ФГБОУ ВО Волгоградский государственный
медицинский университет МЗ РФ
Кафедра факультетской терапии

# ВНУТРЕННИЕ БОЛЕЗНИ, ЭНДОКРИНОЛОГИЯ И ФИЗИОТЕРАПИЯ

Методическое пособие к занятиям
для студентов 4-го курса, обучающихся на английском языке-посреднике,
под редакцией профессора А.Р. Бабаевой

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Предназначено для студентов IV курса, обучающихся на английском языке-посреднике на кафедрах факультетской терапии.

Volgograd State Medical University
Department of Faculty Therapy

# INTERNAL DISEASES, ENDOCRINOLOGY AND PHYSICAL MEDICINE

## MANUAL

in the course of internal diseases and endocrinology
for the 4th- year students of General Medicine Department

Edited by professor Babayeva A.R.,
head of the chair of Faculty Therapy

Volgograd, 2018

CONTENTS

# CARDIOLOGY

Class № 1.

Theme: Acute Rheumatic Fever.

Objectives of the class:

- to learn the principles of making a diagnosis of acute rheumatic fever (ARF);
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of ARF treatment;
- to make a prognosis according to the nature and gravity of the disease.

Issues for study:

1. Definition of ARF
2. Etiology. Causes of its development.
3. The role of β-haemolytic streptococcus group A (clinical, serological and epidemiological evidences)
4. General pathway (pathogenesis)
5. Pathomorphology (stages of connective tissue lesion)
6. Classification of ARF
7. Clinical features: polyarthritis, carditis, Sydenham′s chorea, rashes. Kissel – Johnson’s diagnostic criteria.
8. Course of the disease in accordance with its activity.
9. Differential diagnostics in patients with joint syndrome and carditis.
10. Treatment. Primary and secondary prevention.

Plan of the practical class:

1. Knowledge assessment
2. Clinical case demonstrations
3. Clinical case discussion
4. Independent student′s work

Independent student′s work (practical skills):

Students must be able:

- to diagnose ARF using clinical and laboratory criteria of this disease
- to reveal basic clinical presentations of the disease and perform differential diagnostics
- to assess the activity and nature of the disease course
- to administer adequate treatment
- to suggest a prognosis according to the nature and severity of the disease

Check-up questions:

1. Definition of ARF.
2. Classification of ARF.
3. Etiology of ARF.
4. The main pathway of ARF.
5. Diagnostic criteria of ARF.
6. Clinical features of polyarthritis.
7. Clinical and laboratory features of rheumocarditis.
8. Peculiarities of rheumatic heart disease development.

9. The ways of rheumatic valvular heart disease progression.
10. Differential diagnosis of joint syndrome.
11. Differential diagnosis of rheumatic myocarditis and non-rheumatic myocarditis.
12. Criteria of rheumatic activity.
13. Basic principles of treatment.
14. Primary and secondary prophylaxis of ARF.

## Class № 2.

## Theme: Valvular Heart Disease. Mitral Stenosis. Mitral Regurgitation.

Objectives of the class:

- to learn the principles of making a diagnosis of mitral stenosis and mitral regurgitation;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment of mitral stenosis and mitral regurgitation;
- to make a prognosis according to the nature and severity of the disease.

### Issues for study:

1. Definition of mitral stenosis.
2. Etiology. Causes of its development.
3. Pathophysiology of mitral stenosis.

4. Clinical features, physical signs, palpation and auscultation of mitral stenosis.
5. Definition of mitral regurgitation.
6. Etiology. Causes and association of acute and chronic mitral regurgitation.
7. Pathophysiology of mitral regurgitation.
8. Clinical features, physical signs, palpation and auscultation of mitral regurgitation.
9. Investigations: chest X-ray, electrocardiogram, echocardiogram, cardiac catheterization.
10. Clinical features and diagnostic of prolapsing (billowing) mitral valve.
11. Complications of mitral stenosis: atrial fibrillation, systemic embolization, pulmonary hypertension, pulmonary infarction, chest infections, infective endocarditis, tricuspid regurgitation, right ventricular failure.
12. Treatment of mitral stenosis and mitral regurgitation. Indications and contraindications for surgical intervention (trans-septal balloon valvotomy, closed valvotomy, open valvotomy, mitral valve replacement).
13. Antibiotic prophylaxis against infective endocarditis.
14. Treatment of emergency cases.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.

3. Clinical case discussion.

4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose mitral stenosis and mitral regurgitation using clinical and instrumental criteria;
- to reveal basic clinical presentation of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the severity of the disease.

Check-up questions:

1. Definition of mitral stenosis.
2. Etiology of mitral stenosis.
3. Pathophysiology of mitral stenosis.
4. Clinical features, physical signs, palpation and auscultation of mitral stenosis.
5. Definition of mitral regurgitation.
6. Etiology of mitral regurgitation.
7. Pathophysiology of mitral regurgitation.
8. Clinical features, physical signs, palpation and auscultation of mitral regurgitation.
9. Investigations: chest X-ray, electrocardiogram, echocardiogram, cardiac catheterization.

10. Clinical features and diagnostic of prolapsing (billowing) mitral valve.

11. Complications of mitral stenosis.

12. Basic principles of treatment of mitral stenosis and mitral regurgitation.

13. Indications and contraindications for surgical intervention.

14. Treatment of emergency cases.

15. Prognosis during mitral stenosis and mitral regurgitation.

## Class № 3.

Theme: Valvular Heart Disease. Aortic Stenosis. Aortic Regurgitation.

Objectives of the class:

- to learn the principles of making a diagnosis of aortic stenosis and aortic regurgitation;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment of aortic stenosis and aortic regurgitation;
- to make a prognosis according to the nature and severity of the disease.

### Issues for study:

1. Definition of aortic stenosis.
2. Etiology. Causes of its development.

3. Pathophysiology of aortic stenosis.

4. Clinical features, physical signs, palpation and auscultation of aortic stenosis.

5. Definition of aortic regurgitation.

6. Etiology. Causes and association of acute and chronic aortic regurgitation.

7. Pathophysiology of aortic regurgitation.

8. Clinical features, physical signs, palpation and auscultation of aortic regurgitation.

9. Investigations: chest X-ray, electrocardiogram, echocardiogram, cardiac catheterization in diagnostic valvular heart disease.

10. Treatment of aortic stenosis and aortic regurgitation. Indications and contraindications for surgical intervention (aortic valve replacement). Antibiotic prophylaxis against infective endocarditis.

11. Treatment of emergency cases.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose aortic stenosis and aortic regurgitation using clinical and instrumental criteria;

- to reveal basic clinical presentation of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the severity of the disease.

Check-up questions:

1. Definition of aortic stenosis.
2. Etiology. Causes of its development.
3. Pathophysiology of aortic stenosis.
4. Clinical features and physical examination of aortic stenosis.
5. Definition of aortic regurgitation.
6. Etiology. Causes and association of acute and chronic aortic regurgitation.
7. Pathophysiology of aortic regurgitation.
8. Clinical features and physical examination of aortic regurgitation.
9. Auscultation: differential diagnostic of heart murmurs.
10. Investigations: chest X-ray, electrocardiogram, echocardiogram, cardiac catheterization.
11. Basic principles of treatment.
12. Indications and contraindications for surgical intervention.

## Class № 4.

## Theme: Infective Endocarditis.

Objectives of the class:

- to learn the principles of making a diagnosis of infective endocarditis;

- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment of infective endocarditis;
- to make a prognosis according to the nature and gravity of the disease.

Issues for study:

1. Definition of infective endocarditis.
2. Etiology. Factors causing a bacteraemia. Organisms responsible. Local cardiac factors. Culture-negative endocarditis.
3. Pathogenesis of infective endocarditis.
4. Clinical presentation.
5. Duke criteria for diagnosis of infective endocarditis (major and minor criteria).
6. Investigations: chest X-ray, electrocardiogram, echocardiogram.
7. Microbiology and other laboratory tests.
8. Differential diagnostics of infective endocarditis.
9. Principles of therapy. Indications for surgical intervention.
10. Treatment of emergency cases.
11. Prevention.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.

