LECTURE COMPLEX

Discipline code:PESP 3215

Name of the discipline: “The digestive and endocrine system in pathology»

The name and code of the educational program: 6B10115 “Medicine”

Number of teaching hours/credits: 180 hours (6 credits)

Course and semester of study: 3rd course, V semester

Duration of the lecture: 12 hours

Shymkent, 2024

The lecture complex was developed in accordance with the working curriculum of the discipline (syllabus) "Digestive and Endocrine System" and discussed at the department meeting

Protocol № : 10 from "31" 05 2024

Head of the Department, d. m.s professor Bekmurzaeva E.K. Бекм

Lecture № 1

1. Topic 1: Interview, complaints, general examination, and methods of laboratory and instrumental research on patients with pathologies of the digestive and hepatobiliary systems. Surface and deep palpation of the abdomen according to Obraztsov's method, percussion and palpation of the liver according to Kurolov's method, auscultation of abdominal organs: determination of the lower boundary of the stomach. Diagnostic significance.

2. Objective: To train the student to identify risk factors, causes, and clinical features of gastrointestinal tract (GIT) and hepatobiliary system diseases – for identifying risk groups and subsequent implementation of a comprehensive medical preventive program.

3. Lecture topics:

Dysphagia is the disruption of food passage through the esophagus. It is one of the most common symptoms of esophageal diseases. The patient feels as if his esophagus is stuck (the esophagus narrows) and he is ill. Dysphagia is caused by organic or functional narrowing of the esophagus. Gradually, an organic narrowing begins, which intensifies in esophageal cancer.

When cancer breaks down, there is a feeling that the conductivity of the esophagus is restored, although temporarily. When a foreign body enters the esophagus, as well as when the esophageal mucosa burns due to the entry of toxic substances, dysphagia occurs immediately. It can also occur due to external bodies falling into the esophagus and compressing it, often due to heart aneurysm, cardiac sac tumor. Functional narrowing of the esophagus, undoubtedly, occurs due to the reflexivity of the esophageal muscles, that is, due to the violation of innervation in a neurosis, as well as due to strong narrowing and contraction of the esophageal muscles.

Disease (dolor) is a condition observed with inflammation of the esophageal mucosa, i.e., with esophagitis. When the esophageal mucosa is burned by alkalis and acids, the patient feels pain along the entire length of the esophagus.

Pain in achalasia of the cardia usually radiates to the back, the upper part of the sternum, the neck, under the chin, and the jaw.

The duration of the disease can last for several minutes or hours. A hernia of the esophageal opening in the chest wall indicates that in gastroesophageal reflux disease, the pain is transmitted to the left side of the chest and is felt as heart disease.

Vomiting (eтesis, votítus) is caused by the narrowing of the esophagus. Food accumulates above the narrowed area of the right muscle, where it expands and pushes food outwards as a reflex due to the contraction of its muscles. Vomiting is characterized by several symptoms: it occurs without belching, the patient feels that the food is sticking. When studying the composition of the vomit, it is necessary to make sure it contains undigested food waste or hydrochloric acid, pepsin. If a putrid smell appears in the vomit, it indicates an esophageal diverticulum or the decay of a malignant tumor.

Dysphagia occurs because the food cannot pass through the narrowed esophageal area. This symptom is often observed in nervous system diseases. At the same time, it can also

be caused by the narrowing of the lower part of the esophagus. Saliva leakage - this symptom is encountered in esophagitis. Narrowing of the esophageal orifice (narrowing) sometimes also occurs due to cancer.

A foul smell sensation - in esophageal cancer and achalasia of the cardia, it occurs due to the accumulation of kitchen waste and its decomposition. Heartburn symptom - it is felt in the lower part of the sternum. This is also caused by the fact that food residue in the stomach returns to the lower part of the esophagus and, as such, arises as a result of the reflux of esophagitis (reverse flow).

