys, heart with blood loss. Clinical significance of ischemia. Types of bleeding. Classification of fullness and stasis

**Violation of blood circulation and lymph circulation. Thrombosis. Embolism.  
Thromboembolic syndrome. Heart attack. DIC syndrome. Shock**

Causes of thrombosis. Classification of thrombosis. Mechanisms and essence of embolism, dangers, types of embolism. Types of myocardial infarction. Causes of DIC syndrome, phases of development, changes in organs and tissues. Morphological changes in tissues under the microscope in thrombosis. Changes in the heart during myocardial infarction.

### **The general doctrine of inflammation. Alterative and exudative inflammation.**

Causes of inflammation. The role of inflammatory mediators. Classification of inflammation. What phases of inflammation exist? Fundamental differences in the phases of inflammation. Types of exudative inflammation. Morphological changes in tissues under the microscope during inflammation. Changes in organs during inflammation. Macropreparations for fibrinous, purulent, catarrhal inflammation.

### **Productive and granulomatous inflammation**

The causes of the development of productive inflammation. Forms of granulomas. Cellular composition of granulomas. Phases of granuloma formation. Classification of productive inflammation. Morphological changes in tissues under the microscope during productive inflammation. Changes in organs with productive inflammation. Macropreparations for tuberculosis, syphilis, actinomycosis.

### **Immunopathology. Acquired immunodeficiency syndrome**

The causes of the development of immunopathology. Forms of pathology of the immune system. Organs of immunogenesis. Pathology of the thymus. Humoral and cellular reactions. Autoimmune diseases, classification. Immunodeficiency syndromes. AIDS. Morphological changes in the thymus and lymph nodes in immunopathology under a microscope. Changes in the thyroid gland in autoimmune thyroiditis. Macropreparations for thyroiditis Hashimoto.

### **Adaptation and compensation.**

The essence of adaptation and compensation. Morphological characteristics of the device. Types of atrophy, hypertrophy, metaplasia and dysplasia. The mechanism of regeneration development, types of regeneration, wound healing, types of wound healing. Morphological changes in hypertrophy, brown myocardial atrophy, hypertrophy of muscle tissue

## **The general doctrine of tumors. Epithelial tumors**

The essence of tumor development. Theories of tumor development, morphological characteristics of tumors. Signs of benign and malignant tumors. Types of tumors, signs of tissue and cellular atypia. Types of epithelial tumors

## **Mesenchymal tumors. Tumors of melanin-forming tissue.**

The essence of mesenchymal and melanin-forming tumors. Types of mesenchymal and melanin-forming tumors. Benign and malignant tumors from muscle, bone, and nervous tissue. Types of nevus. Signs of malignancy of nevi. Morphological changes in mesenchymal tumors. Signs of liposarcoma and osteosarcoma, melanoma

## **Tumors of hematopoietic and lymphoid tissue**

Features of leukemia, lymphoma and their types. Causes of leukemia, fundamental differences of tumors of hematopoietic organs in children and adults. Lymphogranulomatosis. Morphological picture of blood in leukemia. Acute and chronic leukemia. Differences between lymphomas and leukemias.

## **Anemia. The structure of the diagnosis.**

The essence of anemia, the mechanism of anemia development. The types of anemia are analyzed, posthemorrhagic, hemolytic anemia, iron deficiency anemia are analyzed. Varieties of hemorrhagic syndromes, signs of hemorrhagic syndromes.

## **Atherosclerosis. Hypertension. Coronary heart disease.**

Cardiomyopathy Atherosclerosis is a chronic disease resulting from a violation of fat and protein metabolism, characterized by damage to the deposition of lipids and proteins in the intima and reactive overgrowth of connective tissue. Etiology, developmental factors, pathogenesis, stages of the disease, microscopic and macroscopic. Classification and complications. Coronary heart disease. The mechanism of development. Classification. Acute and chronic complications. Types of heart attack. Cardiomyopathy. Morphological picture.

## **Rheumatic diseases. Heart defects.**

Causes of rheumatism, SLE, rheumatoid arthritis and dermatomyositis. The classification of rheumatism is being analyzed. Morphological picture of the heart in rheumatism. Forms of rheumatism and heart defects.