4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose infective endocarditis using clinical, instrumental and laboratory criteria;
- to reveal basic clinical presentation of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of infective endocarditis.
2. Classification of infective endocarditis.
3. Etiology and sources of infection in infective endocarditis.
4. Pathogenesis of infective endocarditis.
5. Clinical presentation.
6. Duke criteria for diagnosis of infective endocarditis.
7. Differential diagnostics.
8. Basic principles of treatment. Indications for surgical intervention.

Class № 5.

Theme: Systemic Hypertensions.

Objectives of the class:

- to learn the principles of making a diagnosis of systemic hypertension;

- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment of systemic hypertension;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of systemic hypertension.
2. Classification of systemic hypertension (stages).
3. Classification of blood pressure levels (grades).
4. Etiology. Causes of its development. The role of environmental factors.
5. Pathophysiology of systemic hypertension.
6. Clinical presentation.
7. Diagnostic criteria of systemic hypertension.
8. Complications of systemic hypertension.
10. Definition and etiology of secondary hypertension.
11. Differential diagnostics of secondary hypertension (renal diseases, endocrine causes, congenital cardiovascular causes, drugs, pregnancy).
12. Investigations: chest X-ray, electrocardiogram, echocardiogram, blood pressure monitoring, laboratory tests.
13. Principles of therapy. Treatment of hypertension in pregnancy.
14. Treatment of hypertension crisis.
15. Prophylaxis against hypertension.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose systemic hypertension using clinical, instrumental and laboratory criteria;
- to diagnose secondary hypertension using clinical, instrumental and laboratory criteria;
- to reveal basic clinical presentation of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of systemic hypertension.
2. Classification of systemic hypertension (stages).
3. Classification of blood pressure levels (grades).
4. Etiology and pathophysiology of systemic hypertension.
5. Clinical presentation of the disease.
6. Diagnostic criteria of systemic hypertension.
7. Complications of systemic hypertension.

9. Differential diagnostics of secondary hypertension.
10. Basic principles of treatment.
11. Treatment of hypertension crisis.
12. Prophylaxis against hypertension.

## Class № 6.

## Theme: Atherosclerosis. Ischemic Heart Disease (IHD). Angina Pectoris.

Objectives of the class:

- to learn the principles of making a diagnosis of ischemic heart disease (IHD) and angina pectoris;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment of angina pectoris;
- to make a prognosis according to the nature and severity of the disease.

### Issues for study:

1. Definition of ischemic heart disease (IHD).
2. Classification of ischemic heart disease (IHD).
3. Etiology. Causes of its development. The process of coronary atherosclerosis.
4. Fixed risk factors for coronary disease.
5. Potentially changeable with treatment risk factors for coronary disease.
6. Pathogenesis of atherosclerotic damage of coronary vessels.

7. Clinical presentation of IHD.

8. Clinical forms of angina pectoris.

9. Diagnostic criteria of angina pectoris.

10. Differential diagnostic of pain in the heart area.

11. Investigations: electrocardiogram, echocardiogram, cardiac scintigraphy, coronary angiography, chest X-ray, ECG monitoring, laboratory tests. Indications for coronary angiography.

12. Principles of therapy. Treatment of atherosclerosis. Treatment of angina pectoris.

13. Indications for surgical intervention.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose IHD, angina pectoris using clinical, instrumental and laboratory criteria;
- to reveal basic clinical presentation of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Classification of risk factors for ischemic heart disease (IHD).
2. The role of hyperlipidaemia in the pathogenesis of atherosclerosis.
3. Anatomy of coronary vessels.
4. Definition of ischemic heart disease (IHD).
5. Classification of ischemic heart disease (IHD).
6. Clinical features of angina pectoris.
7. Definition of unstable angina pectoris.
8. Indications for coronary angiography.
9. Treatment by nitrates: classification, doses, side-effects.
10. Beta-blockers in the treatment of angina pectoris.
11. Prophylaxis against IHD.

## Class № 7.

## Theme: IHD. Acute Coronary Syndrome. Acute Myocardial Infarction.

Objectives of the class:

- to learn the principles of making a diagnosis of acute coronary syndrome;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment of acute coronary syndrome;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of acute myocardial infarction.
2. Epidemiology of myocardial infarction
3. Classification of myocardial infarction.
4. Etiology. Causes of its development. Risk factors of acute myocardial infarction.
5. Pathogenesis of myocardial infarction.
6. Clinical presentation of acute myocardial infarction.
7. Atypical forms of acute myocardial infarction.
8. Diagnostic criteria of acute myocardial infarction. Electrocardiogram, echocardiogram, biochemical markers.
9. Differential diagnostic of pain in the heart area.
10. Complications of myocardial infarction: heart failure, myocardial rupture and aneurismal dilatation, ventricular septal defect, mitral regurgitation, cardiac arrhythmias, conduction disturbances. Post-MI pericarditis and Dressler's syndrome.
11. Pharmacological therapy in acute myocardial infarction. Indications and contraindications to thrombolysis.
12. Resuscitation sudden cardiac death.
13. Rehabilitation after myocardial infarction. Post-MI drug therapy.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose acute myocardial infarction using clinical, instrumental and laboratory criteria;
- to reveal basic clinical presentation of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of myocardial infarction.
2. Etiology. Causes of its development and classification.
3. Clinical forms of acute myocardial infarction.
4. Diagnostic criteria of acute myocardial infarction (instrumental methods and biochemical markers).
5. Electrocardiogram signs of acute myocardial infarction.
6. Echocardiogram changes of myocardial infarction.
7. Complications of acute period of myocardial infarction.
8. Complications of subacute period of myocardial infarction.
9. Pathogenesis and clinical features of heart failure during myocardial infarction (cardiac asthma, pulmonary edema).
10. Pathogenesis and clinical features of cardiogenic shock.
11. Diagnostic criteria of myocardial rupture and aneurismal dilatation.
12. Diagnostic criteria of pericarditis during myocardial infarction.
13. Clinical features of Dressler's syndrome.

14. Basic principles of management.

15. Principles of thrombolysis.

16. Principles of percutaneous interventions.

17. Treatment of cardiogenic shock, pulmonary edema, cardiac arrhythmias, sudden cardiac death.

## Class № 8.

## Theme: Cardiac Arrhythmias and Conduction Disturbances.

Objectives of the class:

- to learn the principles of making a diagnosis of cardiac arrhythmias and conduction disturbances;
- to carry out differential diagnostic of cardiac arrhythmias;
- to carry out differential diagnostic of diseases which are the causes of cardiac arrhythmias and conduction disturbances;
- to get acquainted with the principles of treatment of cardiac arrhythmias and conduction disturbances;
- to make a prognosis according to the nature and severity of the disease.

### Issues for study:

1. Definition of cardiac arrhythmias.

2. Classification of cardiac arrhythmias.

3. Mechanisms of arrhythmia production.

4. Extrasystole (atrial premature beats, ventricular premature beats). Classification. Pathogenesis. Clinical features. Diagnostic. ECG-signs. Treatment. Prophylaxis.

5. Paroxysmal tachycardia. Pathogenesis. Clinical features. Changes of haemodynamic. Diagnostic. ECG-signs. Treatment. Indications for DC-cardioversion. Prophylaxis. Prognosis.
6. Atrial fibrillation and atrial flutter. Pathogenesis. Classification. Clinical features. Complications. Haemodynamic changes. Diagnostic. ECG-signs. Treatment. Indications for DC-cardioversion. Prophylaxis. Prognosis.
7. Ventricular fibrillation. Pathogenesis. Clinical features. Diagnostic. ECG-signs. Treatment and prophylaxis of ventricular fibrillation. Prognosis.
8. Conduction disturbances (atrioventricular block, bundle branch block, sick sinus syndrome). Classification. Pathogenesis. Clinical features. Changes of haemodynamic. Complications (Stokes-Adams attacks, heart failure, cardiac arrhythmias). ECG-signs. Diagnostic and differential diagnostic. Treatment of acute conduction disturbances. Treatment. Indications for temporary pacemaker. Indications for permanent pacemaker. Prognosis.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose acute myocardial infarction using clinical, instrumental and laboratory criteria;
- to reveal basic clinical presentation of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Etiology. Causes of development cardiac arrhythmias and conduction disturbances.
2. Classification of cardiac arrhythmias and conduction disturbances.
3. Clinical features and ECG-signs of cardiac arrhythmias (extrasystole, paroxysmal atrial and ventricular tachycardia, atrial fibrillation and atrial flutter, ventricular fibrillation).
4. Clinical features and ECG-signs of conduction disturbances (sinoatrial block, atrioventricular block, bundle branch block, sick sinus syndrome).
5. Differential diagnostic cardiac arrhythmias.
6. Treatment of cardiac arrhythmias and conduction disturbances.
7. Cardiac arrhythmias which require urgent treatment.
8. Conduction disturbances which require urgent treatment.
9. Antithrombotic therapy in atrial fibrillation.
10. Indications for temporary and permanent pacemaker.

