

## CONTENT OF THE EDUCATIONAL MATERIAL

### 1. Respiratory diseases

#### 1.1. Acute and chronic bronchitis. Chronic obstructive pulmonary disease

Current state of the pulmonology service of the Republic of Belarus, achievements of the Republic of Belarus in the field of pulmonology. Organization of medical care for patients with lung diseases, prevalence of the main pathology. Features of providing medical care in outpatient and inpatient settings. Treatment and diagnostic technologies in the management of patients with lung diseases. Main tasks for improving the provision of care to patients with lung diseases at the present stage. Medical ethics and deontology in the management of patients with lung diseases.

Acute bronchitis. Main causes of acute bronchitis, clinical manifestations, diagnostic criteria, assessment of disease severity, differential diagnostics, formulation of diagnosis, choice of treatment tactics in accordance with modern international recommendations and clinical protocols of the Ministry of Health of the Republic of Belarus (MH RB). Features of clinical manifestations of bronchiolitis. Coronavirus infection: epidemiology, etiology, clinical picture, diagnostics. Radiation diagnostic methods. Modern principles of therapy.

Chronic bronchitis and chronic obstructive pulmonary disease (COPD): definitions of concepts, epidemiology, risk factors for chronic bronchitis and COPD. International recommendations «Global strategy for diagnosis, treatment and prevention of chronic lung disease».

Assessment of the course of COPD. COPD phenotypes. Diagnosis of COPD: anamnesis, key symptoms, study of function of external respiration, laboratory and instrumental diagnostics. Classification of COPD. Integral assessment of COPD. Features of clinical manifestations. Formulation of the diagnosis. Features of treatment tactics in accordance with modern international recommendations and clinical protocols of the Ministry of Health of the Republic of Belarus. Choice of non-drug treatment methods for stable COPD: oxygen therapy, surgical treatment, medical rehabilitation of patients with COPD. Prognosis.

#### 1.2. Pneumonia

Community-acquired pneumonia: definition, epidemiology, etiology, pathogenesis, clinical picture. Diagnostic criteria. Features of clinical manifestations depending on the etiologic factor. Methods for identifying the microflora causing pneumonia. Evaluation of pneumonia severity. Features of the course of pneumonia in the elderly and senile. Pneumonia in pregnant women. Complications of pneumonia. Methods of examining the lungs in diagnosis and differential diagnosis of pneumonia. Treatment tactics for community-acquired pneumonia. Initial choice of drugs and subsequent tactics. Outpatient treatment, indications for hospitalization. Evaluation of treatment effectiveness, duration of antibiotic therapy, criteria for stopping treatment.

Pneumonia caused by pneumococci, staphylococci, streptococci, legionella, chlamydia, mycoplasmas: epidemiology, routes of infection, features of the clinical picture, diagnostic criteria, treatment features.

Hospital pneumonia: definition, modern diagnostic criteria, main etiologic factors, risk of development, classification. Features of the clinical course and diagnosis of hospital pneumonia caused by various infections.

Initial choice of antibacterial treatment for hospital pneumonia, as well as treatment taking into account the type of infectious agent that caused pneumonia.

Aspiration pneumonia: main causes, clinical features, clinical examination. Interpretation of laboratory and instrumental lung examination data, differential diagnostics, determination of diagnostic criteria, formulation of diagnosis, choice of treatment tactics in accordance with modern international recommendations and clinical protocols of the Ministry of Health of the Republic of Belarus.

Pneumonia in immunodeficiency states: main causes, features of the clinical picture, clinical examination. Features of treatment tactics in accordance with modern international recommendations and clinical protocols of the Ministry of Health of the Republic of Belarus.

Acute respiratory failure: clinical manifestations, classification, assessment of concomitant diseases, physical and instrumental examination data (spirometry, radiography, ultrasound examination of the heart), diagnostics and differential diagnostics. Selection of treatment methods in accordance with modern international recommendations and clinical protocols of the Ministry of Health of the Republic of Belarus. Diagnostics and monitoring of respiratory failure in outpatient settings, in hospitals, in intensive care units. Features of monitoring respiratory failure in coronavirus pneumonia.

Acute respiratory distress syndrome: diagnostic methods, clinical picture, diagnostic criteria, diagnosis formulation, treatment tactics, respiratory support methods.

### **1.3. Bronchial asthma**

Bronchial asthma (BA): definition, epidemiology, risk factors, etiology, classification, clinical picture, diagnostics of BA in accordance with modern international recommendations and clinical protocols of the Ministry of Health of the Republic of Belarus. The role of spirometry, peak flowmetry, bronchodilator tests in diagnostics of BA. Phenotypes of bronchial asthma. Differential diagnostics of BA, overlap syndrome (combination of BA and COPD). Evaluation of severity of exacerbations of bronchial asthma (BA). Treatment tactics for severe exacerbation of bronchial asthma. Drug and non-drug treatment taking into account international recommendations of the Global Initiative on Asthma. Features of treatment of various phenotypes of BA. Use of monoclonal interleukins and antibodies to immunoglobulin E. Specific immunotherapy for BA. Evaluation of treatment effectiveness, prognosis.

### **1.4. Diseases of the pleura. Suppurative diseases of lungs. Bronchiectasis**

Pleural diseases: etiology, pathogenesis, clinical manifestations, classification of pleural lesions. Modern diagnostic methods (X-ray, computed tomography (CT), magnetic resonance imaging (MRI), ultrasound examination (US), examination of pleural contents). Results of thoracoscopy and biopsy, pleural effusion studies in diagnostics of pleural lesions. Differential diagnostics. Main treatment methods. Indications for therapeutic pleural puncture. Treatment methods for dry, exudative pleurisy, pleural empyema in accordance with modern international recommendations

and clinical protocols of the Ministry of Health of the Republic of Belarus. Determination of indications for surgical treatment, prognosis.

Suppurative lung diseases (acute abscess, gangrene of the lung): main causes, predisposing factors, features of clinical symptoms, examination methods in diagnosis of infectious destruction of the lungs.

Selection of drugs, determination of their application regimens and dosages for acute abscess and gangrene of the lung.

Determination of indications for surgical treatment of acute abscess and gangrene of the lung.

Bronchiectasis. Bronchiectatic disease, congenital bronchiectasis, terminology, definition of concepts, epidemiology, clinical picture, classification, modern methods of diagnostics and differential diagnostics. Treatment tactics in accordance with international recommendations and clinical protocols of the Ministry of Health of the Republic of Belarus. Methods of bronchial tree sanitation, determination of indications for surgical treatment.

### **1.5. Pulmonary embolism. Pulmonary hypertension, pulmonary heart disease**

Pulmonary embolism (PE): main causes, pathogenesis, classification. Clinical manifestations of PE. Assessment of the likelihood of PE development. Instrumental and laboratory studies in diagnosis and differential diagnosis of PE. Prognosis for PE. Treatment tactics in accordance with recommendations of National Societies, the European Society of Cardiology for diagnosis and treatment of acute pulmonary embolism.

Pulmonary hypertension: definition of the concept, etiology, pathogenesis, clinical manifestations. International classification of pulmonary hypertension. Fundamentals of treatment tactics, prognosis.

Chronic pulmonary heart: definition of the concept, etiology, clinical picture, laboratory and instrumental diagnostic methods. Current international recommendations and clinical protocols of the Ministry of Health of the Republic of Belarus for treatment of patients with pulmonary hypertension. Pulmonary hypertension in lung diseases, features of diagnostics and treatment tactics. Determination of indications for surgical treatment of chronic pulmonary heart disease, for lung transplantation, the «lungs-heart» complex.