## **Respiratory diseases**

Features of lung disease. Causes of acute pneumonia, the stage of croup pneumonia. Microscopic changes in croup pneumonia. Types of lung cancer. Morphological picture of the lungs in pneumonia and lung cancer.

## **Diseases of the digestive system**

Features of stomach disease. Theories of the development of gastric ulcer and duodenal ulcer. Types of gastritis. Stomach cancer. Theories of acute appendicitis development and classification of acute appendicitis. Microscopic changes in gastric cancer and peptic ulcer disease. Morphological picture of diseases of the stomach and intestines.

## **Diseases of the liver and biliary tract**

Features of liver disease. Theories of hepatitis development. Types of hepatitis. Cirrhosis of the liver. Diseases of the gallbladder and biliary tract Microscopic changes in hepatitis. Morphological picture of the liver in hepatitis and cirrhosis.

## **Diseases of the kidneys and urinary tract**

Features of kidney disease. Theories of jade development. Types of jade. Urolithiasis is being dismantled. Diseases of the urinary tract microscopic changes in glomerulonephritis. Morphological picture of the kidneys in various pathologies.

## **Diseases of the endocrine system**

Features of thyroid and pancreatic diseases. Pituitary and adrenal gland diseases are studied. They analyze the theories of the development of thyrotoxicosis and diabetes mellitus. They analyze microscopic changes in diabetes mellitus. Further, the teacher explains and demonstrates the morphological picture in various pathologies of the thyroid gland.

## **Diseases of the bone and joint system**

Features of the disease of the osteoarticular system. Morphological signs of rickets, osteopetrosis and osteomalacia. Diseases of the joints. Malignant and benign formations of bones and joints. Microscopic changes in osteopetrosis, osteoporosis. Morphological picture of bones in various pathologies.

## **The general doctrine of infectious diseases. Infectious diseases of the central nervous system**

Features of the spread of infectious diseases. Classification of infection. Infection of the central nervous system. Causes of encephalitis, meningitis, rabies. Microscopic picture of tick-borne encephalitis, meningitis and rabies. Morphological picture of the brain in infections of the central nervous system

### **Acute viral respiratory diseases. Covid-19**

Features of the spread of respiratory viral infections. The severity of the flu and the complications of the flu. Clinical variants of the flu course. Morphological picture of organs in respiratory viral infections and in covid-19.

### **Bacterial intestinal infections.**

Features of the spread of bacterial intestinal infections. Microscopic stages of typhoid fever, salmonellosis and dysentery. Complications of typhoid fever. Morphological patterns of the intestine in bacterial infections.

### **Children infectious diseases.**

Features of the spread of childhood infections. Epidemiology, clinic of measles, diphtheria, whooping cough, scarlet fever, chickenpox, etc. Complications of children's infectious diseases. Morphological picture of children's infectious diseases.

### **Sepsis.**

Features of sepsis development, differences from other infectious diseases. Etiology, course of the disease and epidemiology. Types of sepsis depending on the entrance gate. Types of sepsis. Studies and descriptions of macropreparations.

### **Tuberculosis.**

Causes, course, epidemiology of tuberculosis. Tuberculous tubercle, its structure, types and outcomes. Primary tuberculosis, pathological anatomy, outcomes. Hematogenic tuberculosis, types and morphology. Secondary tuberculosis, pathological anatomy, outcomes. Studies and descriptions of macropreparations.

### **Especially dangerous infectious diseases.**

Stages of development of cholera, plague, smallpox and anthrax. Complications of these diseases. Clinical forms. Features of autopsy of corpses with especially dangerous infections. Organ changes in particularly dangerous infections.

### **Prenatal and perinatal pathology.**

Prenatal pathology and its periods. Pathology of the gamete (germ cells). Etiology, morphology and outcomes. Blastopathy, etiology, morphology and outcomes. Embryopathy. Etiology, morphology and outcomes. Perinatal pathology. Features of the autopsy of newborns. Birth injuries. Studies and descriptions of macropreparations.