Class № 9.

Theme: Chronic Heart Failure.

Objectives of the class:

- to learn the principles of making a diagnosis of chronic heart failure;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment of chronic heart failure;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of chronic heart failure.
2. Etiology. Causes of heart failure. Factors aggravating or precipitating heart failure.
3. Pathophysiology of heart failure. Venous return (preload). Outflow resistance (afterload). Myocardial contractility (inotropic state). Neurohormonal and sympathetic system activation: salt and water retention.
4. Classification of chronic heart failure.
5. Clinical presentation of chronic heart failure.
6. Definition of latent heart failure.
7. Diagnostic criteria of chronic heart failure.
8. Differential diagnostic of chronic heart failure and respiratory failure.

9. Investigations: electrocardiogram, echocardiogram, cardiac scintigraphy, coronary angiography, chest X-ray, ECG monitoring, laboratory tests.

10. Treatment of chronic heart failure.

11. Urgent treatment of cardiac asthma, pulmonary edema.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose chronic heart failure using clinical, instrumental and laboratory criteria;
- to reveal basic clinical presentation of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of chronic heart failure.
2. Etiology of heart failure.
3. Causes of exacerbation and growing progressively worse of heart failure.

4. Pathophysiology of heart failure. Venous return (preload). Outflow resistance (afterload). Myocardial contractility (inotropic state). Neurohormonal and sympathetic system activation: salt and water retention.

5. Classification of chronic heart failure depending on clinical features.

6. NYHA classification of chronic heart failure.

7. Clinical presentation of chronic heart failure.

8. Clinical features of left heart failure.

9. Clinical features of right heart failure.

10. Differential diagnostic of cardiac asthma and bronchial asthma.

7. Definition of latent heart failure.

8. Diagnostic criteria of chronic heart failure.

9. Differential diagnostic of chronic heart failure and respiratory failure.

10. Investigations for diagnostics of chronic heart failure: electrocardiography, echocardiography, stress echocardiography, chest X-ray, ECG monitoring, cardiac MRI, positron emission tomography (PET), cardiac catheterization, cardiac biopsy.

11. Laboratory tests for diagnostics of chronic heart failure.

12. Basic principles of treatment. Groups of medicines which can be used for treatment of chronic heart failure.

13. Indications for inotropic agents. Features of digoxin toxicity. Treatment of digoxin toxicity.

14. Principles of treatment by diuretics.

15. Indications for angiotensin-converting enzyme inhibitors (ACEI) and angiotensin receptor antagonists. Its effects.

16. Indications for в-adrenoceptor blocking agents. Its effects.

17. Using arteriolar vasodilatation in the treatment of chronic heart failure.

18. Non-pharmacological treatment of heart failure (revascularization, hibernating myocardium and myocardial stunning, biventricular pacemaker or implantable cardioverter-defibrillator, cardiac transplantation).

# PULMONOLOGY

Class № 1.

Theme: Pneumonia.

Objectives of the class:

- to learn the principles of making a diagnosis of pneumonia;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment for pneumonia;
- to make a prognosis according to the nature and gravity of the disease.

Issues for study:

1. Definition of pneumonia.
2. Etiology. Causes of its development.
3. The role of infection in the development of the disease.
4. General pathway (pathogenesis)
5. Classification of pneumonia.
6. Clinical features of pneumonia. Diagnostic criteria of pneumonia.
7. Course of the disease in accordance with its severity. Complications.
8. Differential diagnostics in patients with X-ray visible pulmonary tissue consolidation.
9. Treatment of pneumonia and its complications.
10. Measures for prevention.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student′s work.

Independent student′s work (practical skills):

Students must be able:

- to diagnose pneumonia using clinical and laboratory criteria of this disease;
- to assess X-ray pictures;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the severity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of pneumonia.
2. Classification of pneumonia.
3. Etiology of pneumonia.
4. The main pathway of pneumonia.
5. Diagnostic criteria of pneumonia.
6. Clinical features of pneumonia.
7. Differential diagnosis in patients with pulmonary consolidation.

8. Basic principles of treatment.
9. Prevention.

## Class № 2.

## Theme: Chronic Obstructive Pulmonary Disease

Objectives of the class:

- to learn the principles of making a diagnosis of Chronic Obstructive Pulmonary Disease (COPD);
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of COPD treatment;
- to make a prognosis according to the nature and gravity of the disease.

### Issues for study:

1. Definition of COPD.
2. Etiology. Causes of its development.
3. The role of smoking, atmosphere pollution, irritants and respiratory infection in progression of the disease.
4. General pathway (pathogenesis).
5. Pathomorphology (character of inflammation in airways).
6. Classification of COPD.
7. Clinical features: cough, sputum expectoration, shortness of breath. Clinical and functional evidences.

8. Respiratory functional tests: criteria of reversible, irreversible and partially reversible airflow limitation.
9. Differential diagnostics in patients with prolonged caugh.
10. Treatment. Primary and secondary prevention.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student′s work.

Independent student′s work (practical skills):

Students must be able:

- to diagnose COPD using clinical, instrumental and functional criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the gravity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of COPD.
2. Classification of COPD.
3. Etiology of COPD.

4. The main pathway of COPD.
5. Diagnostic criteria of COPD.
6. Clinical features of COPD.
7. Data of functional respiratory tests investigations in patients with COPD.
8. Basic principles of treatment.
9. Primary and secondary prophylaxis of COPD.

## Class № 3.

## Theme: Bronchial Asthma.

Objectives of the class:

- to learn the principles of making a diagnosis of bronchial asthma (BA);
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of BA treatment;
- to make a prognosis according to the nature and gravity of the disease.

### Issues for study:

1. Definition of BA.
2. Etiology. Causes of its development.
3. The role of intrinsic and extrinsic factors in the disease appearance.

4. General pathway (pathogenesis) of BA: types of allergic reactions, altered bronchial reactivity, not-allergic asthma
5. Pathomorphology (evidences of chronic inflammation in bronchial wall).
6. Classification of BA.
7. Clinical features of wheezes attack, pre-attack period, post-attack period, inter-attack period.
8. Course of the disease in accordance with its pathogenetic types.
9. Differential diagnostics in patients with sudden dyspnea attacks.
10. Treatment. Primary and secondary prevention.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student′s work.

Independent student′s work (practical skills):

Students must be able:

- to diagnose BA using clinical, functional criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess prevailing pathogenetic mechanism and the nature of the disease course;
- to administer adequate treatment;

- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of BA.
2. Classification of BA.
3. Etiology of BA.
4. The main pathway of BA.
5. Diagnostic criteria of BA.
6. Clinical features of BA.
7. Diagnostic criteria of BA.
8. Basic principles of treatment.
9. Primary and secondary prophylaxis of BA.
10. Acute complications of bronchial asthma: diagnostics, management and prevention.

# NEPHROLOGY

Class № 1.

Theme: Acute and Chronic Glomerulonephritis

Objectives of the class:

- to learn the principles of making a diagnosis of glomerulonephritis;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of glomerulonephritis treatment;
- to make a prognosis according to the nature and gravity of the disease.

Issues for study:

1. Definition of glomerulonephritis.
2. Etiology. Causes of its development.
3. The role of в-haemolytic streptocci group A (clinical, serological and epidemiological evidences)
4. General pathway. The main mechanisms of the progression.
5. Pathomorphology of glomerulonephritis.
6. Classification of glomerulonephritis.
7. Clinical features: (nephritic syndrome, nephrotic syndrome, acute kidney damage, chronic kidney disease and renal failure).
8. Course of the disease in accordance with its activity.
9. Differential diagnostics in patients with nephritic syndrome, nephrotic syndrome.
10. Life-threatening complications (hypertensive encephalopathy, pulmonary oedema, uraemia).