## **2. Diseases of the circulatory system**

### **2.1. Arterial hypertension. Essential and secondary arterial hypertension**

Current state of cardiology service in the Republic of Belarus, main achievements in the field of cardiology. Organization of medical care for patients with cardiovascular diseases, prevalence of main pathology. Features of medical care in outpatient and inpatient settings. New treatment and diagnostic technologies in the management of patients with heart and vascular diseases. Main tasks for improving the provision of patient care at the present stage. Medical ethics and deontology when working with patients with heart and vascular diseases.

Essential arterial hypertension: definition, relevance, medical and social significance of the problem. Protocol for examining patients with arterial hypertension. Prevalence, proportion in the structure of other hypertension. Damage

to target organs. Differential diagnostics. Treatment: non-drug methods and diet, pharmacological treatment. Primary and secondary prevention, clinical examination, prognosis.

Secondary arterial hypertension: main causes, classification. Renal arterial hypertension (parenchymal, renovascular). Endocrine arterial hypertension (thyrotoxic, with Itsenko-Cushing syndrome, pheochromocytoma, Conn's syndrome). Hemodynamic and cerebral arterial hypertension. Somatoform autonomic dysfunction. Classification. Differential diagnostics. Treatment: diet, regimen, pharmacological and non-drug therapy. Prevention.

Hypertensive crisis: definition of the concept, etiology (endogenous and exogenous factors), mechanisms of crisis formation. Classification of hypertensive crises, clinical picture, diagnostic methods. Emergency medical care. Antihypertensive drugs for relief of hypertensive crises. Hypertensive crises complicated by acute coronary syndrome, acute left ventricular failure, dissecting cardiac aneurysm, subarachnoid, intracerebral hemorrhage. Hypertensive crises against the background of various diseases of internal organs. Relief of crises, including various complications and concomitant diseases. Prevention of crises.

## **2.2. Atherosclerosis. Stable forms of ischemic heart disease. Angina pectoris**

Atherosclerosis: etiology and pathogenesis (thrombogenic, clonal, viral, immunological, lipoprotein and other theories), risk factors for atherosclerosis. Metabolic syndrome. Dyslipidemia. Clinical picture of atherosclerosis depending on its predominant localization (aorta, vessels of the heart, brain, limbs, kidneys, intestines). Prevention of atherosclerosis. Primary and secondary prevention of diseases of circulatory system (CSD). General issues of treating patients with diseases caused by atherosclerosis. Treatment of dyslipoproteinemia. Drugs that normalize lipid metabolism.

Stable forms of coronary heart disease (CHD). Reasons for identifying stable forms of CHD. Features of clinical manifestations of individual forms (phenotypes) of CHD. Stable forms of CHD proposed by the European Society of Cardiology. Features of diagnostics, treatment tactics, and prognosis.

IHD: angina pectoris. The importance of stenosing atherosclerosis of coronary arteries, angiospastic factor and thrombosis. Clinical forms of ischemic heart disease according to the World Health Organization (WHO). The concept of painless myocardial ischemia. Definition of sudden coronary death. Diagnostic criteria for postinfarction cardiosclerosis. Heart rhythm and conduction disorders. Classification of angina pectoris. Characteristics of pain syndrome in angina pectoris. Variants of angina pectoris. Functional classes of stable angina pectoris. Features of clinic and treatment of microcirculatory and vasospastic forms of angina pectoris. The concept of unstable angina pectoris. Atypical clinical manifestations of angina pectoris. Instrumental diagnostics of angina pectoris: changes in electrocardiography (ECG) at rest and during an attack. Stress tests in diagnosis of ischemic heart disease. Antianginal drugs. Means improving microcirculation and myocardial metabolism. Relief of angina attacks. Methods of surgical treatment of coronary heart disease, prognosis.

### **2.3. Acute coronary syndrome. Myocardial infarction**

Acute coronary syndrome (ACS): definition, diagnostics, treatment tactics. Unstable angina. Clinical diagnostic criteria for progressive angina. Clinical and diagnostic features of spontaneous angina. Emergency medical care at outpatient and inpatient stages. Indications for surgical and interventional technologies in the treatment of coronary heart disease.

Myocardial infarction (MI): diagnostic methods, clinical forms. Emergency medical care at outpatient and inpatient stages. Pharmacological treatment, choice of interventional and cardiac surgery tactics. Myocardial infarction in patients with other diseases of the circulatory system. Pathogenetic mechanisms of myocardial necrosis development. Risk factors. Diagnosis of myocardial infarction. Typical and atypical clinical picture of myocardial infarction. Electrocardiographic diagnostics of myocardial infarction: by depth of damage, localization, periods. Laboratory methods for diagnosing myocardial infarction. Instrumental methods for diagnosing myocardial infarction. Treatment of patients with uncomplicated myocardial infarction at outpatient and inpatient stages. Measures to limit the area of ischemic damage. Complications of myocardial infarction, their prevention and treatment. Cardiogenic shock, pulmonary edema, aneurysm, rhythm and conduction disturbances, pericarditis, thromboembolism, postinfarction syndrome, thromboendocarditis, progressive heart failure. Modern features of the course of postinfarction syndrome and thromboendocarditis. Treatment tactics. Physical and psychological rehabilitation of patients with myocardial infarction. Prevention of repeated myocardial infarctions. Secondary prevention of CSC. Prognosis. Indications for coronary angiography, surgical treatment in ACS and MI.

### **2.4. Myocarditis. Cardiomyopathy**

Myocarditis: detection rate, etiology, pathogenesis, clinical manifestations, diagnostic methods, differential diagnostics, classification, treatment, prognosis, prevention.

Cardiomyopathies. Causes of cardiomyopathy. Main types: hypertrophic, dilated, non-dilated, restrictive. Pathogenesis of intracardiac and systemic hemodynamic disorders. Clinical manifestations. Diagnostic methods. Diagnostic criteria. Course and complications. Conservative treatment options. Indications for surgical treatment, heart transplant, prognosis.

### **2.5. Pericarditis**

Pericarditis: frequency of detection, etiology, pathogenesis, clinical manifestations, diagnostic criteria, classification. Dry pericarditis: diagnosis, treatment. Acute exudative pericarditis: diagnosis. Importance of X-ray examination, ECG, echocardiography (EchoCG), CT, MRI. Indications for pericardial puncture. Treatment taking into account the etiologic factor. Adhesive pericarditis: etiology, mechanisms of development and features of circulatory disorders, diagnosis, treatment, indications for surgical treatment, prevention, prognosis.

### **2.6. Infective endocarditis**

Infective endocarditis: detection rate, etiology, pathogenesis, clinical manifestations, classification. The importance of body's reactivity and characteristics of the pathogen in occurrence and manifestations of the disease. Complications of

infective endocarditis. Rules for performing blood cultures to identify the pathogen. Features of the course of infective endocarditis in elderly and senile individuals, alcoholics and drug addicts. Diagnostic criteria. Differential diagnostics. Prognosis. Treatment: choice of antibiotic, duration of therapy. Criteria for stopping antibiotic therapy.

Infective endocarditis of valve prostheses and intracardiac devices. Features of clinical manifestations, diagnostics, treatment tactics.