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## **"DERMATOVENEROLOGY"**

### **Preface**

Healthcare is the national wealth of the country. The protection of public health in our republic is ensured by the activities of a number of state socio-economic institutions and medical measures. The purpose of medical science is the diagnosis, treatment and prevention of infectious diseases of the population.



An important direction of improving public health protection is to improve the activities of sanitary and epidemiological services of the country and increase the role of state sanitary and epidemiological surveillance.

The revival of a nation is, first of all, the revival of its culture. In the VIII-X centuries, the Tajiks reached a high level of development of their spirituality, and it was at this time that they created a favorable base for the development of medical science.

Today, the dermatological branch of the country is under the close attention of the great leader of the nation, the founder of peace and national unity, the President of the Republic of Tajikistan, the respected Emomali Rahmon, the opening of the City Hospital for Skin and Venereological Diseases with modern medical equipment during the period of independence is evidence of this. According to the strategic plan for the reconstruction of medical institutions of the Republic of Tajikistan for 2011-2020, the improvement of medical services for the population and according to modern experience of outpatient and inpatient services for the population of the country are considered important achievements.

Dermatology is the science of skin diseases. She studies the structure and functions of the skin in norm and pathology, the relationship of skin diseases with various pathological conditions of the body, also finds out the causes and pathogenesis of various dermatoses, develops issues of diagnosis, therapy and prevention of skin diseases. Skin diseases are part of the pathology of the ancient generation of mankind, all stages of its development, sometimes have their own epidemiological characteristics.

Venereology is a science that studies diseases of the genitals. The term venereology comes from the name of Venus, the goddess of love. Sexually transmitted diseases (STDs) occupy a prominent place among inflammatory diseases of the genitourinary system. Their etiology is different, but epidemiology, clinical manifestations, principles of diagnosis, treatment and prevention are similar. The group of sexually transmitted diseases includes herpes, gonorrhea, trichomaniasis, chlamydia, HIV, etc.

BCG is considered the main cause of reproductive disorders in both men and women. Diseases of the genitourinary system due to BCG increase the possibility of infection with the human immunodeficiency virus (HIV) several times.

The tendency to increase the spread of BCG and its poor screening in the absence of epidemiological control, outdated and often incompetent installations of specialists

(venereologists, obstetricians, gynecologists, urologists, sex therapists) in the direction of prevention, diagnosis, treatment and anti-epidemic measures. -epidemic measures lead to consequences, and problems become serious in patients with BCG.

The purpose of the subject "Diseases of the skin and genitals" is to prepare students in accordance with the requirements for independent professional activity and to perform the main tasks: diagnosis, counseling, treatment and prevention in medical institutions of the Republic of Tajikistan. The purpose of teaching dermatovenerology is to know their basics and necessary elements in the daily activities of doctors of various specialties, to use the acquired knowledge and skills in practice.

## **Introduction**

Anatomy, physiology, skin functions. Primary and secondary morphological elements

Skin, general characteristics, epidermis, outer skin and hypodermis, sources of development, functions. Morphofunctional features of the skin of various anatomical areas of the human body. Age, gender and skin structure.

The epidermis. The main types of epidermis cells. Layers of the epidermis, cellular composition. The concept of the keratinization process, its meaning. Cellular regeneration of the epidermis and ideas about its proliferative unit and columnar formation. The system of local immune control of the epidermis (Langerhans and Greenstein cells, lymphocytes), histofunctional characteristics. Epidermal melanocytes, origin, structure and functions. Basement membrane, dermal-epidermal junction.

The original skin or dermis. Nipple and mesh layers, woven composition. Hypoderm. Regional features of the skin: the structure of the "thick" and "thin" skin epidermis, age and sex characteristics of the skin. Skin as an organ of the body. Merkel cells.

Leather goods. Skin glands. Sebaceous and sweat glands (eccrine and apocrine), structure, location, functions. Hair, structure, growth and hair replacement. Nails, development, structure and growth of nails.

Skin function. The action of regulating body temperature. Sensory or sensory action of the skin. The participation of the skin in metabolism.