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student s work.

Independent student s work (practical skills):

Students must be able:

- to diagnose glomerulonephritis using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the activity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of glomerulonephritis.
2. Classification of glomerulonephritis.
3. Etiology of glomerulonephritis.
4. The main pathways of glomerulonephritis.
5. Clinical features of nephritic syndrome.
6. Clinical and laboratory features of chronic kidney disease and chronic renal failure.
7. Investigation of acute nephritic syndrome.

8. The ways of glomerulonephritis progression
9. Differential diagnosis of nephritic, nephrotic syndrome.
10. Criteria of chronic kidney disease
11. Primary and secondary prevention of glomerulonephritis.
12. Management of life-threatening complications (hypertensive encephalopathy, pulmonary oedema, severe uraemia).

# HAEMATOLOGY

Class № 1.

Theme: Iron Deficiency Anemia

Objectives of the class:

- to learn the principles of making a diagnosis of Iron deficiency anemia;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of Iron deficiency anemia treatment;
- to make a prognosis according to the nature and gravity of the disease.

Issues for study:

1. Definition of anemia.
2. Etiology. Causes of Iron deficiency anemia.
3. The role of iron, iron absorption, transport iron in the blood, iron stores, iron requirements.
4. General pathway.
5. Clinical features of Iron deficiency anemia.
6. The main investigations (serum ferritin, blood count and film, serum iron and iron-binding capacity, serum soluble transferring receptor, bone marrow).
7. Classification of anemia.
8. Differential diagnostics in patients with anemia.
9. Treatment of Iron deficiency anemia.

Plan of the practical class:

1. Knowledge assessment
2. Clinical case demonstrations
3. Clinical case discussion
4. Independent student s work

Independent student s work (practical skills):

Students must be able:

- to diagnose anemia using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the severity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of anemia.
2. Classification of anemia.
3. Etiology of Iron deficiency anemia.
4. The main pathway of Iron deficiency anemia.
5. The role of iron, iron absorption, transport iron in the blood, iron stores, iron requirements.
6. Clinical features of Iron deficiency anemia.
7. Clinical and laboratory features of Iron deficiency anemia.
8. Investigation of Iron deficiency anemia.
9. Differential diagnosis of anemia.

10. Differential diagnosis of hypochromic microcytic, normochromic normocytic and macrocytic anemias.
11. Basic principles of treatment of iron deficiency anemia.
12. Primary and secondary prophylaxis of Iron deficiency anemia.

## Class № 2.

## Theme: Chronic Lymphocytic Leukemia (CLL). Chronic Myelogenous Leukemia (CML)

Objectives of the class:

- to learn the principles of making a diagnosis of CLL and CML;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of CLL and CML treatment;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of CLL and CML.
2. Etiology. Risk factors of its development (age, radiation, chemicals, viruses, genetics).
3. General pathway of chroni myelogenous leukemia. The role of Philadelphia chromosome.
4. Pathomorphology of CML and CLL.
5. Stages of CML.
6. Rai Classification and Binet staging for CLL.
7. Clinical features CLL and CML.

8. Signs of blood abnormalities.
9. Course of the disease in accordance with its activity.
10. Differential diagnostics in patients with anemia, leucopenia, lymphocytosis, lymphadenopathy, splenomegaly, hepatomegaly.
11. Life-threatening complications (autoimmune thrombocytopenia, anemia, blast crisis).

Plan of the practical class:

1. Knowledge assessment
2. Clinical case demonstrations
3. Clinical case discussion
4. Independent student s work

Independent student's work (practical skills):

Students must be able:

- to diagnose CLL, CML using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the stage and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of CLL and CML.

2. Classification of CML.
3. Classification of CLL.
4. Etiology of CLL, CML. Risk factors.
5. The main pathway of CML, CLL.
6. Clinical features of nephritic syndrome.
7. Clinical and laboratory features of CLL.
8. Clinical and laboratory features of CML.
9. Bone marrow tests.
10. The ways of CLL and CML progression
11. Differential diagnosis of CLL, CML, acute leukemia.
12. Criteria of clinical and laboratory remission of CLL and CML.
13. Basic principles of treatment CML, CLL. Chemotherapy. Interferon therapy. Stem Cell Transplantation. Surgery.
14. Management of life-threatening complications (autoimmune thrombocytopenia, anemia, blast crisis).

# DIGESTIVE TRACT DISEASES

Class № 1.

Theme: Esophageal disorders

Objectives of the class:

- to learn the principles of making a diagnosis of esophageal disorders (gastroesophageal reflux disease (GERD), achalasia, diffuse esophageal spasm, carcinoma of esophagus);
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of esophageal disorders treatment;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of GERD.
2. Etiology. Causes of its development.
3. Pathogenisis of GERD.
4. Clinical features: (heartburn, dysphagia, iron deficiency anemia).
5. Investigations (24-hour pH monitoring, manometry, barium swallow, esophagoscopy).
6. Complications of GERD (esophagitis, esophageal strictures, barrett oesophagus, anemia, aspiration.
7. Treatment of GERD (general measures, medical treatment, surgical treatment).

Plan of the practical class:

1. Knowledge assessment.

2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student s work (practical skills):

Students must be able:

- to diagnose GERD using clinical and functional criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of GERD. Etiology. Causes of its development.
2. Etiology. Causes of its development.
3. Pathogenisis of GERD.
4. Clinical features: (heartburn, dysphagia, iron deficiency anemia).
5. Investigations (24-hour pH monitoring, manometry, barium swallow, esophagoscopy).
6. Complications of GERD (esophagitis, esophageal strictures, barrett oesophagus, anemia, aspiration.
7. Treatment of GERD (general measures, medical treatment, surgical treatment).
8. Barret's esophagus. Diagnostics and management.

Class № 2.

Theme: Peptic Ulcer.

Objectives of the class:

- to learn the principles of making a diagnosis of peptic ulcer;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of peptic ulcer. Treatment;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of peptic ulcer.
2. Etiology. Causes of its development.
3. The role of helicobacter pylori, NSAIDs, heredity, smoking.
4. General pathway.
5. Pathomorphology of peptic ulcer.
6. Classification of peptic ulcer.
7. Comparison of duodenal and gastric ulcers.
8. Clinical features.
9. Complications of peptic ulcer. (hemorrhage, perforation, penetration, pyloric obstruction).
10. Investigations.
11. Differential diagnostics in patients with peptic ulcer.
12. Management.

Plan of the practical class:

1. Knowledge assessment.

2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student s work.

Independent student s work (practical skills):

Students must be able:

- to diagnose peptic ulcer. using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the activity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of peptic ulcer.
2. Classification of peptic ulcer.
3. Etiology of peptic ulcer.
4. Mucosal Defense factors.
5. The main pathway of peptic ulcer.
6. Clinical features of peptic ulcer.
7. Investigations.
8. Differential diagnostics in patients with peptic ulcer.
9. Management (general measures, acid suppression, therapy for eradication of Helicobacter pylori).

10. Indications for surgery in peptic ulcer.
11. Life-threatening complications (hemorrhage, perforation, penetration, pyloric obstruction).

## Class № 3.

## Theme: Chronic Gastritis.

Objectives of the class:

- to learn the principles of making a diagnosis of chronic gastritis;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of chronic gastritis treatment;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of chronic gastritis.
2. Etiology. Causes of its development.
3. The role of helicobacter pylori infection.
4. General pathway. Pathomorphology of chronic gastritis.
5. Classification of chronic gastritis.
6. Clinical features.
7. Differential diagnosis of stomach pain.
8. Investigations (noninvasive testing for *H. Pylori*, invasive testing for *H.Pylori*).
9. Eradication of *H.Pylori* infection.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose chronic gastritis using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the activity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of chronic gastritis.
2. Classification of chronic gastritis.
3. Etiology of chronic gastritis . The role of helicobacter pylori.
4. General pathway. Pathomorphology of chronic gastritis.
5. Clinical features of chronic gastritis.
6. Differential diagnosis of stomach pain
7. Investigations (noninvasive testing for *H. Pylori*, invasive testing for *H.Pylori*).