### **2.7. Arrhythmias and heart blocks**

Main diseases accompanied by rhythm and conduction disorders. Electrophysiological mechanisms of arrhythmias and cardiac conduction disorders. Factors associated with increased risk of arrhythmia formation. Classifications. Clinical manifestations of cardiac rhythm and conduction disorders. Systemic hemodynamic disorders in cardiac rhythm and conduction disorders. Clinical picture of sudden death, arrhythmic shock. Organization of care for patients with cardiac rhythm disorders in outpatient clinics and hospitals. Treatment of patients with cardiac rhythm disorders and severe hemodynamic disorders.

Rhythm disorders associated with changes in automaticity of the sinoatrial node (sinus tachycardia, bradycardia and arrhythmia).

Atrial rhythm disorders. Atrial rhythm. Extrasystole. Paroxysmal atrial tachycardia. Atrial fibrillation and flutter. Prevention of thromboembolic complications in patients with atrial fibrillation.

Nodal arrhythmia. Nodal rhythm. Extrasystoles, tachycardias. Ventricular arrhythmia. Ventricular rhythm. Ventricular extrasystoles, tachyarrhythmias, ventricular flutter, ventricular fibrillation. Sinoatrial, atrioventricular and intraventricular conduction disturbances. Causes, clinical manifestations, hemodynamic disturbances, classifications, ECG criteria, pharmacological and non-drug treatment.

Ventricular pre-excitation syndromes: terminology, causes, pathogenesis, clinical manifestations, ECG criteria, mechanisms of rhythm disturbances, features of treatment tactics.

Sick sinus syndrome: etiology, pathogenesis, clinical manifestations. Morgagni-Adams-Stokes syndrome. ECG diagnostics. Electrophysiological methods of cardiac examination. Treatment.

Classification of antiarrhythmic drugs. Indications for differentiated use, contraindications, side and proarrhythmic effects. Methods of treating arrhythmias and cardiac conduction disorders. Electrical defibrillation, types of temporary electrical stimulation of the heart. Indications for implantation of a permanent pacemaker. Surgical methods of treatment.

### **2.8. Circulatory failure (acute and chronic heart failure; fainting, collapse)**

Acute left ventricular and right ventricular failure: etiology, pathogenesis, classification. Clinical presentation and diagnostics of cardiac asthma and pulmonary edema. Emergency medical care. Cardiogenic shock. Classifications, diagnostic criteria. Classification of acute heart failure in ACS according to Killip. Etiology, pathogenesis. Differential diagnostics of various types of cardiogenic shock. Treatment principles. Indications for surgical interventions. Intra-aortic balloon

counterpulsation, assisted circulation, ultrafiltration method in treatment of patients with AHF.

Etiology, pathogenesis, clinical manifestations of acute right ventricular failure. Differential diagnostics. Emergency medical care.

Syncopal states: definition of the concept, frequency, main causes, clinical picture, classification, diagnostics and differential diagnostics, features of treatment tactics, prevention, and prognosis. Collapse: definition of the concept, main causes, clinical manifestations, treatment features, prognosis.

Chronic heart failure: definition, etiology, pathogenesis, clinical manifestations, diagnostic criteria. Classification of chronic circulatory failure. Causes and features of clinical manifestations in various diseases (congenital and acquired heart defects, arterial hypertension, myocardial infarction, atherosclerosis of various genesis, inflammatory diseases of the myocardium, etc.). Diagnostics. Pharmacological and non-drug treatment of chronic heart failure. Tactics of patient management in outpatient settings.

### **2.9. Acquired heart defects. Prolapse of mitral valve leaflets**

Acquired heart defects. Main causes and frequency of structural and functional disorders of the valvular apparatus of the heart. Clinical symptoms. Defects of the aortic, mitral tricuspid valves, pulmonary valve. Methods of diagnostics and differential diagnostics. Treatment tactics. Prevention of infective endocarditis and thromboembolism. Relative insufficiency of heart valves, causes and treatment tactics.

Prolapse of mitral valve leaflets: causes, classification, treatment tactics.

## **3. Diseases of digestive system**

### **3.1. Esophagus diseases. Gastroesophageal reflux disease**

Current state of gastroenterological service of the Republic of Belarus, achievements of the Republic of Belarus in the field of gastroenterology. Organization of medical care for patients with gastrointestinal tract (GIT) diseases, prevalence of the main pathology. Features of medical care in outpatient and inpatient settings. New treatment and diagnostic technologies in management of patients with GIT diseases. Main tasks to improve the provision of care to patients with GIT diseases at the present stage. Medical ethics and deontology in management of patients with GIT diseases. Gastroesophageal reflux disease: etiology, pathogenesis, clinical picture, modern diagnostic methods, diagnostic criteria, differential diagnostics (hernias of the esophageal opening of the diaphragm, functional disorders of the esophagus, esophagitis, erosions and ulcers of the esophagus, achalasia of the cardia, diverticula, neoplasms of the esophagus), treatment, rehabilitation, prognosis.

### **3.2. Functional gastric dyspepsia. Chronic gastritis. Gastroduodenal ulcers**

Functional gastric dyspepsia: definition of the concept, frequency of detection, classification, clinical picture, diagnosis, differential diagnosis, treatment tactics, medical rehabilitation, prognosis.

Chronic gastritis: etiology, pathogenesis, classification, clinical picture, course features, complications, diagnostic methods, differential diagnosis, treatment, prevention, medical rehabilitation, prognosis.

Gastroduodenal ulcers: frequency of detection, etiology, pathogenesis, classification, clinical picture, diagnosis, differential diagnosis. Symptomatic ulcers: causes, pathogenesis, clinical manifestations, treatment. Clinical pharmacology of antisecretory drugs. Helicobacter eradication and evaluation of its effectiveness. Anti-relapse treatment. NSAID gastropathy, patient management tactics. Gastrointestinal bleeding, diagnostic algorithm, differential diagnosis, patient management tactics. Other complications of peptic ulcer disease: penetration, perforation, pyloric stenosis, hypochloremic coma, perigastritis, periduodenitis (clinical picture, diagnosis, treatment, prognosis).

### **3.3. Enteropathies. Diseases of the large intestine. Irritable bowel syndrome**

Enteropathies: clinical features, diagnostics and treatment of gluten enteropathy, disaccharide-deficiency enteropathies, gastrointestinal lesions in immunodeficiency states. Main clinical and laboratory syndromes. Diagnostic search algorithm. Treatment tactics. Diagnostics and treatment of pseudomembranous colitis, diverticular and ischemic bowel disease, medical rehabilitation, prognosis.

Chronic inflammatory bowel diseases (ulcerative colitis, Crohn's disease): etiology, pathogenesis, classification, clinical picture, diagnostics, course options, diagnostic criteria, complications, differential diagnosis, treatment (pharmacological, surgical), prevention, medical rehabilitation, prognosis.

Irritable bowel syndrome: etiology, pathogenesis, classification, clinical picture, diagnostics, diagnostic criteria, differential diagnosis, treatment, prevention, prognosis.

### **3.4. Functional biliary disorders. Chronic pancreatitis**

Functional biliary disorders: definition of the concept, etiology, pathogenesis, frequency of detection, classification, diagnostic methods, diagnostic criteria, clinical manifestations, treatment tactics, prevention, prognosis.

Diseases of the pancreas, chronic pancreatitis: definition of concepts, etiology, pathogenesis, classification, clinical picture, diagnostic methods, diagnostic criteria, differential diagnosis, complications, treatment, prevention, medical rehabilitation, prognosis.

