Ministry of Healthcare of Ukraine

Poltava State Medical University

Approved
at the meeting of Internal Medicine №1
Department "____"_____
Protocol № ____ from _____
The Head of the Department
Associate Professor Maslova H.S.
_____

Methodical guidelines
for students' self-studying to prepare
for practical (seminar) classes and on the lessons

Academic discipline	Internal medicine
Module №	1
Topic of the lesson	**Chronic diseases of the colon: non-specific colitis and Crohn's disease**
Course	IV
Faculty	of foreign students training

1. **Relevance of the topic**: The world-wide prevalence of IBS is 11,2%. Inflammatory bowel disease refers to two chronic idiopathic inflammatory disorders, **ulcerative colitis and Crohn's disease**. These disorders are diagnosed by characteristic clinical, endoscopic, and histologic features. Inflammatory bowel disease occurs worldwide.

2. Certain aims:

- To be able to assess the typical clinical picture of intestinal disorders, to determine tactics of treatment and prophylaxis;
- To select the information indicating the presence of intestinal disorders in a patient from the data history;
- To create a scheme of diagnostic search;
- To identify the signs of intestinal disorders in an objective study of the patient (general examination, palpation, percussion, auscultation);
- To analyze and interpret the changes in the results of the laboratory and instrumental methods of investigation, depending on the course of the disease;
- To formulate and justify a preliminary diagnosis of intestinal disorders according to classification;
- To conduct differential diagnostics of diseases with the similar clinical picture;
- To develop a strategy of treatment depending on the disease and the existing complications;
- To provide medical care;
- To assess the patient's prognosis and to propose a plan of preventive actions;
- To apply deontological communication skills with patients.

3. **Basic knowledge, abilities, skills required to study the topic (interdisciplinary integration).**

Names of previous disciplines	Obtained skills
1. Anatomy 2. Histology 3. Physiology 4. Pathology 5. Radiology 6. Propaedeutic internal medicine 7. Pharmacology	To describe the structure of the gastrointestinal tract, blood supply and innervation; to establish the preliminary diagnosis, to use additional methods of examination and interpret their data to make final diagnosis; to manage the patient with ulcerative colitis and Crohn's disease; to identify markers of gastrointestinal tract function and to know their normal values; to draw a scheme of patient's follow-up; to compare ulcerative colitis and Crohn's disease with other diseases with the same symptoms; to demonstrate practical skills during physical examination of the patient, analyzing the clinical and

	laboratory results.

4. Tasks for self-studying to prepare for the lesson and on the lesson.

4.1. List of main terms, parameters, characteristics that should be learnt by student during preparation for the classes:

Term	Definition
Ulcerative colitis	is a heterogeneous chronic inflammatory bowel disorder that may affect the colon and rectum.
Crohn's disease	is a heterogeneous inflammatory transmural, granulomatosis bowel disorder that may affect different sites of the gastrointestinal tract.
Toxic megacolon	is the clinical term for an acute toxic colitis with dilatation of the colon which occurs when inflammation spreads into the deeper layers of colon.

4.2. Theoretical questions for the lesson:

1. Give the definitions of non-specific colitis, Crohn's disease.
2. Specify the risk factors of non-specific colitis, Crohn's disease.
3. Name the pathophysiological mechanisms of non-specific colitis, Crohn's disease.
4. Name the diagnostic criteria of non-specific colitis, Crohn's disease.
5. What are the endoscopic characteristics of non-specific colitis, Crohn's disease?
6. Modern classification of non-specific colitis, Crohn's disease.
7. Specify the principles and features of non-specific colitis, Crohn's disease pharmacotherapy according to modern recommendations.
8. What lifestyle modifications should be recommended for patients with non-specific colitis, Crohn's disease?

4.3. Practical work (tasks), performed on the lesson:

1. Interpret changes in general blood and biochemical blood tests in case of non-specific colitis, Crohn's disease.
2. Perform survey and physical examination of the patient and make preliminary diagnosis in case of non-specific colitis, Crohn's disease.
3. Manage the patient with suspected of non-specific colitis, Crohn's disease prescribe relevant laboratory and instrumental investigations and further treatment.
4. Interpret data of lower endoscopy with biopsy the intestines.
5. Analyze the radiological picture of the abdominal cavity.