8. Eradication of *H.Pylori* infection.
9. Primary and secondary prophylaxis of chronic gastritis.

## Class №4.

## Theme: Chronic Hepatitis.

Objectives of the class:

- to learn the principles of making a diagnosis of chronic hepatitis;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of treatment chronic hepatitis;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of chronic hepatitis.
2. Etiology. Causes of its development.
3. Classification by etiology.
4. General pathway.
5. Pathomorphology of chronic hepatitis.
6. Classification of chronic hepatitis by stage.
7. Chronic hepatitis due to viral disease.
8. Autoimmune hepatitis.
9. Correlation between the histological type of chronic hepatitis and the clinical picture.
10. Clinical features.
11. Investigations.

12. Course of the disease in accordance with its activity.
13. Differential diagnostics in patients with jaundice.
14. Life-threatening complications (fulminant hepatic failure, extrahepatic complications).
15. Alcoholic liver disease.
16. Treatment.
17. Prevention of Hepatitis B.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose chronic hepatitis using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the activity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of chronic hepatitis.
2. Classification of chronic hepatitis.
3. Etiology of chronic hepatitis.
4. The main pathway of chronic hepatitis.
5. Clinical features of chronic hepatitis.
6. Clinical and laboratory features of hepatic insufficiency.
7. Investigation of chronic hepatitis.
8. The ways of chronic hepatitis progression.
9. Differential diagnosis of jaundice.
10. Criteria of chronic hepatic insufficiency.
11. Basic principles of treatment chronic hepatitis according to the etiology.
12. Primary and secondary prophylaxis of chronic hepatitis.
13. Management of life-threatening complications (encephalopathy, fulminant hepatic failure).

## Class № 5.

## Theme: Liver Cirrhosis.

Objectives of the class:

- to learn the principles of making a diagnosis of cirrhosis of liver;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of cirrhosis of liver treatment;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of cirrhosis of liver.
2. Etiology. Causes of its development.
3. Classification by etiology.
4. Pathomorphology of cirrhosis of liver.
5. Clinical features of cirrhosis. Portal hypertension. Hepatic insufficiency.
6. Investigations in cirrhosis.
7. Modified Child-Pugh classification for prognosis of cirrhosis.
8. Differential diagnosis of cirrhosis.
9. Life-threatening complications (variceal hemorrhageascites, hepatic encephalopathy, hepatic failure, hepatoma). Treatment.
10. Biliary cirrhosis. Types.
11. Alcoholic liver disease.
12. Treatment of cirrhosis of liver.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student' s work (practical skills):

Students must be able:

- to diagnose cirrhosis of liver using clinical and laboratory criteria of this disease;

- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the activity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of liver cirrhosis.
2. Classification of cirrhosis of liver.
3. Etiology of liver cirrhosis.
4. The main pathway of cirrhosis of liver.
5. Clinical features of liver cirrhosis.
6. Clinical and laboratory features of hepatic insufficiency.
7. Investigation of cirrhosis of liver.
8. Differential diagnosis of cirrhosis of liver.
9. Criteria of chronic hepatic insufficiency.
10. Basic principles of treatment of liver cirrhosis according to the etiology.
11. Management of life-threatening complications ( encephalopathy, fulminant hepatic failure, variceal hemorrhageascites).

Class № 6

Theme: Diseases of the Bile Ducts. Cholecystitis. Noncalculous Gallbladder Disease.

Objectives of the class:

- to learn the principles of making a diagnosis of gallstone disease, cholecystitis, diseases of the Bile Ducts;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of gallstone disease, cholecystitis, diseases of the Bile Ducts treatment;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of cholecystitis, diseases of the Bile Ducts.
2. Etiology. Causes of its development.
3. The two major types of gallstones.
4. The pathophysiology involved in the formation of gallstones.
5. Risk factors for gallstone formation.
6. Classification of cholecystitis.
7. Clinical features of cholecystitis, diseases of the Bile Duct.
8. Course of the disease in accordance with its activity. Differential diagnostics in patients with jaundice.
9. Life-threatening complications (biliary colic, acute cholecystitis).

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.

3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills):

Students must be able:

- to diagnose cholecystitis, diseases of the Bile Duct, using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the activity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of cholecystitis, diseases of the Bile Duct.
2. Classification of cholecystitis.
3. Etiology of cholecystitis, diseases of the Bile Duct.
4. The main pathway in the formation of gallstones.
5. Clinical features of cholecystitis, diseases of the Bile Duct.
6. Clinical and laboratory features of chronic cholecystitis.
7. Investigation of cholecystitis, diseases of the Bile Duct.
8. Differential diagnosis of cholecystitis, diseases of the Bile Duct.
9. Basic principles of treatment of cholecystitis, diseases of the Bile Duct.
10. Postcholecystectomy syndrome.

11. Management of life-threatening complications (biliary colic, acute cholecystitis).

## Class № 7.

## Theme: Chronic Pancreatitis.

Objectives of the class:

- to learn the principles of making a diagnosis of chronic pancreatitis, carcinoma of the pancreas;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of chronic pancreatitis treatment;
- to make a prognosis according to the nature and severity of the disease.

Issues for study:

1. Definition of chronic Pancreatitis.
2. Etiology. Causes of its development.
3. The pathophysiology of chronic Pancreatitis.
4. Risk factors for chronic Pancreatitis.
5. Classification of chronic Pancreatitis.
6. Clinical features of chronic Pancreatitis.
7. Differential diagnostics in patients with jaundice .
8. Complications (pancreatic pseudocyst, pancreatic ascites, common bile duct stricture).

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student s work.

Independent student's work (practical skills):

Students must be able:

- to diagnose chronic pancreatitis, carcinoma of the pancreas, using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the activity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of chronic pancreatitis.
2. Classification of chronic pancreatitis.
3. Etiology of chronic pancreatitis.
4. The main pathway in the formation of chronic pancreatitis.
5. Clinical features of chronic pancreatitis.
6. Laboratory features of chronic pancreatitis.
7. Investigation of chronic pancreatitis.

8. Differential diagnosis of chronic pancreatitis, carcinoma of the pancreas, cholecystitis, diseases of the Bile Duct.
9. Basic principles of treatment of chronic pancreatitis.

## Class № 8.

## Theme: Chronic Colitis. Enteropathies.

Objectives of the class:

- to learn the principles of making a diagnosis of chronic colitis and enteropathies;
- to carry out differential diagnostics of diseases with similar symptoms;
- to get acquainted with the principles of chronic colitis and enteropathies treatment;
- to make a prognosis according to the nature and severity of the diseases.

Issues for study:

1. Definition of chronic colitis and enteropathies.
2. Etiology. Causes of its development.
3. The pathophysiology of inflammatory bowel disease.
4. Factors associated with inflammatory bowel disease.
5. Clinical features of inflammatory bowel disease.
6. Differential diagnostics in patients with diarrhea.
7. Investigations in chronic colitis and enteropathies.
8. Treatment.

9. Irritable bowel syndrome. Etiology and pathogenesis. Clinical features. Management.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student s work (practical skills):

Students must be able:

- to diagnose chronic colitis and chronic enteritis using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentations of the disease and perform differential diagnostics;
- to assess the activity and nature of the disease course;
- to administer adequate treatment;
- to suggest a prognosis according to the nature and severity of the disease.

Check-up questions:

1. Definition of chronic colitis and enteropathies.
2. Classification of chronic colitis and enteropathies.
3. Etiology of chronic colitis and enteropathies.
4. The main pathway in the formation of inflammatory bowel disease.

5. Clinical features of inflammatory bowel disease.
6. Laboratory features of chronic colitis and enteropathies.
7. Investigation of chronic colitis and enteropathies.
8. Differential diagnosis of chronic colitis and enteropathies.
9. Management of chronic colitis and enteropathies: basic principles.

# ENDOCRYNOLOGY

Class № 1.

Theme: Diabetes Mellitus: etiology, main pathway, diagnostic criteria, clinical features.

Objectives of the class:

- to learn the principles of making a diagnosis of diabetes mellitus (DM) according to modern classification;
- to carry out differential diagnostics of diseases with similar symptoms (obesity, Cushing's syndrome, Conn’s disease).