Skin immunology. The skin is a peripheral organ of the immune system. T- and B-lymphocytes. Forms of manifestation of immunity. Pathology of the skin (immunopathology).

Diagnosis of skin diseases. Primary alternative elements. The main elements of rashes. The primary elements of irtishakh. Secondary signs of skin diseases. The concept of monomorphism and polymorphism.

### **Pustular skin diseases**

Skin disease. The reasons for its occurrence. Acute and chronic acne. Classification of pustular skin diseases. Erysipelas, superficial staphylopyoderma, staphylococcal pyoderma in children, sweating and vesiculopustulosis, osteopholliculitis, folliculitis. The usual sycosis. Deep staphylopyoderma. Deep folliculitis. Folliculitis and perifolliculitis (Hoffmann's symptom). Streptococcal impetigo.

Etiology, pathogenesis, clinic pustular skin disease. Osteopholliculitis.

Staphylococcal, streptococcal and streptostaphylopyodermic diseases. By localization: superficial and deep types of pyoderma. Downstream: acute and chronic. Differential diagnosis of staphylococcal and streptococcal pyoderma. General principles of medical and physiotherapy treatment.

### **Fungal skin diseases**

Fungal skin diseases and their classification: keratomycosis, nodular trichosporia, axillary trichomycosis and erythrasma; dermatophytes: epidermophytia, rubromycosis, trichophytia, microsporia, favus; candidiasis of the skin, mucous membranes and internal organs; deep mycoses (blastomycosis, sporotrichosis, chromomycosis, actinomycosis). Etiology. Pathogenesis. Clinic. Differential diagnosis.

Keratomycosis (pityriasis, erythrasma). Dermatophytia (epidermophytia, rubromycosis). Trichophytia (trichophytia, microsporia, favus). Candidiasis. Mycosis of the hands, feet and trunk, onychomycosis. Biological properties of microorganisms. Distribution and ways of infection. Examination of patients with dermatomycosis: survey (main complaints and their pathogenesis), examination (primary and secondary morphological elements of rashes, forms of fungi), special dermatological studies (diascopy, dermography, clinical studies of fungi, etc.).

Trichophytia, microsporia and favus. Biological characteristics of trichophytes. Distribution and ways of infection. Examination of patients with trichophytia: survey (main complaints and their pathogenesis), examination (primary and secondary morphological elements, localization), special dermatological examination.

## **Inflammatory skin diseases**

General characteristics of inflammatory skin diseases. The reasons, the development of their location. Signs of inflammatory skin diseases. Classification of chronic skin diseases: a. According to morphological characteristics (exudative, proliferative, mixed)

b. By the degree of the disease (mild, moderate, severe); c) by periods (remission, exacerbation); d) by spread (diffusive, regional); d. By the onset of the disease (acute, subacute, chronic). Etiology of the disease. Allergic dermatitis. Actinic reticuloid. Skin itching: common and local Atopic dermatitis: common neurodermatitis and limited neurodermatitis. Itching (scratching). Dermatitis and its types (seborrheic, simple and chronic, contact of unknown etiology, various etiologies). Pathogenesis and clinical manifestations of inflammatory skin diseases. Diagnosis and treatment.

Etiopathogenesis, dermatitis clinic: simple contact dermatitis, allergic dermatitis, toxicoderma. Diagnostics, principles of complex treatment. Examination of patients with dermatitis: survey (main complaints and their pathogenesis), examination (primary and secondary morphological elements, localization), special dermatological studies (diascopy, dermatography, etc.).

Neurodermatosis. Neurodermatitis. Itching. Rashes. Etiopathogenesis, clinic, diagnosis, treatment and prevention Skin itching, types. Atopic dermatitis: causes and mechanisms of development, age groups, primary and secondary morphological elements, special dermatological studies (diascopy, dermatography, complex therapy). Clinical analysis of patients.