Topic Content:

INFLAMMATORY BOWEL DISEASE

Definition. Inflammatory bowel disease refers to two chronic idiopathic inflammatory disorders, **ulcerative colitis and Crohn's disease**. These disorders are diagnosed by characteristic clinical, endoscopic, and histologic features.

Ulcerative colitis is a heterogeneous chronic inflammatory bowel disorder that may affect the colon and rectum.

Crohn's disease is a heterogeneous inflammatory transmural, granulomatosis bowel disorder that may affect different sites of the gastrointestinal tract.

Ulceration from Crohn's disease may be transmural and may occur anywhere in the gastrointestinal tract, most commonly in the distal ileum and proximal colon. The hallmark of ulcerative colitis is continuous ulceration starting in the rectum and limited to the colon. Approximately 10% of patients with inflammatory bowel disease have *indeterminant colitis*, a term used when Crohn's colitis cannot be differentiated from ulcerative colitis.

Epidemiology. Inflammatory bowel disease occurs worldwide, but the highest incidence is found in North America, the United Kingdom, and northern Europe. The incidence of Crohn's disease has risen slowly over time, although ulcerative colitis remains slightly more prevalent than Crohn's disease. Crohn's disease and ulcerative colitis may occur at any age. The peak incidence of Crohn's disease occurs between age 15 and 30 years of age, with a second peak in the seventh decade, more often in female patients. Ulcerative colitis also has a bimodal peak age distribution, with an initial peak between 20 and 40 years of age and second smaller peak beyond the seventh decade.

Etiological and risk factors. Crohn's disease and ulcerative colitis are polygenic disorders, for which family history is a risk factor. Although the trigger for inflammatory bowel disease is not known, three major pathways likely activate the disease: a genetic predisposition, immune dysregulation, and an environmental antigen.

The initial gene associated with Crohn's disease is NOD2/CARD15, located on chromosome 16 (16q12), and is expressed in intestinal epithelial Paneth cells, macrophages, and dendritic cells. Activation of NOD2 leads to activation of NF-κB, which mediates transcription of numerous proinflammatory cytokines. A mutation in the leucine-rich domain of the NOD2 protein, which interacts with bacterial lipopolysaccharide, leads to failure in activation of NF-κB and is associated with the development of Crohn's disease. Toll-like receptor-4 gene polymorphisms are associated with both Crohn's disease and ulcerative colitis. Polymorphisms of the interleukin-23 (IL-23) receptor gene are associated with ulcerative colitis and a varied risk of Crohn's disease. Human leukocyte antigen (HLA) class II polymorphisms, especially in HLA-DR molecules, may confer increased risk for ulcerative colitis and possibly Crohn's as well.

Cigarette smoking is associated with a worse prognosis in patients with Crohn's disease but an improved course in ulcerative colitis. Nonsteroidal anti-inflammatory drugs (NSAIDs) appear to be associated with exacerbations of disease, although evidence for this is less definitive. Appendectomy has been suggested as protective against the development of ulcerative colitis. Diet does not clearly affect the course of inflammatory bowel disease.

Pathogenesis. A possible explanation is that the inability of the innate immune system to clear microbial antigens, combined with increased intestinal epithelial permeability to antigens, eventually leads to an overactive adaptive immune response. Microbes likely play a part in the development of inflammatory bowel disease. Both Crohn's disease and ulcerative colitis are products of a dysregulated innate immune system that triggers T cells and a humoral response. TH17 cells, which are activated in Crohn's disease and ulcerative colitis, are stimulated by IL-23, which is produced by antigen-presenting cells. Variations in single-nucleotide polymorphisms of the gene encoding the receptor for IL-23 are associated with Crohn's disease.

Crohn's Disease. As a result of a dysregulated immune system, patients with Crohn's disease develop aphthous ulcers, which are superficial mucosal ulcers. As the disease progresses,

the ulceration becomes deeper, transmural, and discrete; it may form a serpiginous pattern and may occur anywhere from the esophagus to the anus in a noncontinuous pattern. The most common location for ulceration is the ileocecal region. In some patients, chronic disease leads to the formation of fibrotic strictures, and approximately 30% of patients may develop fistulas. In early Crohn's disease, the histopathology is characterized by an acute inflammatory infiltrate in the lamina propria, with cryptitis, and crypt abscesses. Later in the disease process, the crypt architecture becomes distorted, with a lymphocytic infiltrate and a resulting branching and shortening of the crypts. Noncaseating granulomas, which are present in up to 15% of endoscopic biopsy specimens and as many as 70% of surgical specimens, are not unique to Crohn's disease but help confirm the diagnosis when other classic features are present. Surgical specimens also may show transmural intestinal wall inflammation and fat creeping on the serosal surface.