Bleeding - observed in esophageal ulcers, as well as caused by esophageal injury due to the action of foreign bodies, the breakdown of a malignant tumor. Sometimes an enlarged esophageal vein occurs due to bleeding from a blood vessel, the connection of its creamy layer with the cardiac part of the esophagus and stomach, increased tension in the area, and minor vessel rupture (Mellory-Weiss syndrome).

Disease history.

The progression of the disease intensifies in cases of organic damage to the esophagus and in its functional diseases (cardiospasm), which sometimes may alternate sequentially, depending on psychological reasons. As a result of interviewing the patient's life history, it is possible to determine esophageal burns (alkali, acid). It is worth knowing about any other diseases the patient has suffered from in the past, especially syphilis. The patient's complaint is related to dysphagia, and sometimes also to syphilitic changes. The presence of the esophagus's lateral wall may be associated with previously suffered bronchoadenitis, especially tuberculosis.

Physical examination methods.

The significance of physical examination methods in the diagnosis of esophageal diseases is small, due to the anatomical-topographical location of the esophagus and the limited potential for the application of direct examination methods. During a general examination, it can be noticed that the patient is severely emaciated, as the passage of the fundus along the esophagus is disrupted in esophageal cancer and achalasia. When you experience a long-term narrowing of the esophagus, its upper part slightly expands, which may gradually compress the lungs, causing restrictive narrowing of the airway.

Instrumental and laboratory investigation methods.

Radiographic examination. During a radiographic examination, the patient inhales a contrast substance, and the state, motor function, position, shape, volume, and contour of the cream layer are examined as it passes through the esophagus. Currently, the following types of radiographic methods are used: contrast radioscopy and radiography, the method of double enhanced contrast, radiokymography, radiotelevision, radiokinematography, computed tomography, pneumomediastinography, nuclear magnetic resonance, and others. Radiography, especially with changes in the patient's position under various conditions, provides a wealth of information.

Esophagoscopy.

Ezophagoscopy provides more data in describing esophageal cancer and ulcers, damage to the mucous membrane (inflammation, atrophy, hemorrhagic and erosive changes), than the radiographic method. If necessary, a biopsy is extracted from the creamy layer of the esophagus, the obtained material is sent for histological and bacteriological examination.
Ezophagoscopy allows for a number of therapeutic manipulations: dilation (removal) of the esophagus, sclerosis of varicose veins, polypectomy, burning of the blood vessel with an electric current.
Other research methods.
Cytological examination. This method is also used for the study of esophageal cancer. The material examined is a scraping from the site of damage or suspicion, or a layer of water or cream washed through the esophagus.
Intraperitoneal pH-metry. A value of intragastric pH below 4.0, measured within 10 seconds, is a sign that the contents of gastric acid are constantly rising into the esophagus (gastroesophageal reflex).
Esophageal manometry. This method studies the ability of the esophageal muscles to contract. Sensors are placed at different levels of the esophagus. The patient swallows a sip of water. Normally, the pressure in the area of the lower esophageal sphincter is 20-40 mmHg, equal to a mercury column. In achalasia, the pressure increases and the ability of the sphincter to relax is impaired.
Ballokimographic method. This method is used for detecting functional and structural changes in the esophagus. The probe, the tip of which is equipped with a thin rubber balloon, is inhaled by the patient, about 100-200 ml of air is sent. By connecting the other end of the probe to a recording instrument, an esophagram is recorded. With this method, it is possible to determine the force, rhythm, frequency of contractions of the esophageal muscles (normally 3 times per minute), wave-like contractions.
Pharmacological tests. Nitroglycerin is administered under the tongue to the patient or an atropine solution is administered intramuscularly. With a change in the functional nature, the tone of the narrowed right muscle decreases, its conductivity improves. However, such a phenomenon is not observed in organic esophageal stenosis.
4. Illustrative material: presentation.
5. Literature: indicated on the last page of the syllabus
6. Control questions (feedback):
1. What are the main complaints you know when it comes to diseases of the digestive system?
2. What should you pay attention to during a general examination of patients?
3. What types of abdominal palpation do you know?
4. What information does deep palpation of the abdomen provide?
5. What other physical examination methods are used for patients with gastrointestinal pathology?