### **3.5. Chronic hepatitis. Metabolic liver diseases**

Chronic hepatitis: etiology, pathogenesis, classification, diagnostic criteria, clinical picture, diagnostics of various variants, course features, complications. Clinical and laboratory diagnostics of main syndromes in liver diseases, differential diagnosis, treatment, prevention, prognosis. Metabolic liver diseases (alcoholic and non-alcoholic steatosis and steatohepatitis): clinical features, classification, diagnostic methods, prevention, treatment tactics, prognosis.

### **3.6. Liver cirrhosis. Hereditary liver diseases**

Liver cirrhosis: definition, etiology, pathogenesis, classification, main clinical syndromes, severity, diagnostic methods, diagnostic criteria, course variants, complications, differential diagnosis. Hepatorenal, hepatopulmonary, hepatocardial syndromes. Treatment of liver cirrhosis and complications, prevention, medical rehabilitation, prognosis.



Acute and chronic liver failure: causes of disease, pathogenesis, clinical picture, diagnostic methods, treatment, prevention, prognosis.

Hereditary liver diseases (Gilbert syndrome, Crigler-Najjar, Dubin-Johnson, Rotor): genetic defects, features of bilirubin metabolism, clinical manifestations, diagnosis, treatment, prognosis.

## **4. Rheumatic diseases**

### **4.1. Microcrystalline arthritis. Gout**

Current state of the rheumatological service of the Republic of Belarus, achievements of the Republic of Belarus in the field of rheumatology. Organization of medical care for patients with rheumatological diseases, prevalence of pathology. Features of medical care in outpatient and inpatient settings. Treatment and diagnostic technologies in management of patients with rheumatological diseases. Main tasks for improving the provision of rheumatological care at the present stage. Medical ethics and deontology in management of patients with diseases of joints and connective tissue. Microcrystalline arthritis: variants of microcrystalline arthritis and peri-arthritis depending on the type of crystals, epidemiology, etiology, predisposing factors.

Gout: definition, etiology, risk groups for primary and secondary hyperuricemia, pathogenesis, classification, main clinical syndromes. Acute attack of gout: provoking factors, clinical manifestations. Laboratory and instrumental diagnostics of gout, differential diagnostics, complications. Comorbid diseases in gout. Non-drug methods in preventing and treatment of gout. Relief of acute gouty arthritis. Urate-lowering and preventive therapy of gout. Criteria for the effectiveness of gout treatment, prognosis. Indications for prescribing antibacterial therapy to patients with gout, choice of drug, evaluation of therapy effectiveness.

Chondrocalcinosis, chronic pyrophosphate arthropathy (calcium pyrophosphate dihydrate): etiology, pathogenesis, classification, clinical manifestations, laboratory and instrumental diagnostics, diagnostic criteria, differential diagnostics, treatment. Calcifying peri-arthritis (basic calcium phosphate): etiology, pathogenesis, classification, clinical manifestations, laboratory and instrumental diagnostics, diagnostic criteria, differential diagnostics, treatment.

Collection of complaints and anamnesis of disease in patients with microcrystalline arthritis; objective examination; drawing up an examination plan; interpretation of results of laboratory and instrumental examination methods; formulation of a diagnosis; drawing up a treatment plan, an algorithm for providing emergency medical care in life-critical conditions. Disability assessment, appointment of medical rehabilitation measures, drawing up a scheme of dispensary dynamic medical observation of patients, registration of medical documentation.

### **4.2. Rheumatoid arthritis. Osteoarthritis. Osteoporosis**

Prevalence of joint diseases, social significance. Diseases occurring with joint syndrome, examination methods. Differential diagnostics of joint syndrome. Anti-inflammatory therapy of joint diseases.

Emergency conditions in joint diseases, algorithm for providing emergency medical care.

Palliative medical care for patients with diseases of the musculoskeletal system with loss of the ability to self-care and presence of persistent pain syndrome.

Rheumatoid arthritis (RA): definition of the concept, prevalence, etiology, predisposing factors, pathogenesis, classification, clinical manifestations, diagnostic criteria, laboratory and instrumental methods for diagnosing RA. Differential diagnostics of rheumatoid arthritis with gout, osteoarthritis, joint syndrome in systemic diseases of connective tissue, acute rheumatic fever. Complications of RA, prognosis. Non-drug and pharmacological treatment of RA, medical rehabilitation. Prevention of rheumatoid arthritis exacerbations. Criteria for the effectiveness of RA treatment, complications, prevention, prognosis.

Osteoarthritis: definition, prevalence, etiology, pathogenesis, risk factors, classification, clinical manifestations, diagnostics, diagnostic criteria for osteoarthritis of various localizations, differential diagnostics. Treatment of osteoarthritis: non-drug methods, pharmacotherapy, medical rehabilitation. Prevention of osteoarthritis progression, prognosis.

Osteoporosis: etiology, pathogenesis, classification, clinical manifestations, diagnostics, differential diagnostics, treatment.

Collection of complaints and anamnesis of disease in patients with rheumatoid arthritis, osteoarthritis, osteoporosis; objective examination; drawing up an examination plan; interpretation of results of laboratory and instrumental research methods; formulation of diagnosis; drawing up a treatment plan, an algorithm for providing emergency medical care in life-critical conditions. Disability assessment, assignment of medical rehabilitation measures, drawing up a plan for dispensary dynamic medical observation of patients, preparation of medical documentation.

#### **4.3. Spondyloarthropathies. Ankylosing spondylitis, reactive arthritis, psoriatic arthritis, enteropathic arthropathies**

Spondyloarthropathies: definition, prevalence, etiology, pathogenesis, classification, classification criteria for axial and predominantly peripheral spondyloarthritis, examination methods, treatment principles, criteria for treatment effectiveness.

Ankylosing spondylitis: etiology, pathogenesis, classification, clinical manifestations, diagnosis, classification criteria, differential diagnosis, treatment.

Psoriatic arthritis: etiology, pathogenesis, classification, clinical manifestations, diagnosis, classification criteria, differential diagnosis, treatment.

Reactive arthritis: etiology, pathogenesis, classification, clinical manifestations, diagnosis, diagnostic criteria, differential diagnosis, treatment.

Enteropathic arthropathies: etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment.

Collection of complaints and anamnesis of disease in patients with spondyloarthropathies; objective examination; drawing up an examination plan; interpretation of laboratory and instrumental research results; diagnosis formulation; treatment plan preparation, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, assignment of medical rehabilitation

measures, preparation of a dispensary dynamic medical observation scheme for patients, execution of medical documentation.

#### **4.4 Systemic lupus erythematosus. Systemic sclerosis. Dermatomyositis/polymyositis. Mixed connective tissue disease**

Prevalence of systemic connective tissue diseases, social significance. Examination methods, differential diagnostic algorithm. Anti-inflammatory and immunosuppressive therapy. Indications for antimicrobial therapy, choice of drug, evaluation of therapy effectiveness. Features of the course of systemic lupus erythematosus, systemic sclerosis, dermatomyositis/polymyositis in elderly and senile patients. Features of therapeutic tactics.

Emergencies in systemic connective tissue diseases. Emergency medical care for anemia, agranulocytosis, thrombosis and bleeding of various localizations, hypertensive crisis, cerebral edema, acute cardiovascular events, acute kidney injury, other life-critical conditions, complications associated with chronic kidney disease stage 5 in patients on chronic dialysis.