Ulcerative Colitis. In mild ulcerative colitis, the mucosa is granular, hyperemic, and edematous in appearance. As the disease becomes more severe, the mucosa ulcerates, and the ulcers may extend into the lamina propria. Ulcerative colitis starts in the rectum and may extend proximally in a continuous pattern, but it affects only the colon. Pseudopolyps may form owing to epithelial regeneration after recurrent acute attacks. With chronic disease, the colonic mucosa may lose the normal fold pattern, the colon may shorten, and the colon may appear narrowed. In early ulcerative colitis, the histopathology is characterized by epithelial necrosis, an acute inflammatory infiltrate in the lamina propria, cryptitis, and crypt abscesses. In chronic disease, a predominant lymphocytic infiltrate and distortion of crypt architecture are seen.

Classification. Periods: exacerbation, remission. All complaints should be mentioned in diagnosis.

Montreal classification (2005):

Crohn's Disease (CD).

- Subdivision of the group based on age
  - A1 - below or equal to 16 years;
  - A2 - 17 to 40 years;
  - A3 above 40.
- Subdivision of the group based on location
  - L1 - ileal,
  - L2 - colonic,
  - L3 - ileocolonic,
  - L4 - isolated upper disease.
- Subdivision of the group based on behavior
  - B1 - non-stricturing, non-penetrating,
  - B2 - stricturing,
  - B3 - penetrating, p perianal disease modifier
  - P – perianal disease.

Ulcerative Colitis (UC).

- Subdivision of the group based on extension
  - E1 - Ulcerative proctitis, involvement limited to the rectum (that is, proximal extent of inflammation is distal to the rectosigmoid junction);
  - E2 - Left sided UC (distal UC), involvement limited to a proportion of the colorectum distal to the splenic flexure;

- E3 - Extensive UC (pancolitis), involvement extends proximal to the splenic flexure);

- Subdivision of the group based on severity

- S0 - Clinical remission, asymptomatic;
- S1 - Mild UC, passage of four or fewer stools/day (with or without blood), absence of any systemic illness, and normal inflammatory markers (ESR);
- S2 - Moderate UC, passage of more than four stools per day but with minimal signs of systemic toxicity;
- S3 - Severe UC, passage of at least six bloody stools daily, pulse rate of at least 90 beats per minute, temperature of at least 37.5˚C, haemoglobin of less than 10.5 g/100 ml, and ESR of at least 30 mm/h).

NB! Additional classification of CD: inflammatory/fibrostenotic/with fistulas. By severity: severe (diarrhea more than 6 times a day, fever more than 37,5, pulse rate more than 90, anemia (HB less than 75% of normal rate), BSR more than 50mm/h, intestinal complications); moderate (features between severe and mild); mild (diarrhea less than 4 times a day, normal temperature, normal pulse rate, anemia (Hb more than 100g/l), BSR less than 30 mm/h). Activity of process should be established by *index of Best and CDAI index*!

Additional classification of UC: acute/chronic. Activity should be evaluated by *index of Meyo*!

Clinical features.

Crohn's Disease. The terminal ileum is affected in about 70% of patients with Crohn's disease. Primary ileal disease occurs in 30% of patients, whereas ileocolonic disease occurs in 40%.

Symptoms may include abdominal pain, typically in the right lower quadrant, diarrhea, hematochezia, fatigue, palpated abdominal infiltrates, perianal fistulas and absceses. With more severe disease, fever and weight loss may be present. Some patients may present with obstructive symptoms, such as abdominal pain, abdominal distention, and nausea. Only approximately 5% of patients develop Crohn's disease in the upper gastrointestinal tract, and esophageal Crohn's disease occurs in less than 2% of patients.

Fever may be present if there is an abscess.

Fistulas, which are internal tracks that can occur anywhere in the gastrointestinal tract and connect to various sites, occur in 20 to 40% of Crohn's patients. External fistulas, which present with symptoms of fluid discharge from the cutaneous opening, can be enterocutaneous, or perianal. Internal fistulas can be enteroenteric, rectovaginal, or enterocolonic.