## **Chronic skin diseases**

Psoriasis. Classification, etiopathogenesis, clinic, differential diagnosis, treatment. Psoriasis: spread, causes and development, genetic manifestations, factors and prognosis. Differential diagnosis. Clinical symptoms, psoriatic triad. Treatment of mild and severe forms. Conducting special dermatological studies (diascopy, dermatography, etc.) and psoriatic manifestations. CPL schemes: causes and mechanisms of development, clinical manifestations, diagnostic and therapeutic measures. Conducting special dermatological studies (diascopy, dermatography, etc.)

Eczema is a recurrent inflammatory allergic skin disease. Classification of eczema and its types. Description, causes of the disease, pathogenesis. General objective signs

of the disease. Differential diagnosis and treatment of eczema. Treatment of patients with eczema. Treatment of eczema with medicinal herbs.

### **Leprosy, cutaneous leishmaniasis and tuberculosis of the skin**

Leprosy (Leprosy). Causes, development, symptoms. Classification, clinical manifestations and types of leprosy (lepromatous, borderline, polar and tuberculous forms), impaired sensitivity, pain and temperature sensitivity. Motor and trophic disorders. Differential diagnosis. Treatment prevention and treatment.

Laboratory diagnostic methods. Organization of the fight against leprosy in Tajikistan. Leprosarium. Cutaneous leishmaniasis etiology, clinical picture anthroponotic type, zoonotic form, diagnosis, differential diagnosis and treatment.

Clinical manifestations of leishmaniasis. Late granulation-ulcerative type, anthroponotic type, acute necrotic zoonotic type. Tuberculosis of the skin (tuberculous lupus, tuberculosis of the skin, collicative tuberculosis). Signs of appendages, localization, type of lion, loss of eyebrows and eyelashes, numbness, special dermatological examination (diascopy, Pospelov's symptom).

### **Parasitic and infectious skin diseases**

Scabies. Skin itching. Classification. Etiopathogenesis. Clinic, diagnosis, treatment, prevention.

Reasons for the spread. The main signs of the scabies process (Gorchakov's symptom, Ardi's symptom, Michaelis' symptom, Caesar's symptom. Diagnostics. A method for diagnosing the scabies process. The method of removing ticks with a needle. General conditions of treatment. Rules for the treatment of patients with scabies.

Pediculosis: classification, etiology, epidemiology and pathogenesis, clinical picture, variety of pediculosis, infectious conditions, epidemiological aspects. Clinic of itching in children. Treatment and prevention of itching.

### **SKIN VIRAL DISEASES**

Viral dermatoses. Classification, etiopathogenesis, clinic, diagnosis.

Viral dermatoses. Etiopathogenesis. Ways of infection: airborne, contact (directly and indirectly through infected objects), transplantation (may cause indirect fetal death

or teratogenic effect), transfusion. Provoking factors. Herpes simplex . Clinical manifestations of HSV type 1 and type 2. Classification. Clinical picture. Diagnostics. Antiviral treatment, systemic and external. Shingles (Herpes Zoster). Etiopathogenesis. Clinical manifestations. Antiviral drugs. There are typical and atypical forms of lesion. Principles of treatment. Clinical analysis of patients.

### **Hereditary skin diseases**

Xeroderma is A simple ichthyosis. Serpentine ichthyosis, Congenital ichthyosis and congenital ichthyosis-like erythroderma. Congenital ichthyosis-like Broca's erythroderma. Keratoderma of the palm and soles. Scaly keratoderma of Buschke-Fischer on palms and soles. Secondary and symptomatic keratoderma of the palm and soles. Professional keratodermy. Eczematous keratoderma. Psoriatic keratoderma of the palms and soles. Symptoms of ichthyosis. Course, differential diagnosis of the disease and treatment.

### **Vesicular dermatoses**

Pemphigus. Classification, etiopathogenesis, clinic, diagnosis, differential diagnosis and treatment.

Vulgar pemphigus. Etiopathogenesis. Autoimmune mechanisms of disease development. Clinical manifestations of various forms of true pemphigus. Symptoms of Nikolsky, Asbo-Hansen. Diagnosis of true pemphigus, a cytological method of diagnosis. Intraepidermal arrangement of bladders: suprabasal with true and vegetative and subcorneal or supragranular with true leaf-like and seborrheic vesicles. Placement of class G immunoglobulins in the space of epidermal cells. Diagnostics. Principles of treatment. Clinical analysis of patients.