Palliative medical care for patients with systemic connective tissue diseases in case of loss of self-care ability and persistent pain syndrome.

Systemic lupus erythematosus: definition, epidemiology, etiology and pathogenesis, classification, clinical manifestations, laboratory and instrumental diagnostics, diagnostic criteria, differential diagnosis, course, treatment principles, outcomes, complications, prognosis.

Systemic sclerosis: definition, etiology and pathogenesis, classification, clinical manifestations, laboratory and instrumental diagnostics, diagnostic criteria, differential diagnosis, treatment principles, outcomes, prognosis.

Dermatomyositis/polymyositis: definition, etiology and pathogenesis, clinical manifestations, laboratory and instrumental diagnostics, diagnostic criteria, differential diagnosis, primary and secondary dermatomyositis/polymyositis, treatment, course, prognosis.

Mixed connective tissue disease: definition, pathogenesis, clinical manifestations, laboratory and instrumental diagnostics, diagnostic criteria, differential diagnosis, treatment principles, outcomes, prognosis.

Collection of complaints and anamnesis of disease in patients with systemic lupus erythematosus, systemic sclerosis, dermatomyositis/polymyositis; objective examination; preparation of an examination plan; interpretation of results of laboratory and instrumental research methods; formulation of diagnosis; preparation of a treatment plan, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, assignment of medical rehabilitation measures, preparation of a scheme of dispensary dynamic medical observation of patients, preparation of medical documentation.

#### **4.5. Systemic vasculitis**

Systemic vasculitis: etiology and pathogenesis, classification, general principles of diagnosis and systemic vasculitis. Algorithm for differential diagnosis of primary systemic vasculitis, differential diagnosis with secondary vasculopathies. Principles of treatment of systemic vasculitis. Indications for antimicrobial therapy in systemic vasculitis, choice of drug, evaluation of therapy effectiveness.

Emergency conditions in systemic vasculitis. Emergency medical care for hypertensive crisis, stable angina, myocardial infarction, acute kidney injury, pulmonary embolism, acute cardiovascular events, other life-critical conditions, complications associated with chronic kidney disease stage 5 in patients on chronic dialysis. Vasculitis with predominant damage to large vessels (giant cell arteritis and rheumatic polymyalgia Takayasu arteritis): clinical manifestations, diagnosis, treatment. Diagnostic criteria for rheumatic polymyalgia.

Vasculitis with predominant damage to medium-sized vessels (nodular polyarteritis): clinical manifestations, course options, diagnosis, treatment.

Vasculitis with predominant damage to small vessels (granulomatosis with polyangiitis, eosinophilic granulomatosis with polyangiitis, microscopic polyangiitis, IgA-associated): clinical manifestations, course options, diagnosis, treatment.

Collection of complaints and anamnesis of patients with systemic vasculitis; objective examination; drawing up an examination plan; interpretation of laboratory and instrumental research results; formulation of diagnosis; drawing up a treatment plan, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, assignment of medical rehabilitation measures, drawing up a plan for dispensary dynamic medical observation of patients, preparation of medical documentation.

#### **4.6. Acute rheumatic fever. Chronic rheumatic heart disease**

Acute rheumatic fever: definition, epidemiology, etiology, pathogenesis, classification, clinical manifestations, diagnosis, diagnostic criteria, differential diagnosis, treatment, outcomes, primary and secondary prevention.

Chronic rheumatic heart disease: definition, diagnosis, patient management tactics. Rheumatic diseases of the mitral valve, aortic valve, tricuspid valve, lesions of several valves. Combined and combined heart defects: features of the clinical picture, determination of prevalence of the defect, diagnosis, course, complications, causes of decompensation, prognosis. Indications for surgical treatment. Features of medical tactics for managing patients with prosthetic valves. Features of the course of chronic rheumatic heart disease in elderly and senile patients, therapeutic tactics. Emergency medical care for pulmonary edema, myocardial infarction, unstable angina, paroxysmal atrial fibrillation, pulmonary embolism, and other life-critical conditions.

Collection of complaints and medical history of patients with acquired heart defects; objective examination; preparation of an examination plan; interpretation of laboratory and instrumental examination results; formulation of diagnosis; preparation of a treatment plan, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, prescription of medical rehabilitation measures, preparation of a scheme of dispensary dynamic medical observation of patients, preparation of medical documentation.

### **5. Kidney diseases**

#### **5.1. Glomerulonephritis. Secondary nephropathy**

Current state of nephrology service of the Republic of Belarus, achievements of the Republic of Belarus in the field of nephrology. Organization of medical care for patients with nephrological diseases, prevalence of kidney pathology. Features of

medical care in outpatient and inpatient settings. Treatment and diagnostic technologies in management of patients with kidney diseases.

Main tasks for improving the provision of nephrological care at the present stage. Medical ethics and deontology in management of patients with kidney and urinary tract diseases.

Glomerulonephritis (GN): definition, classification, extrarenal and renal syndromes. Diagnostic methods, assessment of kidney function. Indications and contraindications for nephrobiopsy. General principles of management of glomerular diseases. Indications for antibiotic therapy for GN, choice of drug, assessment of therapy effectiveness.

Features of the course of GN in elderly and senile patients, therapeutic tactics.

Emergencies in GN. Emergency medical care for hypertensive crisis, hypo- and hypervolemic shock, acute kidney injury, cerebral edema, pulmonary embolism, acute cardiovascular events, other life-threatening conditions, complications associated with chronic kidney disease stage 5 in patients on chronic dialysis.

Acute glomerulonephritis (AGN): etiology, pathogenesis, clinical manifestations. Methods of AGN diagnostics, differential diagnosis, treatment principles. Criteria for the effectiveness of AGN treatment, complications, prevention, prognosis.

Chronic glomerulonephritis (CGN): etiological factors, pathogenesis, classification. Clinical manifestations, clinical and morphological forms of CGN. Diagnostics, differential diagnostics of CGN and diseases occurring with similar nephrological syndromes. Treatment, differentiated approach to the treatment of individual morphological forms of CGN. Criteria for the effectiveness of CGN treatment, prevention, prognosis.

Secondary nephropathy: in diabetes mellitus, arterial hypertension, systemic connective tissue diseases, systemic vasculitis, rheumatoid arthritis, amyloidosis, gout, etc. Pathogenesis, diagnostics, differential diagnostics with primary glomerulonephritis, complications, treatment principles.

Collection of complaints and anamnesis of disease in patients with glomerulonephritis, secondary nephropathy; objective examination; drawing up an examination plan; interpretation of results of laboratory and instrumental research methods; formulation of diagnosis; drawing up a treatment plan, algorithm for providing emergency medical care. Disability assessment, drawing up a scheme of dispensary dynamic medical observation of patients, appointment of medical rehabilitation measures, preparation of medical documentation.

## **5.2. Urinary tract infections. Tubulointerstitial nephritis**

Urinary tract infections: etiology, epidemiology and pathogenesis. Classification of urinary tract infections. Clinical manifestations of urinary tract infections, examination methods, diagnostic criteria. Treatment of urinary tract infections, features of antimicrobial pharmacotherapy, evaluation of treatment effectiveness. Recovery criteria, prevention of exacerbations.

Features of diagnostics and therapy of urinary tract infections in pregnant women, in elderly patients.

Emergencies in urinary tract infections. Emergency medical care for acute kidney injury, electrolyte disturbances, infectious toxic shock, and other life-critical conditions.