Ulcerative Colitis. As with Crohn's disease, symptoms and signs of ulcerative colitis depend on the extent and severity of disease. At the time of diagnosis, 14 to 37% of patients have pancolitis, 36 to 41% have disease extending beyond the rectum, and 44 to 49% have proctosigmoiditis.

Symptoms include hematochezia, diarrhea, tenesmus, passage of mucus, urgency to defecate, and abdominal pain. In the setting of proctitis or proctosigmoiditis, patients may have constipation with difficulty defecating. With more extensive and severe colonic involvement, patients may also have weight loss and fever. Patients may also have nausea and vomiting because of abdominal pain, fatigue because of anemia, and peripheral edema because of hypoalbuminemia.

Physical Examination. Oral ulcers may be present in Crohn's disease. The location of abdominal tenderness usually reflects the location of intestinal involvement. In Crohn's disease, abdominal tenderness is classically in the right lower quadrant and may include fullness or a

mass depending on the severity of inflammation. Peritoneal signs may occur when penetrating Crohn's disease causes intestinal perforation. Rectal examination may reveal skin tags, hemorrhoids, fissure, and fistulas.

Diagnosis. When diarrhea is the predominant symptom, the initial evaluation should include a thorough medical history, testing for infectious colitis, and screening for endocrine-metabolic disorders such as hyperthyroidism and hypocalcemia. Infections with organisms such as Shigella, Amoeba, Giardia, Escherichia coli, and Campylobacter can be accompanied by bloody diarrhea, abdominal cramps, and an endoscopic picture identical to ulcerative colitis. Stool studies are needed to diagnose or exclude these infections. If hematochezia or abdominal pain are the predominant symptom, the differential diagnosis is broad.

Endoscopic Evaluation. In a patient with symptoms suggestive of inflammatory bowel disease and no evidence for an infection to explain their symptoms, endoscopic evaluation is essential. Colonoscopy is the initial endoscopic test for patients who present with lower gastrointestinal symptoms such as diarrhea and hematochezia, except in the presence of acute severe peritoneal symptoms. Small bowel imaging (such as small bowel follow-through or computed tomography [CT] enterography) may also be needed to determine whether there is small bowel disease or to determine the distribution of disease. Capsule endoscopy is useful if all other endoscopic and radiologic testing is nondiagnostic, but Crohn's disease of the small bowel is still suspected. Findings on capsule endoscopy should be followed by endoscopy to obtain biopsies. Capsule endoscopy should not be performed if Crohn's disease is complicated by a known small bowel stricture.

Crohn's Disease. Early endoscopic findings in Crohn's disease include superficial small mucosal ulcers, also called aphthous ulcers. As the severity of Crohn's disease progresses, the ulceration becomes deeper and may become round, linear, or serpiginous. A cobblestone appearance of the mucosa is caused by intersecting longitudinal and transverse ulcers, with "stone" areas representing normal mucosa. Areas of ulceration, which are typically interspersed with normal "skip" areas, may occur anywhere from the esophagus to anus but are most common in the ileocecal region. Isolated colonic disease occurs in 25% of patients, and 60% will have rectal involvement, thereby making it at times difficult to differentiate from ulcerative colitis. The diagnosis of inflammatory bowel disease is contingent on accurate histopathology, so biopsy of the affected area is key. Findings of an inflammatory infiltrate in the lamina propria and distortion of the crypt architecture support the diagnosis. The diagnosis of Crohn's disease may be made by histopathology alone if noncaseating granulomas are seen, but granulomas are rarely found on endoscopic biopsies. The diagnosis of Crohn's disease is usually based on a combination of information gleaned from histopathology, colonoscopy, and small bowel imaging.

A skipped pattern of ulceration, ulceration in the small bowel or upper gastrointestinal tract or the presence of fistulas supports the diagnosis of Crohn's disease. Colonic and small bowel ulceration occur in several other disorders, including infections that may not be detected by routine stool studies (such as enterohemorrhagic Escherichia coli), vascular disorders, immune-related enterocolitis, neoplasia, diverticulitis, radiation, and medications such as NSAIDs.