Issues for study:

1. Outline of glucose metabolism, hormonal regulation.
2. Insulin structure and secretion, C-peptide.
3. Etiology of DM type 1 – role of viral infections, autoimmune disorders, heredity.
4. Etiology of DM type 2 – role of insulin resistance, heredity, obesity.
5. Risk factors for DM.
6. Clinical features and pathogenesis of the main clinical symptoms.
7. Classification of DM.
8. Differential diagnostic in patients with polyuria, polidipsia (diabetes isipidus, chronic pielonefritis, hyperaldosteronism).
9. Differential diagnostic in patients with hyperglycemia (Cushing’s syndrome, acromegaly).

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills).

Students must be able:

- to diagnose DM using clinical and laboratory criteria of this disease;
- to reveal basic clinical presentation of disease and perform differential diagnostics;
- to assess the type of DM and compensation;
- to assess results of the glucose tolerance test.

Check-up questions:

1. Definition of DM.
2. Classification of DM.
3. Etiology of DM type 1 and 2.
4. Clinical features of DM type 1 and 2.
5. Diagnostic criteria of DM.
6. Laboratory changes in patients with glucose metabolism disorders.

Class № 2

Theme: Diabetes Mellitus: acute and chronic complications. Management.

Objectives of the class:

- to learn pathogenesis and clinical features of acute and chronic complications of DM;
- to learn the treatment of diabetic complications.

Issues for study:

1. Pathogenesis and clinical features of microvascular and macrovascular complications. Diabetic eye disease. The diabetic kidney. The diabetic foot. Management of chronic complications.

1. Diabetic metabolic emergencies. Diabetic ketoacidosis. Pathogenesis. Clinical features. Diagnosis. Management.
2. Non-ketotic hyperosmolar state. Pathogenesis. Clinical features. Diagnosis. Management.
3. Lactic acidosis. Pathogenesis. Clinical features. Diagnosis. Management.
4. Hypoglycaemia.

Plan of the practical class:

1. Knowledge assessment
2. Clinical case demonstrations
3. Clinical case discussion
4. Independent student's work
5. Test: "Diagnostic criteria of Diabetes Mellitus"

Independent student's work (practical skills).

Students must be able:

- to diagnose microvascular and macrovascular complications using clinical and laboratory criteria;
- blood glucose testing using glucometer, ketone bodies of urine;
- laboratory data interpretation.

Check-up questions:

1. Diabetic nephropathy. Classification, pathogenesis, clinical and laboratory features, management.
2. Diabetic retinopathy. Classification, pathogenesis, clinical and laboratory features, management.
3. The diabetic foot. Clinical variants, symptoms. Management.
4. Differential diagnostic between diabetic ketoacidosis, non-ketonic hyperosmolar state and lactic acidosis.
5. Difference in management of diabetic ketoacidosis, non-ketonic hyperosmolar state.
6. Principles of treatment of diabetic metabolic emergencies – replacement of the fluid losses, replacement of the deficient insulin, normalization of electrolytes level, acidosis correction.

Class № 3.

Theme: Management of Diabetes Mellitus.

Objectives of the class:

- to learn principles of treatment of DM type 1 and 2.

Issues for study:

1. The diet for a diabetic patient, amount of carbohydrate, the glycaemic index, bread units.
2. Tablet treatment of type 2 diabetes: sulphonylureas, biguanides, alpha-glucosidase inhibitors, thiazolidinediones, incretinomimetics and sodium-dependent glucose transporter type 2 inhibitors. Indications, mechanism of action, contraindication. Practical management of diabetes.
3. Treatment of DM type 1. Principles of insulin treatment. Classification of insulin. Calculation of insulin dosage.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.
5. Test: "Management of diabetic ketoacidosis".

Independent student's work (practical skills).

Students must be able:

- to prescribe diet to diabetic patient;

- to calculate dosage of insulin and to prescribe insulin regimens;
- prescribing of tablet treatment of type 2 diabetes according to indications.

Check-up questions:

1. Indications for treatment with diet alone.
2. Sulphonylureas: classification, action, indications, side effects.
3. Indications for biguanides, alpha-glucosidase inhibitors, thiazolidinediones, incretinomimetics and sodium-dependent glucose transporter type 2 inhibitors. Side effects, contraindications.
4. Classification of insulins according to the duration of action. Insulin therapy regimens.

## Class № 4

## Theme: Hyperthyroidism, Graves' disease (Diffuse Toxic Goiter)

Objectives of the class:

- to learn etiology, pathogenetic changes, clinical features of Graves' disease.
- to study classification, diagnostic tests, main principles of treatment.

Issues for study:

1. Etiology of Graves' disease. Autoimmune mechanisms and there role in pathogenesis of disease;
2. Clinical features of hyperthyroidism, investigations of thyroid function;

3. Differential diagnostic of Graves' disease;
4. Graves' disease complications;
5. Choice of therapy: drugs, radioactive iodine, surgery: subtotal thyroidectomy. 'Block and replace' regimen;
6. Thyroid crisis or 'thyroid storm'.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills).

Students must be able:

- to examine patients with Graves' disease, to make differential diagnostics;
- to palpate thyroid gland, to estimate size of thyroid;
- to interpret laboratory data;
- to prescribe treatment to patient with hyperthyroidism.

Check-up questions:

1. Incidence and epidemiology, pathophysiology, autoimmune mechanisms and there role in pathogenesis of Graves' disease.
2. Differential diagnosis according to main symptoms with acute rheumatic fever, myocarditis, ischemic heart disease and so on.

3. Paraclinical investigations of thyroid function and interpretation of their results.

4. Treatment of hyperthyroidism, choice of treatment.

5. Thyroid emergency.

## Class № 5.

## Theme: Addison's Disease: primary hypoadrenalism.

Objectives of the class:

- to teach students to diagnose different forms of hypoadrenalism;
- to perform and interpret laboratory tests and to prescribe treatment.

Issues for study:

1. Pathophysiology and causes of primary hypoadrenalism. Incidence;
2. Primary and secondary hypoadrenalism. Differential diagnosis;
3. The symptoms and signs of primary hypoadrenalism (Addison's disease);
4. Investigations, single cortisol measurement, the ACTH stimulation tests;
5. Management of acute hypoadrenalism;
6. Management of chronic primary hypoadrenalism.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student’s work.

Independent student’s work (practical skills).

Students must be able:

- to examine patient with hypoadrenalism, to make differential diagnostics;
- to interpret laboratory data;
- to prescribe treatment to patient with hypoadrenalism.

Check-up questions:

1. Adrenal anatomy and function. Biochemistry, physiology. Feedback mechanism of regulation.
2. Investigation of glucocorticoid abnormalities, basal levels of ACTH and cortisol. Dexamethasone suppression tests, ACTH stimulation tests, circadian rhythm.
3. Addison's disease: primary hypoadrenalism. Pathophysiology and causes
4. Differential diagnostic in patients with hyperpygmentation - haemochromatosis, hyperthyroidism, cancer.
5. Addisonian crisis. Management of acute hypoadrenalism.

## Class № 6.

## Theme: Cushing's Disease (pituitary-dependent hyperadrenalism), Cushing's Syndrome.

Objectives of the class:

- to study etiology, pathogenesis, clinical features of hypercorticism.
- to study main principles of treatment.

Issues for study:

1. Cushing's syndrome and Cushing's disease (pituitary-dependent hyperadrenalism). Difference, differential diagnosis.
2. Pathophysiology and causes of hypercorticism. Classification. Epidemiology.
3. Clinical features. The symptoms and signs of Cushing's syndrome.
4. Laboratary investigations - 48-hour low-dose dexamethasone test, 24-hour urinary free cortisol measurements, biochemical shift in blood and urine.
5. Complication of Cushing's syndrome.
6. Choice of treatment.

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student’s work.

### Independent student’s work (practical skills):

Students must be able:

- to examine patient with hyperadrenalism;
- to make differential diagnosis;
- to develop the plan of laboratory investigations;
- to interpret laboratory data;
- to prescribe treatment to patient with hyperadrenalism.