Tubulointerstitial nephritis (TIN): causes of development, classification, clinical picture, diagnostics. Pyelonephritis as TIN of bacterial etiology: phases of the course, diagnostic criteria for uncomplicated, complicated or recurrent pyelonephritis. Differential diagnostics of TIN with glomerulonephritis, urinary tract infection, hypertensive nephropathy, diabetic glomerulosclerosis, cystic kidney disease. Non-drug and pharmacological treatment of TIN. Features of drug-induced tubulointerstitial nephritis.

Emergencies in TIN. Emergency medical care for acute kidney injury, electrolyte disturbances, infectious toxic shock, and other life-critical conditions.

Collection of complaints and medical history of patients with urinary tract infection, tubulointerstitial nephritis; physical examination; drawing up an examination plan; interpretation of laboratory and instrumental research results; formulation of diagnosis; drawing up a treatment plan, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, appointment of medical rehabilitation measures, drawing up a scheme of dispensary dynamic medical observation of patients, preparation of medical documentation.

### **5.3. Acute kidney injury. Chronic kidney disease**

Acute kidney injury (AKI): definition, etiologic structure. Pathogenetic variants of AKI (prerenal, renal and postrenal). Criteria for diagnosis and severity stratification, diagnosis and differential diagnosis of AKI. Use of early biomarkers of renal tissue damage in AKI diagnosis.

Pharmacological treatment of AKI, indications for initiating dialysis therapy. Outcomes of AKI. Clinical examination of patients after AKI.

Chronic kidney disease (CKD): definition, classification. Diseases leading to the development of CKD. Pathogenesis of CKD, risk factors for development and progression. Criteria for diagnosis of CKD, assessment of the functional state of kidneys. Clinical manifestations at various stages of CKD, differential diagnosis, complications. Non-drug and pharmacological therapy of CKD, dose adjustment of drugs. Preparing the patient for replacement therapy. Therapeutic aspects when using extracorporeal or intracorporeal treatment methods (programmed hemodialysis, peritoneal dialysis, hemodiafiltration, blood ultrafiltration, blood hemofiltration). Kidney transplantation. Palliative care for patients with terminal chronic kidney disease. Emergency medical care for uremic coma, electrolyte disturbances, thrombosis and bleeding of various localizations, cerebral edema, acute cardiovascular events, other life-critical conditions, complications associated with chronic kidney disease stage 5 in patients on chronic dialysis. Collection of complaints and anamnesis of disease in patients with acute kidney injury, chronic kidney disease; objective examination; drawing up an examination plan; interpretation of results of laboratory and instrumental research methods; formulation of diagnosis; drawing up a treatment plan, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, assignment of medical

rehabilitation measures, drawing up a plan for dispensary dynamic medical observation of patients, preparation of medical documentation.

## **6. Diseases of the blood system**

### **6.1. Anemia**

Current state of the hematological service of the Republic of Belarus, achievements of the Republic of Belarus in the field of hematology. Organization of medical care for patients with hematological diseases. Prevalence of blood diseases, features of medical care in outpatient and inpatient settings. Treatment and diagnostic technologies in management of patients with blood diseases. Main tasks to improve the provision of hematological care at the present stage. Medical ethics and deontology in management of patients with blood diseases. Definition and classification of anemia. Criteria for assessing the severity of anemia. General symptoms of anemia: laboratory, clinical. Diagnostic algorithm for anemic syndrome. Stages of treatment of patients with anemia, criteria for the effectiveness of therapy. Features of the course of anemia in elderly and senile patients, therapeutic tactics. Indications for hospitalization for various types of anemia. Indications for transfusion of red blood cell components, washed red blood cells. Transfusion rules, control, registration of medical documentation. Prevention of blood transfusion reactions.

Emergency medical care for hypoxic coma, bleeding of various localizations, acute cardiovascular events, acute infectious and inflammatory syndrome, and other life-critical conditions.

Iron deficiency anemias (IDA): prevalence, etiology, and pathogenesis, clinical syndromes. Laboratory signs of iron deficiency. Diagnosis of IDA, differential diagnosis of iron deficiency anemia with sideroachrestic anemia. Treatment and medical prevention of IDA: elimination of the cause of iron deficiency, dietary correction, iron-containing drugs. Indications for parenteral use of iron-containing drugs. Criteria for treatment effectiveness.

Anemia of chronic disease (anemia of inflammation): etiology, pathogenesis, diagnosis, differential diagnosis of anemia of chronic disease. Treatment, medical prevention.

Anemias associated with impaired DNA and RNA synthesis (megaloblastic anemia): etiology, pathogenesis of B12-deficiency and folate-deficiency anemia, clinical manifestations, hematological picture, myelogram, differential diagnosis of B12-deficiency and folate-deficiency anemia. Treatment, criteria for treatment effectiveness. Medical prevention of megaloblastic anemia.

Hemolytic anemia: classification, pathogenesis of congenital and acquired hemolytic anemia, signs of intravascular and intracellular hemolysis, hemolytic crises, clinical manifestations, diagnosis, differential diagnosis. Treatment of hemolytic anemia, relief of hemolytic crises, indications for surgical treatment.

Aplastic anemias: structure of etiologic factors, pathogenesis of aplastic anemia and individual clinical and laboratory syndromes, classification, clinical manifestations, diagnostics and differential diagnostics, treatment (immunosuppressive therapy, hematopoietic stem cell transplantation, prevention and therapy of infectious complications).

Collection of complaints and anamnesis of disease in patients with anemia; objective examination; drawing up an examination plan; interpretation of results of laboratory and instrumental research methods; formulation of diagnosis; drawing up a treatment plan, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, appointment of medical rehabilitation measures, drawing up a scheme of dispensary dynamic medical observation of patients, registration of medical documentation.

## **6.2. Hemoblastoses. Acute leukemia. Chronic leukemia. Leukemoid reactions**

Hemoblastoses: etiology, pathogenesis, classification, myeloproliferative and lymphoproliferative diseases. Diagnostic methods. Clinical and hematological syndromes of hemoblastoses. Principles of treatment of hemoblastoses, outcomes.

Emergency medical care for acute respiratory distress, circulatory disorder, consciousness, acute liver failure, acute infectious and inflammatory syndrome, and other life-critical conditions.

Palliative medical care for patients with oncohematological diseases.

Acute leukemia (AL): classification, main clinical syndromes, diagnostics. Principles of AL treatment. Stages of program cytostatic therapy for AL. Accompanying and replacement therapy for AL, prevention of neuroleukemia. Allogeneic transplantation of hematopoietic stem cells.

Chronic myelogenous leukemia: pathogenesis, clinical manifestations, phases of the course, diagnostics and differential diagnostics, treatment, prognosis.

Polycythemia: pathogenesis, stages of disease and main clinical syndromes, diagnosis, differential diagnosis with symptomatic erythrocytosis, treatment, prognosis.

Chronic lymphocytic leukemia: pathogenesis, clinical manifestations, stages of disease, diagnosis and differential diagnosis, treatment, prognosis.

Paraproteinemias (multiple myeloma, Waldenstrom's macroglobulinemia): pathogenesis, clinical manifestations, diagnosis, treatment principles, prognosis.

Agranulocytosis: etiology and pathogenesis, clinical variants (myelotoxic, immune, autoimmune, idiopathic), laboratory diagnostics. Complications and course of agranulocytosis. Treatment and prevention of agranulocytosis, prognosis.