Ulcerative Colitis. The diagnosis of ulcerative colitis is based on endoscopic findings and histopathology. Early in the disease process, patients develop diffuse mucosal erythema with loss of the normal mucosal vascular pattern. In mild disease, the mucosa may have a granular and edematous appearance. As the disease becomes more severe, the mucosa becomes more friable,

bleeds easily when the mucosa is touched, and may eventually ulcerate. Endoscopic findings, which start in the rectum and may extend proximally in a continuous pattern, affect only the colon. Pseudopolyps may form owing to epithelial regeneration after recurrent attacks in patients with long-standing disease. With chronic disease, the colonic mucosa may lose its normal fold pattern, and the colon may shorten and appear narrowed. Features such as crypt distortion, continuous mucosal inflammation starting from the rectum, absence of granulomas, and absence of small bowel disease are all consistent with ulcerative colitis. Early in the disease process, chronic inflammatory findings, such as crypt distortion, may not be present, and the diagnosis may be more difficult to confirm.

Radiologic imaging is vital and should almost always be obtained when inflammatory bowel disease, particularly Crohn's disease, is suspected. Barium studies such as an upper gastrointestinal series, small bowel followthrough, and barium enema are usually necessary to diagnose fistulas and strictures in Crohn's disease. If Crohn's disease is suspected by colonoscopic examination, a small bowel follow-through is generally obtained to assess the extent, severity, and type of disease (strictures and fistulas) in the small intestine.

CT enterography and magnetic resonance imaging (MRI) enterography are alternatives to a small bowel follow-through. CT enterography may be preferred for the detection of abdominal abscesses, whereas MRI may be preferred for the detection of perineal abscesses and strictures.

Laboratory Findings. Anemia may result from chronic disease, blood loss or nutritional deficiencies of iron, folate, or vitamin B12. A modestly elevated leukocyte count is indicative of active disease, but a marked elevation suggests an abscess or another suppurative complication. The erythrocyte sedimentation rate and C-reactive protein are nonspecific serum inflammatory markers that are sometimes used to monitor the activity of disease. Hypoalbuminemia is an indication of malnutrition.

Serologic markers are supportive but may not be used independently to diagnose inflammatory bowel disease.

Complications.

	CROHN'S DISEASE	**ULCERATIVE COLITIS**
Ocular disorders (uveitis, episcleritis)	+	+
Arthropathy	+	+
Oral ulcers	+	-
Skin disorders (pyoderma gangrenosum, erythema nodosum)	+	+
Nephrolithiasis	+	+
Primary sclerosing cholangitis	+	+
Bone disorders (osteoporosis, osteomalacia)	+	-
Thromboembolic disease	+	+
B12 deficiency	+	-
Toxic megacolon	More often	Rarely
Cancer	Less often	More often

Bleeding	+	+
Fistula	+	-
Stricture	+	-
Perianal disease (fissure, skin tags)	+	-

Differential diagnosis.

	CROHN'S DISEASE	**ULCERATIVE COLITIS**
Peak age of onset (years of age)	15-30, 2nd peak in the 7th decade	20-40, 2nd smaller peak beyond the 7th decade
Potential sites of gastrointestinal involvement	Esophagus to anus	colon
Skip areas	+	-
Transmural inflammation	+	-
Ulcers	Fissuring	Superficial
Wall	Thick	Thin
Dilatation	-	+
Type of ulceration	Usually discrete	Continuous
Fistula	+	-
Stricture	+	-
Perianal disease (fissure, skin tags)	+	-
Granulomas	+	-
Fibrosis	Marked	Minimal

Treatment. As the etiology of inflammatory bowel disease has not yet been clarified, casual therapy doesn't exist. Consequently, therapy is aimed to reduce or eliminate symptoms during the acute flare or exacerbation as well as to maintain remission. Surgery is employed in life-threatening situations and fistulas and abscesses.

The principal classes of drug used in both ulcerative colitis and Crohn's disease are: preparations which release (mesalazine) or split off (sulfasalazine) 5-aminosalicylic acid; topically active (budesonide) and systemically active corticosteroids (prednisolone, 6-methylprednisolone); immunosuppressives (azathioprine , methotrexate). In recent years, anti-TNF-α antibodies (infliximab, adalimumab, certolizumab and natalizumab) have been introduced in the therapy. They can be successful in corticosteroid-refractory disease. Supportive medical therapy, such as antibiotics, antidiarrheal and antispasmodic medications, may also be used.

Crohn's Disease.