### **Sexual infectious diseases**

Information about the BCG lighter. Classification of lighters. The causative agent is pale treponema (*Treponema pallidum*). Fire of the first, second and third degree. Fever without clinical symptoms with a positive serological reaction. Innate fire. Premature and overdue fires. The course of measles: the latent period, the first, second and third. Etiology, epidemiology, clinic, differential diagnosis and treatment of shingles. Reinfection and superinfection during outbreaks. Neurosyphilis and its classification. Clinical and laboratory features of the exhaled nerve. Clinical evaluation of the results of serological reactions. Treatment of patients with neurosyphilis Etiology and

pathogenesis of syphilis. Information about colorless spirochete according to electron microscopy. Ways of infection. Incubation period, general pathology 1,2,3 and latent periods of syphilis. The problem of immunity. Reinfection and superinfection. Classification of syphilis. Syphilis clinic. Primary syphilis: classification, types of hard chancre, hard atypical chancre, complications. Congenital syphilis (classification, causes, intrauterine and placental syphilis). Syphilis of early childhood (infancy). Differential diagnosis of epidemic and syphilitic pemphigus. Late congenital syphilis. Reliable and possible symptoms of late syphilis. Features of clinical and serological reactions at different stages of syphilis. Examination of patients with syphilis: survey (main complaints, epidemiological history), examination, serological diagnostic methods for blood serum and non-treponemic tests, isolation and examination for colorless spirochetes.

Gonorrhea. Etiopathogenesis. Classification. Clinical manifestations. Diagnosis Physical examination. Differential diagnosis. General principles of treatment.

Epidemiology, etiology, pathogenesis of gonorrhea. Grouping. Gonorrhea in men. Gonorrhea in women. Gonorrhea in pregnant women. Clinic, diagnosis and treatment of gonorrhea in children. Clinic, diagnosis and treatment of gonorrhea. Chlamydia infection of the reproductive system. Prevalence, etiology, types of diagnosis, features of clinical manifestations in men and women. Care.

Chlamydia. Etiopathogenesis. Classification. Clinical manifestations. Diagnosis Differential diagnosis. General principles of treatment.

Epidemiology, etiology, pathogenesis of chlamydia. Grouping. Clinic, diagnosis and treatment of gonorrhea in children. Clinic, diagnosis and treatment of gonorrhea. Chlamydia infection of the reproductive system. Prevalence, etiology, types of diagnosis, features of clinical manifestations in men and women. Care. Criteria for treatment and prevention. Trichomonas infection of the genitourinary system. Prevalence, etiology, classification, types of diagnosis, features of clinical manifestations in men, women and children, treatment. Inflammatory diseases of the genital tract with genital mycoplasmas. Etiology, epidemiology, pathogenesis, clinic, laboratory diagnostics. Treatment, treatment criteria and prevention.

Bacterial vaginosis Clinical picture. Differential diagnosis. Care.

Candidiasis of the urinary and genital tracts. Classification. Clinical picture. Differential diagnosis. Physical examination. Methods of laboratory tests. Care. Donovanosis. The cause of donovanous disease. Pathogenesis, clinic, clinical picture, differential diagnosis.

Treatment of mycoplasmosis. Ways of transmission of the disease. Urogenital mycoplasma disease and its pathogens. Methods of laboratory research. Prevention. Classification and diagnosis of chlamydia infection. Clinical signs of urogenital chlamydia infection.

Mixed urogenital infections. Clinical manifestations. Diagnostics. General principles of treatment

Epidemiology, etiology, pathogenesis of mixed urogenital infections. Clinic, diagnosis and treatment of mixed urogenital infections. Clinic, diagnosis and treatment. Prevalence, etiology, types of diagnosis, features of clinical manifestations in men and women. Care. Criteria for treatment and prevention. Trichomoniasis of the reproductive system. Prevalence, etiology, types of diagnosis, features of clinical manifestations in men, women and children. Inflammatory diseases of the intestine, anus, genitals with genital mycoplasmas. Etiology, epidemiology, pathogenesis, clinic, laboratory diagnostics. Treatment, treatment criteria and prevention.