Leukemoid reactions: causes, classification, symptoms, diagnosis, differential diagnosis with hemoblastoses.

Collection of complaints and anamnesis of disease in patients with acute and chronic leukemia; objective examination; drawing up an examination plan; interpretation of results of laboratory and instrumental research methods; formulation of diagnosis; drawing up a treatment plan, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, assignment of medical rehabilitation measures, drawing up a scheme of dispensary dynamic medical observation of patients, execution of medical documentation.

## **6.3. Hemorrhagic diathesis. Thrombocytopenia and thrombocytopathy, coagulopathy, vasopathies**



Hemorrhagic diathesis: definition of the concept, causes of development, classification (thrombocytopenia and thrombocytopathy, coagulopathy, vasopathies), general signs, types of bleeding, diagnostic methods. Therapeutic tactics for hemorrhagic diathesis, possible complications, prevention.

Emergency medical care for acute respiratory distress, blood circulation, consciousness, acute liver failure, acute infectious and inflammatory syndrome, and other life-critical conditions.

Idiopathic thrombocytopenic purpura: etiopathogenesis, classification, clinical manifestations, diagnostics, differential diagnosis with symptomatic thrombocytopenia, treatment.

Hemophilia: the importance of the hereditary factor in the development of disease, forms of hemophilia, pathogenesis of bleeding, clinical manifestations, severity, diagnostics, diagnostic criteria for hemophilia, differential diagnosis with von Willebrand disease. Treatment of hemophilia (replacement therapy, treatment of orthopedic complications). Medical prevention of bleeding. Medical prevention of inhibitor hemophilia. Medical rehabilitation and medical examination of patients with hemophilia.

Hemorrhagic telangiectasia (Rendu-Osler disease): pathogenesis of bleeding, the role of hereditary factors, clinical manifestations, diagnostics, treatment.

Collection of complaints and anamnesis of disease in patients with hemorrhagic diathesis; objective examination; drawing up an examination plan; interpretation of results of laboratory and instrumental research methods; formulation of a diagnosis; drawing up a treatment plan, algorithm for providing emergency medical care in life-critical conditions. Disability assessment, appointment of medical rehabilitation measures, drawing up a scheme of dispensary dynamic medical observation of patients, registration of medical documentation.

**EDUCATIONAL AND METHODOLOGICAL CARD OF THE  
ACADEMIC DISCIPLINE**

| Section number,<br>topic | Section title, topic   | Number of<br>classroom hours |                      |             | Knowledge<br>control form |
|--------------------------|--|------------------------------|----------------------|-------------|---------------------------|
|                          |  | Lectures                     | Practical<br>classes | GIW         |                           |
| <b>1.</b>                | <b>Respiratory diseases</b>  | <b>5,32</b>                  | <b>30</b>            | <b>2,68</b> |                           |
| 1.1.                     | Acute and chronic bronchitis. Chronic obstructive pulmonary disease                                  | –                            | 6                    | –           | 1-6,8-10,12-14            |
| 1.2.                     | Pneumonia  | 1,33                         | 6                    | 0,67        | 1-6,8-10,12-14            |
| 1.3.                     | Bronchial asthma   | 1,33                         | 6                    | 0,67        | 1-6,8-10,12-14            |
| 1.4.                     | Diseases of the pleura. Suppurative diseases of lungs. Bronchiectasis                                | 1,33                         | 6                    | 0,67        | 1-6,8-10,12-14            |
| 1.5.                     | Pulmonary embolism. Pulmonary hypertension, pulmonary heart disease                                  | 1,33                         | 6                    | 0,67        | 1-6,8-10,12-14            |
| <b>2.</b>                | <b>Diseases of the circulatory system</b>  | <b>9,31</b>                  | <b>78</b>            | <b>4,69</b> |                           |
| 2.1.                     | Arterial hypertension. Essential and secondary arterial hypertension                                 | 1,33                         | 6                    | 0,67        | 1-7, 9-14                 |
| 2.2.                     | Atherosclerosis. Stable forms of ischemic heart disease. Angina pectoris                             | 1,33                         | 6                    | 0,67        | 1-7, 9-14                 |
| 2.3.                     | Acute coronary syndrome. Myocardial infarction   | 1,33                         | 12                   | 0,67        | 1-7, 9-14                 |
| 2.4.                     | Myocarditis. Cardiomyopathy  | 1,33                         | 12                   | 0,67        | 1-7, 9-14                 |
| 2.5.                     | Pericarditis   | –                            | 6                    | –           | 1-7, 9-14                 |
| 2.6.                     | Infective endocarditis   | 1,33                         | 6                    | 0,67        | 1-7, 9-14                 |
| 2.7.                     | Arrhythmias and heart blocks   | 1,33                         | 12                   | 0,67        | 1-7, 9-14                 |
| 2.8.                     | Circulatory failure (acute and chronic heart failure; fainting, collapse)                            | 1,33                         | 12                   | 0,67        | 1,2,4-7,9,11-15           |
| 2.9.                     | Acquired heart defects. Prolapse of mitral valve leaflets  | –                            | 6                    | –           | 1-7, 9-14                 |
| <b>3.</b>                | <b>Diseases of digestive system</b>  | <b>3,99</b>                  | <b>30</b>            | <b>2,01</b> |                           |
| 3.1.                     | Esophagus diseases. Gastroesophageal reflux disease  | 1,33                         | 6                    | 0,67        | 1-6,8-10,12-14            |
| 3.2.                     | Functional gastric dyspepsia. Chronic gastritis. Gastroduodenal ulcers                               | 1,33                         | 6                    | 0,67        | 1-6,8-10,12-14            |
| 3.3.                     | Enteropathies. Diseases of the large intestine. Irritable bowel syndrome                             | –                            | 3                    | –           | 1-6,8-10,12-14            |
| 3.4.                     | Functional biliary disorders. Chronic pancreatitis   | –                            | 3                    | –           | 1-6,8-10,12-14            |
| 3.5.                     | Chronic hepatitis. Metabolic liver diseases  | –                            | 6                    | –           | 1-6,8-10,12-14            |
| 3.6.                     | Liver cirrhosis. Hereditary liver diseases   | 1,33                         | 6                    | 0,67        | 1-6,8-10,12-14            |
| <b>4.</b>                | <b>Rheumatic diseases</b>  | <b>9,31</b>                  | <b>35</b>            | <b>4,69</b> |                           |
| 4.1.                     | Microcrystalline arthritis. Gout   | 1,33                         | 6                    | 0,67        | 1-6,8-10,12 14            |
| 4.2.                     | Rheumatoid arthritis. Osteoarthritis. Osteoporosis   | 2,66                         | 6                    | 1,34        | 1-6,8-10,12 14            |
| 4.3.                     | Spondyloarthropathies. Ankylosing spondylitis, reactive arthritis, psoriatic arthritis, enteropathic | 1,33                         | 6                    | 0,67        | 1-6,8-10,12 14            |