Drug therapy of the acute flare (CDAI>150)

- mild to moderate activity: mesalazine "Salofalk" 3-4,5 g/day and/or budesonide "Budenofalk" 9mg/day. Involment of rectum and distal colon allows to prescribe mesalazine and corticosteroids topically (suppositories or –enemas);
- moderate to severe activity: prednisolone 60 mg/day 1 week, 40 mg/day 2nd week, 30 mg/day 3rd week, 25 mg/day 4th week, 20mg/day 5th week, 15 mg/day 6th week, 10mg/day 7th-26th week, gradual reduction after week 27.

Complicated courses of disease.
- Azathioprine 2-3 mg/kg/day;
- Antibiotics, e.g. ciprofloxacin;
- Metronidazole 500-1000 mg/day (7-10 days);
- Methotrexat;
- Anti-TNF-α antibodies. Infliximab (intravenous. Induction: 5 mg/kg IV weeks 0, 2, 6. Maintenance: 5 mg/kg IV q 8 wk5 mg/kg);
- Mercaptopurini (1,5 mg/kg/day),

Therapy for remission.
- relaps prophylaxis with mesalazine 1,5-3 g/day;
- Azathioprine in pations with frequent flares;
- light full diet;
- Colestyramine with chologenic diarrhea;
- Antidiarrheals (codeine, lomotil, loperamide);
- stop smoking.

Ulcerative Colitis.

Drug therapy of the acute flare
- mild activity: mesalazine 3x0,5 g/day (granules or tablets) or 1x3 g/day (granules) or olsalazine 3-4x0,5 g/day or sulfasalazine 3-4x1 g/day. Topical forms in proctitis and left-sided colitis can be administrated. For example, Budesonide "Budenofalk" per rectum 2-4 mg a day.
- moderate to severe activity: therapy like mild activity plus prednisolone initially 40-60 mg/day orally with weekly reduction of the daily dose by 10mg, later 5mg depending on clinical activity.
- severe activity: prednisolone dose initially 100mg or higher, divided into morning and evening dose, possibly intravenous.

Complicated courses of disease.
- Azathioprine 2-3 mg/kg/day;
- consideration of ''curative'' surgery.

Corticosteroids because their risks outweigh their benefits are not used long-term in treatment. Immunosuppressive medications such as azathioprine and biological agents such as infliximab and adalimumab are given only if people cannot achieve remission with 5-ASA and corticosteroids.

Therapy for remission.
- relaps prophylaxis with mesalazine 1-3 g/day orally or olsalazine 2x0,5 g/day or sulfasalazine 2x1 g/day (suppositories and enemas also effective with proctitis/left-sided colitis);
- light full diet.

Materials for self-control:

A. Tests and situational tasks for self-control:

1. A 20-year-old woman has a 3-4 months history of bloody diarrhea; stool examination proved negative for ova and parasites; stool cultures negative for clostridium, campylobacter and yersinia; normal small bowel series; edema, hyperemia and ulceration of the rectum and sigmoid colon seen on sigmoidoscopic examination. Choose the most probable diagnosis:

A. Gastroenteritis

B. Ulcerative colitis

C. Carcinoid syndrome

D. Zollinger-Ellison syndrome
E. Granulomatous colitis

2. Patient D., 48 years old, complains of pain in the lateral part of abdomen, that diminishes after defecation with gases, alternation of diarrhea and constipations. In the anamnesis: dysentery 2 years ago. Palpation of abdomen is painful, with abdominal murmur of colon. What method of examination is the most informative to make up the diagnosis?

A. Rectoromanoscopy
B. Rectal finger exam
C. Colonoscopy
D. Coprocytogram in dynamics
E. US examination of abdominal cavity

3. A 55-year-old female patient complains of frequent defecation and liquid blood-streaked stools with mucus admixtures, diffuse pain in the inferolateral abdomen, 7 kg weight loss over the previous month. Objectively: body temperature - 37, 9oC, malnutrition. Abdomen is soft, sigmoid is painful and spasmodic, makes a rumbling sound. What is the most likely treatment?