Lecture №2

1. Topic 2: Leading clinical syndromes (gastrointestinal and intestinal dyspepsia) in gastroenterology. Diagnostic significance.
Leading clinical syndromes (jaundice and liver failure) in hepatology.
2. Objective: Based on the integration of fundamental and clinical disciplines, train students in the basics of clinical examination of the digestive and hepatobiliary systems in normal and pathological conditions, diagnose pathological syndromes during physical and laboratory-instrumental examination of the patient.
3. Theses of the lecture:
Esophagitis (oegorhagitis) - inflammation of the esophagus, usually affecting its mucous membrane, but in severe cases there is a defeat of its deeper layers. There are sharp, subacute and chronic esophagitis.

Cancer is one of the most common and serious diseases of the esophagus. It constitutes 20% of the structure of malignant tumors of the digestive tract. Esophageal cancer primarily affects men, usually over 55 years old.

An extensive group of diseases of the stomach includes developmental anomalies, various functional disorders of its motor and secretory functions (dyskinesias, functional gastric hypersecretion, and achylia), inflammatory diseases (acute and chronic gastritis), peptic ulcer disease, polyps, benign and malignant tumors, stomach diverticula. Specific lesions of the stomach may also occur in tuberculosis, syphilis. The most common stomach diseases include gastritis, peptic ulcer disease, and gastric cancer.
Digestive insufficiency (disorder) (syn.: malabsorption syndrome) — a symptom complex characterized by digestive disorders in the digestive tract.
The following forms of digestive disorders are distinguished: 1) disorders of predominantly cavity digestion, which are often referred to as dyspepsia in the broad sense of the word (from Greek dyspepsia: the prefix dys, meaning a disturbance of function, "difficulty", pepsis — digestion); 2) disorders of intestinal wall digestion; 3) mixed forms. Also, acute, subacute, and chronic forms of digestive disorders (dyspepsias) are distinguished.

Syndrome of intestinal malabsorption (syn.: malabsorption syndrome) - a symptom complex arising from a disturbance of absorption processes in the small intestine.
It often combines with the syndrome of digestive insufficiency.
Under duodenitis, an acute or chronic (more often) disease is understood, in which inflammation and structural reorganization of the mucous membrane of the duodenum are noted.

Chronic enteritis (enteritis chronicus) is a long-lasting disease characterized by inflammatory and dystrophic changes in the mucosa of the small intestine.

Chronic colitis (colitis chronica) refers to a long-lasting disease where inflammatory and dystrophic changes predominantly develop in the mucosa of the large intestine.

Cholecystitis (cholecystitis) — inflammation of the gallbladder. This disease is quite common, more often occurs in women.

Chronic cholecystitis may occur after an acute episode, but more often it develops independently and gradually.

Pancreatic exocrine insufficiency - a syndrome characterized by a disturbance in the secretion of pancreatic juice containing the main digestive enzymes: trypsin, lipase, amylase, and others (more than 15), as well as bicarbonates, providing the optimal pH for the action of these enzymes. Pancreatic exocrine insufficiency may be primary (congenital) and secondary (acquired).

Pancreatitis (pancreatitis) - inflammation of the pancreas. Acute and chronic pancreatitis are distinguished.

Chronic pancreatitis (pancreatitis chronicus) most often occurs in women aged 30-70. It may develop after an acute pancreatitis or directly as chronic due to the influence of the same etiological factors as the acute one. Chronic pancreatitis in men is more often a consequence of chronic alcoholism.

Jaundice (icterus) — jaundiced discoloration of the skin and mucous membranes, caused by increased bilirubin content in tissues and blood. The serum taken for examination from patients with true jaundice also acquires a more or less saturated yellow color.