Cytomegaly (CMV). The causative agent of cytomegaly is herpesviruses. Types of cytomegaly.

Diagnosis and treatment. The cause of viral diseases of the genitals. Infections of the genitals and urinary tract. Epidemiology. Classification. Diagnosis and treatment.

Dermatological manifestations of HIV infection. Features of skin and mucous membrane lesions in people infected with HIV: age groups, the nature of the course, pathological manifestations, and resistance to treatment. Infectious skin diseases in HIV (viral, fungal, bacterial and parasitic skin diseases) Common characteristics of fungal diseases in HIV infection are: a) rapid accumulation with the appearance of a wide focus on the entire skin, b) permanent course, c)



resistance to continuous treatment. Prevention of sexual infections. Counseling and Behavior Change Approaches Counseling and behavior change interventions provide primary prevention of STDs (including HIV) and prevention of unwanted pregnancy. These include: comprehensive sex education, STD prevention and post-test counseling, as well as HIV counseling; safe sex/risk reduction counseling, condom use advocacy; interventions targeting key vulnerable groups such as adolescents, commercial sex workers, men who have sex with men, and people who use drugs. Barrier methods.

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4. Skin diseases Zoirov P.T. Dushanbe "TNE" 2021, 811 p.
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## **"FORENSIC MEDICINE"**

### **Preface**

Forensic medicine is a special branch of medicine that deals with the application of medical and other knowledge from the field of natural sciences for the needs of law enforcement and justice. Forensic medicine is a special medical science, a system of scientific knowledge about the patterns of occurrence, methods of detection, and methods of research and assessment of medical facts that serve as a source of evidence during the investigation provided for by law. For example, conducting forensic medical examinations helps not only determine the cause of sudden death or find the criminal, but also establish paternity, degree of relationship, and also examine in detail any biological traces.

Forensic medicine is a branch of medicine, which is a system of scientific knowledge, research methods and expert assessment of facts (objects, processes, phenomena), on the basis of which issues of a medical and biological nature that arise in the activities of law enforcement officials in the legal process are resolved, and some specific tasks of practical healthcare.

The purpose of teaching forensic medicine is to train students in the theoretical and practical foundations of forensic medicine, as well as to develop in them clinical thinking and medical behavior to the extent necessary for the

successful performance of professional tasks by a doctor, both in relation to forensic investigative practice and in the field of healthcare.

In the process of studying the discipline, students should develop the following knowledge: organizational and procedural foundations of the forensic medical service in the Republic of Tatarstan; forms of participation of a forensic medical expert and a doctor expert in the work of judicial investigative bodies; the limits of the competence of a forensic expert when examining living persons and corpses in the event of a violent death, suspicion of violence, or under other circumstances that necessitate the examination in a forensic manner; cases of mandatory appointment of a forensic medical examination. Forensic medicine is most closely associated with pathological anatomy, pathological physiology, clinical toxicology, obstetrics and gynecology. Among non-medical specialties - criminology, criminal and civil law and procedure.

### **Introduction**

Subject, tasks and content of forensic medicine.

The concept of forensic medicine. System of the subject of forensic medicine. Objects and methods of forensic medical examination. Organization of service in the Republic of Tatarstan. Procedural foundations of forensic medical examination. Types of examinations. Forensic documentation. The procedure for drawing up a conclusion. Subject and tasks of forensic medicine. Research methods in forensic medicine. Procedural procedure for conducting forensic medical examinations in criminal cases.

Procedural procedure for conducting a forensic medical examination in civil cases. Organization of forensic medical service in the Republic of Tatarstan. Classification of medical examinations. The main differences between forensic examinations and non-judicial examinations. Legal status of the expert. Legal status of a specialist. The main differences between an expert and a specialist.