| Section number,<br>topic | Section title, topic  | Number of<br>classroom hours |                      |              | Knowledge<br>control form |
|--------------------------|---|------------------------------|----------------------|--------------|---------------------------|
|                          |   | Lectures                     | Practical<br>classes | GIW          |                           |
|                          | arthropathies   |                              |                      |              |                           |
| 4.4.                     | Systemic lupus erythematosus. Systemic sclerosis. Dermatomyositis/polymyositis. Mixed connective tissue disease | 1,33                         | 6                    | 0,67         | 1-6,8-10,12 14            |
| 4.5.                     | Systemic vasculitis   | 1,33                         | 6                    | 0,67         | 1-6,8-10,12 14            |
| 4.6.                     | Acute rheumatic fever. Chronic rheumatic heart disease  | 1,33                         | 5                    | 0,67         | 1-6,8-10,12 14            |
| <b>5.</b>                | <b>Kidney diseases</b>  | <b>2,66</b>                  | <b>18</b>            | <b>1,34</b>  |                           |
| 5.1.                     | Glomerulonephritis. Secondary nephropathy   | 1,33                         | 6                    | 0,67         | 1-6,8- 14                 |
| 5.2.                     | Urinary tract infections. Tubulointerstitial nephritis  | –                            | 6                    | –            | 1-6,8- 14                 |
| 5.3.                     | Acute kidney injury. Chronic kidney disease   | 1,33                         | 6                    | 0,67         | 1-6,8- 14                 |
| <b>6.</b>                | <b>Diseases of the blood system</b>   | <b>1,33</b>                  | <b>18</b>            | <b>0,67</b>  |                           |
| 6.1.                     | Anemia  | 1,33                         | 6                    | 0,67         | 1-6,8- 14                 |
| 6.2.                     | Hemoblastoses. Acute leukemia. Chronic leukemia. Leukemoid reactions  | –                            | 6                    | –            | 1-6,8- 14                 |
| 6.3.                     | Hemorrhagic diathesis. Thrombocytopenia and thrombocytopathy, coagulopathy, vasopathies                         | –                            | 6                    | –            | 1-6,8- 14                 |
|                          | <b>Total hours</b>  | <b>31,92</b>                 | <b>209</b>           | <b>16,08</b> |                           |

### **List of learning outcomes**

As a result of studying the academic discipline «Internal Diseases», the student must

**know:**

etiology, pathogenesis, risk factors, clinical picture, diagnostic methods, differential diagnostics, principles of treatment and prevention of main diseases of internal organs, principles of medical rehabilitation and clinical examination of patients;

**be able to:**

examine the patient and evaluate the identified changes in various organs and systems;

draw up and justify an examination plan for differential diagnostics in a patient with: focal and disseminated lung damage, diseases with impaired bronchial patency, pain in the heart region, heart murmurs and cardiomegaly, heart rhythm and conduction disorders, arterial hypertension and hypotension, myocardial damage, pathological urinary sediment, hepatomegaly and hepatosplenic syndrome, jaundice, acute abdomen syndrome, gastric and intestinal dyspepsia, pulmonary and gastrointestinal bleeding, lymphadenopathy and splenomegaly, anemia, hemoblastosis, coma, fainting, edema, fever, hemorrhagic syndrome, joint damage, shock, side effects of drugs;

determine and prescribe laboratory and instrumental studies necessary to establish a diagnosis;

interpret examination results (clinical and biochemical tests, sternal puncture, electrocardiogram, spirometry, peak flowmetry, bicycle ergometry, daily monitoring of blood pressure and electrocardiogram, bronchoscopy and esophagogastrosocopy, X-ray examination, etc.);

select the optimal patient treatment tactics, prescribe individual drug therapy taking into account the mechanism of action, pharmacokinetics and pharmacodynamics of drugs, possible undesirable side effects and adverse interactions; recommend non-drug therapy;

select the dosage form, dose and route of administration of drugs, implement the dosing regimen;

write a prescription for drugs;

provide medical care for the most common emergency conditions;

ensure continuity in provision of examination and treatment in outpatient and inpatient settings;

give the patient recommendations on prevention of internal organ diseases, a healthy lifestyle, taking into account patient's health;

use educational, scientific, regulatory and reference literature;

comply with the rules of medical ethics and deontology;

**have the following skills:**

conducting and evaluating the results of an electrocardiogram, Holter monitoring of an electrocardiogram, daily monitoring of blood pressure;

determining the function of external respiration and interpreting the results;

skills in diagnosing and treating diseases in accordance with the clinical protocols of the Ministry of Health of the Republic of Belarus;  
 indirect cardiac massage;  
 artificial ventilation of the lungs;  
 performing injections and intravenous infusions.

### **Organizing and implementing guided students' independent work in academic discipline**

The time allocated for independent work is used by students to:  
 preparation for lectures and practical classes;  
 preparation for tests, exams in the academic discipline;  
 working through topics (questions) submitted for independent study;  
 study of topics and problems not submitted for lectures;  
 solving situational problems;  
 completing research and creative assignments;  
 preparing thematic reports, essays, presentations;  
 completing practical assignments;  
 compiling a review of scientific literature on a given topic;  
 design of information and demonstration materials (stands, posters, graphs, tables, newspapers, etc.);  
 compiling a thematic selection of literary sources, Internet sources;  
 compiling tests by students for mutual control.

The main forms of organizing independent work:  
 writing and presenting an essay;  
 giving a report;  
 studying topics and problems not submitted for lectures and practical classes;  
 computerized testing;  
 compiling tests by students for mutual control;  
 producing didactic materials;  
 preparation and participation in active forms of learning.

Control of independent work is carried out in the form of:  
 assessment of an oral answer to a question, message, report or solving a problem in practical classes;  
 written test;  
 final lesson in the form of an oral interview, written work, testing;  
 discussion of abstracts;  
 checking of abstracts;  
 checking of educational case histories;  
 individual conversation.

### **List of diagnostic tools used**

The following forms are used to diagnose competencies:

Oral form:

1. interviews;
2. reports at practical classes;
3. problem solving;
4. exams.

Written form:

5. tests;
6. control surveys;
7. abstracts;
8. educational case history;
9. publication of articles, reports.

Oral and written form:

10. situational tasks;
11. tests.

Technical form:

12. electronic tests.

Simulation form:

13. assessment of communicative competence skills using a standardized (simulated) patient;
14. assessment using electronic-mechanical simulators and robotic trainers.

**List of practical skills developed during the study of the academic discipline  
«Internal Diseases» using simulation learning technologies**

1. Auscultation of lungs.
2. Auscultation of the heart.
3. Venipuncture of peripheral veins and infusion therapy.
4. Prescribing medications.
5. Deep palpation of intestines and stomach.
6. Taking blood from peripheral veins for laboratory tests.
7. Measuring daily diuresis and determining water balance.
8. Measuring central venous pressure.
9. Interpreting the results of biochemical and immunological blood tests.
10. Interpreting the results of biochemical urine tests.
11. Interpreting the results of body temperature measurements.
12. Interpreting the results of sputum tests.
13. Interpreting the results of urine tests according to Zimnitsky.
14. Interpreting the results of urine tests according to Nechiporenko.
15. Interpretation of pleural contents examination results.
16. Interpretation of coprological examination results.
17. Interpretation of general clinical blood test results.
18. Interpretation of general clinical urine test results.
19. Cardioversion.

20. Cardiac pacing.
21. Oxygen therapy.
22. Clinical interpretation of X-ray examination results.
23. Determination of body mass index.
24. Inspection and palpation of lymph nodes.
25. Inspection and palpation of the thyroid gland.
26. Palpation of the liver.
27. Palpation of the transverse colon.
28. Palpation of the spleen.
29. Palpation of the sigmoid colon.
30. Palpation of the cecum.
31. Peak flowmetry: performing and interpreting the results
32. Superficial abdominal palpation.
33. Electrocardiography: interpreting the results of the study.
34. Electrocardiography: performing the study.