Jaundice is accompanied by, and sometimes preceded by, changes in the color of urine, which takes on a dark yellow or brown (beer-like) hue, and feces. In some cases, they become lighter or completely decolorized, in others, they acquire a rich dark brown color. Jaundice can occur quickly, within 1-2 days, reaching a significant degree of intensity, or gradually and be less pronounced (subicterіcity). Often, the patients themselves (or those around them) notice the appearance of a jaundiced discoloration of the skin, which prompts them to seek medical attention. In some cases, jaundice may be accompanied by painful skin itching, skin hemorrhagic bleeding from the nose and gastrointestinal tract.

Jaundice can occur in many liver, bile duct, and blood system diseases, as well as in diseases of other organs and systems in which bilirubin metabolism is secondary impaired. A number of clinical symptoms associated with jaundice allow to some extent to assume its type and the cause of occurrence in each case of the disease. Accurate diagnosis of various types of jaundice is possible with the help of special laboratory research methods.

Portal hypertension is characterized by a persistent increase in blood pressure in the portal vein and manifests as the expansion of portocaval anastomoses, ascites, and enlargement of the spleen.

Portal hypertension arises due to the obstruction of blood outflow from the portal vein caused by external compression (by a tumor, enlarged lymph nodes of the portal liver in metastases of cancer, etc.) or obliteration of part of its intrahepatic branches in chronic damage to the parenchyma of the liver (in cirrhosis), or thrombosis of the portal vein or its branches. In liver cirrhosis, the proliferation and subsequent scarring of connective tissue in the place of dead liver cells lead to the narrowing or complete obliteration of part of the liver sinusoids and intrahepatic vessels. As a result, an obstacle to blood flow is created, portal pressure increases, and the outflow of blood from the abdominal organs is disrupted. Under these conditions, the transudation of fluid from the vascular bed into the abdominal

cavity increases, and ascites forms. The development of ascites in liver cirrhosis is also influenced by a decrease in plasma oncotic pressure due to a disturbance in the synthesis of albumin in the liver; the retention of sodium and water is significant due to increased production of aldosterone by the adrenal glands (secondary hyperaldosteronism) and insufficient inactivation of it and the antidiuretic hormone in the liver.

Ascites onset depends on the degree of development of collateral circulation — from the number of portocaval anastomoses. Long-term portal circulation disturbances may be compensated by the fact that blood from the portal vein can flow into the upper and lower venae cavae through the existing normal anastomoses. In portal hypertension, these anastomoses develop very strongly.

Hepatolienal syndrome — is characterized by simultaneous enlargement of the liver and spleen in the primary lesion of one of these organs. The general involvement of these organs in pathological processes (liver disease, blood system, some infections, intoxications) is explained by the richness of their reticuloendothelial tissue. In some cases (for example, in liver vein thrombosis), simultaneous enlargement of the liver and spleen is due to venous stasis in them. The hepatolienal syndrome can be detected by palpation, ultrasound, and scanning methods.

Liver failure (insufficientia hepatis) — a term adopted by clinicians to denote disorders of liver function of varying severity. Severe acute and chronic liver diseases due to pronounced dystrophy and death of hepatocytes, despite the significant compensatory capabilities of this organ, are accompanied by profound disturbances in its numerous and extremely important functions for the body.

Liver coma (coma hepatica) — the extreme stage of liver failure. The pathogenesis of liver coma boils down to severe self-poisoning of the body due to nearly complete cessation of liver function. Poisoning is caused by unneutralized products of intestinal (bacterial) protein decomposition, end products of metabolism, and especially ammonia. Phenols also have toxic effects. In liver failure, other toxic substances accumulate in the blood, electrolyte metabolism is disturbed, and in severe cases, hypokalemia and alkalosis may occur.

Among liver diseases, inflammatory lesions are most common - acute and chronic hepatitis, as well as cirrhosis and hepatosis. Primary liver cancer is rare, but metastases of malignant tumors from various organs to the liver are a very common occurrence. Echinococcus is usually localized in the liver: it is also affected by opisthorchiasis and some other parasitic invasions.