### **Forensic medical examination of a corpse.**

The teaching of death. Cadaveric phenomena: cadaveric spots, muscle rigor, cooling of the corpse, cadaveric desiccation, autolysis, putrefaction. Participation of a doctor in investigative actions. Evaluation of the expert opinion by the investigator and the court. Dying and death. Early changes in the corpse. Late changes in the corpse. Methods for establishing the duration of death.

## **The concept of hypoxia and mechanical asphyxia, classification**

Hanging, strangulation with a noose, strangulation with hands, closure of the mouth and nose, compression asphyxia, obstructive asphyxia, closure of the airways with a foreign body, closure of the airways with bulk materials, closure of the airways with food masses. Features of forensic medical examination of a corpse with mechanical asphyxia. Drowning. Forensic medical examination of a corpse with mechanical asphyxia. Types of asphyxia. Features of the study of corpses during self-hanging and strangulation.

Damage to a corpse when the external respiratory tract is closed with hard and soft material. Features of the study of corpses after drowning. Peculiarities of examining a corpse at the site of its discovery. Forensic examination of a corpse.

### **Effect of high and low temperature.**

### **Effect of technical and natural electricity**

Forensic medical examination of injuries and corpses of persons who died from factors of high, low temperature from the action of electricity, high and low barometric pressure is complex, due to the fact that the expert who conducted the study needs to detect, both during external and internal examination, morphological signs that would indicate this type of impact.

The main injuries when exposed to high temperature factors are thermal burns of 4 degrees, when exposed to a low temperature factor, frostbite, and when exposed to electricity - electrocution. Knowledge of the main and additional signs of the above-mentioned influences allows already at the first stages of the investigation to determine the directions and scope of investigative actions.

### **Blunt trauma**

Damage caused by blunt objects.

Classification of blunt hard objects. Mechanism of formation and types of damage. Transport injury. Kinds. Forensic medical examination of automobile injury. Damage caused to a pedestrian when a vehicle collides. Damage caused inside the vehicle. Features of the study of clothing and corpses in auto trauma. Complications of blunt trauma. -Forensic medical examination of a corpse in case of blunt trauma. Damage caused by blunt objects. Complications after blunt trauma. Forensic medical examination in case of auto injury.

Characteristic and specific damage in auto trauma. ZO. Types of auto injuries. Damage caused by rail transport

### **Acute injury.**

Damage caused by sharp instruments. Concepts and classification of sharp objects. Incised wound. Stab wound. Puncture wound. Chopped wound. Features of forensic medical examination of a corpse in acute trauma. Complications of acute trauma. Features of examining the scene of the incident and the corpse at the place of its discovery in case of acute injury. Forensic medical examination of acute trauma. Damage caused by piercing, cutting, piercing instruments. Morphological features. Complications when wounds are caused by piercing objects.

### **Forensic medical examination of gunshot injuries.**

Shot mechanism. Damaging and additional factors of the shot. Features of forensic medical examination of a corpse with gunshot injury. Complications of gunshot injury. Features of examining the scene of the incident and the corpse at the place of its discovery in case of gunshot injury. Damage when shot at point-blank range, at close or at short range. Gunshot injuries: concept, classification. Damaging factors of a shot and their characteristics. Damage from close range shots. Damage caused by shots from close range. Forensic medical examination of a corpse with gunshot injuries. Certification and forensic medical examination of living persons with gunshot injuries. Methods for studying gunshot injuries.

### **Poisoning**

Classification. Methods of administration. Features of forensic medical examination of a corpse in various types of poisoning. Features of examining the scene of the incident and the corpse at the place of its discovery in case of poisoning. Poisoning with narcotic substances. Poisoning with alcohol and alcohol substitutes. Carbon monoxide poisoning. Poisoning with acids and alkalis. Nonbacterial and bacterial food poisoning. Toxic substances: concept, classification. Principles of recognizing human poisoning.

Forensic medical examination of a corpse in case of poisoning, suspected poisoning. Forensic medical examination of the victim in case of poisoning. Alcohol intoxication examination. Criteria and degrees of alcohol intoxication.

Medical and biological aspects of alcohol and drug intoxication. Examination of alcohol and drug intoxication during the examination of a corpse. Qualitative and quantitative methods for determining alcohol.

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