Check-up questions:

1. Pathogenesis of main symptoms hyperadrenalism.
2. Laboratory and instrumental dates confirming diagnosis of hyperadrenalism.
3. Pathogenesis of hypertension and heart disorders in patients with hyperadrenalism.
4. Complications of Cushing's syndrome in urinary tract and intestine, pathogenesis.
5. Differential diagnosis between Cushing's syndrome, adrenal adenomas, adrenal carcinomas, cancer of pituitary gland, tumours secreting ACTH ectopically obesity, diabetes mellitus.
6. Main principles of treatment of hyperadrenalism.

Class № 7.

Theme: Obesity.

Objectives of the class:

- to study etiology, clinical features of obesity;
- to teach estimating of obesity degree;
- obesity treatment.

Issues for study:

1. Classification of obesity
2. Pathogenesis and clinical features of obesity.
3. Obesity and changes of internal organs
4. Differential diagnosis of obesity and other endocrine disorders
5. Management of obesity

Plan of the practical class:

1. Knowledge assessment.
2. Clinical case demonstrations.
3. Clinical case discussion.
4. Independent student's work.

Independent student's work (practical skills).

Students must be able:

- to examine patient with obesity;
- to make differential diagnosics;
- to develop a plan of laboratory investigations;

- to find out BMI, waist circumference;
- to interpret laboratory and instrumental data;
- to find out dietary energy supply for patient with obesity;
- to prescribe treatment for patient with obesity.

Check-up questions:

1. Pathophysiological mechanisms involved in the development and maintenance of obesity. Role of genetics, social determinants, sedentary lifestyle, overeating and poor dietary choices;
2. Obesity's effects on health. Obesity associated morbidity and mortality;
3. Metabolic syndrome and total cardiovascular risk factors;
4. Body mass index, waist circumference and waist–hip ratio, body fat percentage;
5. Anti-obesity medication and weight loss programs, surgical treatment.

# PHYSICAL MEDICINE

Class № 1.

Theme: Heat. Cryotherapy.

Objectives of the class:

- to know the principles of prescription for different forms of heat;
- to know physiological effects of heat;
- to get acquainted with general uses of heat in physical medicine;
- to get acquainted with general precautions for the use of heat.
- to know the principles of prescription for different forms of cold;
- to know physiological effects of cold;
- to get acquainted with general uses of cold in physical medicine;
- to get acquainted with general precautions for the use of cold.

Issues for study:

1. Classification of various types of heating.
2. Physiological effects of heat.
3. Hemodynamic effects, neuromuscular effects, miscellaneous effects of heat.
4. Basic modalities for heating.
5. Indications for different forms of heat in physical medicine.
6. Basic forms of superficial and deep heat.
7. General precautions for the use of heat.
8. Classification of various types of cryotherapy.

9. Physiological effects of cold.
10. Hemodynamic effects, neuromuscular effects, miscellaneous effects of cold.
11. Basic modalities for cryotherapy.
12. Basic cryotherapy agents.
13. Indications for different forms of cold in physical medicine.
14. General precautions for cryotherapy.

Plan of the practical class:

1. Knowledge assessment.
2. Demonstrations.
3. Independent student′s work.

Independent student′s work (practical skills):

Students must be able:

- to choose modality the patient needs;
- to assess indications and contraindications for use of heat;
- to prescribe basic elements of heat procedure (modality, location, intensity, duration, frequency);
- to use special devices for heat procedures;
- to assess indications and contraindications for use of cold;
- to prescribe basic elements of cryotherapy;
- to use special devices for cryotherapy.

Check-up questions:

1. Types of heating in physical medicine.
2. Physiological effects of heat.
3. Factors to consider in modality selection.
4. General uses of heat in physical medicine.
5. Agents of superficial and deep heating.
6. Basic forms of superficial heat.
7. Basic forms of deep heat.
8. General precautions for the use of heat.
9. Physiological effects of cold.
10. Factors to consider in modality selection.
11. General uses of cold in physical medicine.
12. Agents of cryotherapy.
13. Basic cryotherapy agents.
14. General precautions for the use of cold.

Class № 2.

Theme: Light therapy.

Objectives of the class:

- to know the principles of prescription for different forms of light therapy;

- to know physiological effects of light therapy;
- to get acquainted with general uses of light therapy in physical medicine;
- to get acquainted with general precautions for the use of light therapy.

Issues for study:

1. Classification of various types of light therapy.
2. Physiological effects of visible light, chromotherapy (monochromatic light), ultraviolet (UV) radiation, photochemotherapy, low-energy laser.
3. Photochemical and photobiological reactions of ultraviolet (UV) radiation.
4. Anti-inflammatory, analgesic, desensibilization, pigment formation (sunburn), formation of vitamin D3, bactericidal effects of ultraviolet (UV) radiation.
5. Hemodynamic effects, neuromuscular effects, miscellaneous effects of low-energy laser.
6. Basic modalities of visible light, chromotherapy (monochromatic light), ultraviolet (UV) radiation, photochemotherapy, low-energy laser.
7. Indications for different forms of light therapy in physical medicine.
8. General precautions for the use of light therapy.

Plan of the practical class:

1. Knowledge assessment.
2. Demonstrations.
3. Independent student′s work.

Independent student′s work (practical skills):

Students must be able:

- to choose modality the patient needs
- to assess indications and contraindications for use of light therapy
- to prescribe basic elements of light therapy procedure (modality, location, intensity, duration, frequency)
- to use special devices for light therapy procedures

Check-up questions:

1. Types of light therapy in physical medicine.
2. Physiological effects of heat.
3. Factors to consider in modality selection.
4. General uses of light therapy in physical medicine.
5. Agents of visible light, chromotherapy (monochromatic light), ultraviolet (UV) radiation, photochemotherapy, low-energy laser.
6. Basic forms of visible light, chromotherapy (monochromatic light), ultraviolet (UV) radiation, photochemotherapy, low-energy laser.

7. General precautions for the use of light therapy.

## Class № 3.

## Theme: Hydrotherapy.

Objectives of the class:

- to know the principles of prescription for different forms of hydrotherapy;
- to know the external applications of hot or cold water physiological effects;
- to get acquainted with basic forms of hydrotherapy in physical medicine;
- to get acquainted with general precautions for the use of hydrotherapy.

Issues for study:

1. Classification of various forms of hydrotherapy;
2. Physiological effects of different types of water;
3. Basic forms of hydrotherapy;
4. Indications for hydrotherapy;
5. General precautions for the use of hydrotherapy.

Plan of the practical class:

1. Knowledge assessment.
2. Demonstrations.

3. Independent student′s work.

Independent student′s work (practical skills):

Students must be able:

- to choose forms of hydrotherapy for different patients;
- to assess indications and contraindications for use forms of hydrotherapy;
- to prescribe basic elements of hydrotherapeutic procedure;
- to use special devices for whirlpool baths, the Hubbard tank, the shower cart, and contrast baths.

Check-up questions:

1. Types of various forms of hydrotherapy.
2. Physiological effects of different types of water.
3. General uses of hydrotherapy in physical medicine.
4. General precautions for the use of hydrotherapy.

Class № 4.

Theme: Climate therapy.

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Objectives of the class:

- to know the classification of different forms of Climate therapy;
- to know the principles of prescription for different forms of Climate therapy;
- to know the classification of different types of resorts;

- to know the physiological effects of aero therapy, heliotherapy, thalassotherapy, mud therapy;
- to get acquainted with basic forms of aero therapy, heliotherapy, thalassotherapy, mud therapy;
- to get acquainted with general precautions for the use of aero therapy, heliotherapy, thalassotherapy, mud therapy.

Issues for study:

1. Classification of various forms of Climate therapy and different types of resorts;
2. The common types of therapeutic mud;
3. Physiological effects of aero therapy, heliotherapy, thalassotherapy, mud therapy;
4. Basic forms of aero therapy, heliotherapy, thalassotherapy, mud therapy;
5. Indications for aero therapy, heliotherapy, thalassotherapy, mud therapy;
6. General precautions for the use of aero therapy, heliotherapy, thalassotherapy, mud therapy.