4. Illustrative material: presentation.
5. Literature: indicated on the last page of the syllabus
6. Review questions (feedback):

1. What are the syndromes you know that are characteristic of esophageal diseases?
2. What causes the onset of dysphagia syndrome?
3. What caused the occurrence of gastric dyspepsia syndrome
4. What causes the occurrence of the syndrome of the extension of the pancreas

What syndromes do you know that are characteristic of gallbladder and pancreas diseases? What is jaundice? Causes, symptoms, and types.
7. What methods of laboratory and instrumental diagnostics for jaundice do you know?
8. How does the syndrome of liver cell insufficiency manifest itself. Causes, clinical symptoms?
9. What are the methods of laboratory and instrumental diagnosis of liver cell insufficiency?
10. What is portal hypertension?

Lecture №3

1. Topic 3: Methods of research of patients with endocrine pathology. Diagnostic significance. Leading clinical syndromes (hypothyroidism) in endocrinology. Leading clinical syndromes (hypoglycemia) in endocrinology.
2. Objective: To train the student to detail complaints, evaluate anamnestic data, provide a clinical assessment based on the application of clinical research methods in combination with the use of laboratory diagnostic methods, and identify the main clinical syndromes in hypothyroidism and hypo-glycemia.
3. Lecture outline:

Diffuse toxic goiter (synonyms: Basedow's disease, morbus Basedowi) is a diffuse enlargement of the thyroid gland accompanied by increased secretion of thyroid hormones. Diffuse toxic goiter occurs in 0.2-0.5% of the population, mainly in individuals aged 20-50 years, with women being several times more likely than men.

Hypothyroidism (hypothyreosis) is a disease characterized by hypofunction of the thyroid gland. The term "myxedema" (literally "mucoid edema") traditionally refers to the most severe forms of hypothyroidism, which are accompanied by widespread mucoid edema. The disease is more commonly found in women aged 40-60 years. Its share in the overall structure of endocrine diseases has significantly increased in recent years.

Endocrine disease characterized by a syndrome of chronic hyperglycemia, which is a consequence of insufficient production or action of insulin, leading to a disturbance of all types of metabolism, primarily carbohydrate metabolism, damage to blood vessels (angiopathies), nervous system (neuropathies), as well as other organs and systems. Two main types of diabetes mellitus: insulin-dependent diabetes mellitus (IDDM) or type 1 diabetes and insulin-independent diabetes mellitus (NIDDM) or type 2 diabetes. In IDDM, there is a sharply expressed deficiency of insulin secretion by the β-cells of the islets of Langerhans (absolute insulin deficiency), patients require constant, lifelong insulin therapy, i.e., they are insulin-dependent. In NIDDM, the main feature is the deficiency of insulin action, the development of peripheral tissue resistance to insulin (relative insulin deficiency). Substitute insulin therapy in NIDDM is usually not performed. Patients are treated with diet and oral hypoglycemic agents. In recent years, it has been established that in NIDDM, there is a disturbance of the early phase of insulin secretion. All symptoms of

diabetes can be divided into two groups: symptoms of hyperglycemia and symptoms specific to type 1 or type 2 diabetes.

The symptoms of hyperglycemia include: thirst (during the decompensation period of diabetes, patients may drink 3-5 liters and more fluid per day, often they consume a significant amount of water at night; the higher the hyperglycemia, the more pronounced the thirst), polyuria, skin itching, pronounced weakness in general and muscle weakness (due to insufficient production of energy, glycogen, and protein in muscles), dry mouth (due to dehydration and reduced function of salivary glands), and increased susceptibility to various infections.

4. Illustrative material: presentation.
5. Literature: indicated on the last page of the syllabus
6. Control questions (feedback):

1. What is hyperthyroidism?
2. What characterizes hypothyroidism?
3. What method can be used to detect hyperthyroidism?
4. What laboratory and instrumental studies are used for the diagnosis of diffuse goiter?

What is hyperglycemia?

What characterizes hypoglycemia?

7. What method can be used to detect hyperfunction of the pancreas?
8. What laboratory and instrumental studies are used for the diagnosis of diabetes mellitus?