Plan of the practical class:

1. Knowledge assessment.
2. Demonstrations.
3. Independent student′s work.

Independent student′s work (practical skills):

Students must be able:

- to choose forms of Climate therapy for different patients;
- to assess indications and contraindications for Climate therapy;
- to prescribe basic elements of aero therapy, heliotherapy, thalassotherapy, mud therapy;
- to choose type of resort for different patients.

Check-up questions:

1. Types of various forms of Climate therapy.
2. Physiological effects of different types of Climate therapy.
3. General uses of Climate therapy in physical medicine.
4. General precautions for the use of Climate therapy.

## Tests:

1. INCREASED ARTERIAL PULSATION IN THE NECK MAY BE SUGGESTIVE OF EACH OF THE FOLLOWING, EXCEPT:

1) aortic regurgitation
2) coarctation of aorta
3) hypertensive elderly women
4) patent ductus arteriosus

2. FEATURES OF ATRIAL FLUTTER INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) atrial rate is usually 200/min
2) may cause cardiac failure or aggravate it in case of chronic rheumatic heart disease
3) leads to II, III, and aVF show a saw-tooth appearance due to F (flutter) waves
4) digoxin provides a useful prophylactic against recurrence

3. TRUE STATEMENTS ABOUT RHEUMATIC FEVER INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) there is much evidence that it is related to infection with beta-hemolytic streptococci group A
2) aschoff nodule is the hallmark of the disease
3) almost any joint may be involved
4) prednisolone should be given to every patient with rheumatic heart disease

4. TRUE STATEMENTS ABOUT MITRAL STENOSIS INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) the size of mitral valve is reduced
2) left ventricle becomes grossly hypertrophied
3) systemic embolism may cause hemiplegia and is commoner in patient with atrial fibrillation
4) if the valve is calcified there is usually no " opening snap"

5. TRUE STATEMENTS ABOUT ANGINA PECTORIS INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) physical examination is usually negative
2) commonest presentation is " a sense of oppression" or "tightness" in the middle of chest

3) in ECG, ST depression of 2 mm or more is very much in favor of ischemic heart disease
4) fresh glyceryl trinitrate, when allowed to dissolve under the tongue, or crushed for more rapid effect, relieves the pain in 2 or 3 minutes
5) spontaneous recovery occurs in about 75% of cases

6. COMPLICATIONS OF MYOCARDIAL INFARCTION INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) arrhythmias
2) cardiogenic shock
3) pulmonary odema
4) intestinal obstruction
5) cardiac failure

7. REVERSIBLE RISK FACTORS FOR ATHEROSCLEROSIS INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) cigarette smoking
2) hypertension
3) obesyty
4) alcoholizm

8. CAUSES OF CLUBBING INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) pulmonary suppuration
2) advanced cases of pulmonary tuberculosis
3) rheumatic fever with or without carditis
4) cyanotic congenital heart disease
5) malabsorption syndrome
6) Crohn's disease
7) as a familial trait

9. SPOT THE WRONG ENTRY IN RESPECT TO THE FINDINGS IN BRONCHIAL ASTHMA:

1) chest movements symmetrically reduced
2) vocal resonance normal
3) inspiratory and high pitched rhonchi

10. COMPLICATIONS OF PNEUMOCOCCAL PNEUMONIA INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) delayed resolution

2) pleural effusion or empyema
3) meningism and even meningitis
4) circulatory failure
5) pericarditis
6) myocarditis

11. DURING OLIGURIC PHASE OF ACUTE RENAL FAILURE, THE MAIN DANGERS TO LIFE ARE EACH OF THE FOLLOWING, EXCEPT:

1) pulmonary edema
2) potassium intoxication
3) metabolic alkalosis
4) uremia
5) fulminant systemic infections

12. DRUGS THAT MAY CAUSE MEMBRANOUS NEPHROPATHY INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) furosemide
2) gold
3) mercury
4) penicillamine
5) captopril

13. ACUTE POST-HEMORRHAGIC ANEMIA HAS THE FOLLOWING FEATURES, EXCEPT:

1) acute circulatory failure may occur with sudden loss of a litre or more of blood
2) immediate following a hemorrhage in a previously normal individual, blood count will show very low riding
3) during convalescence, the general symptoms and signs of anemia may be present
4) during recovery, a temporary reticulocytosis of 5 to 10% occurs

14. TRUE OBSERVATIONS ABOUT CHRONIC MYELOID LEUKEMIA INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) onset is insidious
2) lymph nodes are often considerably enlarged
3) appearance of an increasing number of myeloblasts indicates the approach of a terminal acute phase

4) drug of choice is hydrea
5) lien is often considerably enlarged

15. HEARTBURN IS MOST OFTEN A MANIFISTATION OF:

1) reflux esophagitis
2) peptic ulcer
3) miocardial infarction
4) gastric ulcer
5) carcinoma of stomach

16. FOR PRODUCTION OF BLACK TARRY STOOL, LOSS OF BLOOD FROM A SITE PROXIMAL TO THE ASCENDING COLON SHOULD BE AT LEAST:

1) 10 ml
2) 25 ml
3) 60 ml
4) 100 ml

17. CLINICAL MANIFESTATIONS OF PEPTIC ULCER MAY INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) commonest presentation is an acute episode of pain, bleeding or perforation.
2) pain is characterized by being referred to the epigastrium , its relationship to food, and its periodicity.
3) pain is sometimes absent or as slight as to be dismissed by the patient.
4) "pointing sign" when accompanied by localized tenderness is practically diagnostic.

18. TRUE OBSERVATIONS CONCERNING IRRITABLE BOWEL SYNDROME INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) also known as spastic colon or idiopathic diarrhea
2) bowel habit is disturbed by diarrhea or constipation occurring alone or alternating
3) anxiety is a common accompaniment
4) a disease of tense women, generally above 40 years

19. SPOT THE WRONG OBSERVATION ABOUT CLINICAL PICTURE OF HYPERTHYROIDISM:

1) men suffer eight times more frequently than women
2) usually occurs in third to sixth decades
3) there may or may not be clinically detectable enlargement of the gland
4) bruit, thrill and pulsatile gland may be encountered in some cases

20. FEATURES OF THYROTOXIC CRISIS INCLUDE EACH OF THE FOLLOWING, EXCEPT:

1) severe mental and physical exhaustion
2) dehydration
3) marked hypoglycemia
4) cardiac failure
5) ketosis
6) hypertermia

21. CONTINUOUS LOW DOSE OF INTRAVENOSUS INFUSION OF INSULIN HAS THE FOLLOWING ADVANTAGES, EXCEPT:

1) simple and effective
2) less liable to cause hypokalemia
3) never causes hypoglycemia

22. CONDITION THAT CAN BE ACCOMPANIED BY AS LOW BODY TEMPERATURE AS 80 TO $85^0$F (30-$35^O$C):

1) Cushing's syndrome
2) myxedema
3) gigantism
4) acromegaly

23. SPOT THE WRONG OBSERVATION ABOUT HYPOGLYCEMIA:

1) early symptoms are sweating, headache, inability to concentrate, and irritability
2) may occure in even neurogenic disturbances such as anxiety states
3) severe or recurrent attacks may cause permanent brain damage
4) diazoxide may be effective in non-islet-cell tumors

24. MAIN MECHANISM OF ENERGY TRANSFER OF PARAFFIN BATHS IS:

1) conduction
2) convection
3) radiation
4) conversion

25. THE GENERAL PRECAUTIONS FOR THE USE OF HEAT ARE FOLLOWING, EXCEPT:

1) acute inflammation
2) impaired circulation
3) bleeding diatheses
4) malignancy
5) low back pain

26. DIATHERMY IS REFERS TO SEVERAL FORMS OF DEEP HEATING EXCEPT:

1) shortwave
2) microwave
3) ultrasound
4) iontophoresis

| Questions | Answers |
|---|---|
| 1. | 4 |
| 2. | 1 |
| 3. | 4 |
| 4. | 2 |
| 5. | 5 |
| 6. | 4 |
| 7. | 4 |
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| 9. | 3 |
| 10. | 6 |
| 11. | 2 |
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| 14. | 2 |
| 15. | 1 |
| 16. | 1 |
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| 21. | 3 |
| 22. | 2 |
| 23. | 4 |
| 24. | 1 |
| 25. | 5 |
| 26. | 4 |