A. Sulfasalazine
B. Clarithromycin
C. Probiotics
D. Kreon
E. Amoxicillin

4. Inflammatory bowel disease refers to:

A) Enteritis and gastritis
B) Irritable bowel syndrome
C) Ulcerative colitis and Crohn's disease
E) Ulcerative colitis
D) All mentioned

5. A 33-year-old woman has a 3-4 months history of bloody diarrhea; edema, hyperemia and ulceration of the rectum and sigmoid colon seen on sigmoidoscopic examination. Non-specific ulcer colitis was detected. Select drug group of basic therapy:

A. Antibiotics
B. Aminosalicylates
C. Probiotics
D. Biologic agents
E. Immunomodulators

6. Drug therapy of the acute flare of Crohn's Disease, mild activity*:*

A) "Salofalk" 3-4,5 g/day
B) "Budenofalk" 60 mg/day
C) Prednisolone 60 mg/day
D) Azathioprine 2-3 mg/kg/day
E) Budesonide per os 8-12 mg/day

7. A cobblestone mucosa on lower endoscopy makes the doctor think about:
A) Non-specific ulcer colitis
B) Bacterial colitis
C) Crohn's disease
D) Irritable bowel syndrome
E) Gastroenteritis

8. Transmural inflammation is distinctive feature for:
A) Non-specific ulcer colitis
B) Bacterial colitis
C) Gastroenteritis
D) Crohn's disease
E) Irritable bowel syndrome

9. Topical forms in proctitis and left-sided ulcerative colitis can be treated with:
A) Budesonide per os 8-12 mg a day
B) Budesonide per rectum 2-4 mg a day
C) Antibiotics
D) Mesalazine per rectum 3-4 mg/kg/day
E) Mesalazine per os 6-8 mg a day

10. A 70 years old male patient complains of permanent dull pain in the mesogastral region, constipations. What obligatory examine method should be performed?
A. Scintigraphy
B. ERCPG
C. Colonoscopy
D. Liver biopsy
E. X-ray of abdominal cavity

11. A 51-year-old female patient complains of frequent defecation and liquid blood-streaked stools with mucus admixtures, diffuse pain in the inferolateral abdomen, 6 kg weight loss over the previous month. Objectively: body temperature - 37,4oC, malnutrition, skin is pale and dry. Abdomen is soft, sigmoid is painful and spasmodic, makes a rumbling sound. Liver is dense, painful, extends 3 cm below the costal margin. What is the most probable diagnosis? What additional obligatory test is necessary?

The answers for the tests:
1-B, 2-C, 3-A, 4-A, 5-C, 6-A, 7-E, 8-A, 9-B, 10-C.
11. Non-specific ulcerative colitis. Colonoscopy.

Recommended literature

I. Main:

1. Internal Medicine: in 2 books. Book 1. Diseases of the Cardiovascular and Respiratory Systems: textbook / N.M. Seredyuk, I.P. Vakaliuk, R.I. Yatsyshyn et al. Київ, Медицина., 2019. - 664 + 48 кольор. вкл.).
2. Internal medicine: Part 1 (cardiology, rheumatology, haematology): textbook for English-speaking students of higher medical schools / edited by Professor M.A. Stanislavchuk and Professor V.A. Serkova. - Vinnytsia: Nova Knyha, 2019. - 392 p.
3. Медицина за Девідсоном: принципи і практика / Навчальний посібник: пер. 23-го англ. вид.: у3 т. Т.3 С. Ралстона, Я. Пенмана, М. Стрекена, Р. Гобсона; К.: ВСВ «Медицина», 2021. – 642 с.
4. CURRENT Medical Diagnosis and Treatment 2012, Fifty-First Edition (LANGE CURRENT Series) by Stephen McPhee, Maxine Papadakis and Michael W. Rabow (Paperback - Sep 12, 2011)/
5. Побічнадіяліків – SideEffectsofMedications: навчальнийпосібнику 2 т. / зазаг.ред. В.М. Бобирьова, М.М. Потяженка. – Вінниця:
6. Cardiovascular diseases. Classification, standards of diagnosis and treatment / Edited by Academician Kovalenko V.M., Prof. Lutaia M.I., Prof. Sirenko Yu.M., Prof. Sychova O.S. – Kyiv. – 2020.
7. Perederii V.H., Tkach S.M. Principles of internal medicine. – Vol.2 / Textbook for students of higher educational institutions. – Vinnytsia: Nova knyha. – 2018.
8. Internal diseases. The textbook based on the principles of evidentiary medicine, 2018.

II. Additional literature:

1. Recommendations of the Association of Cardiologists of Ukraine for the diagnosis and treatment of chronic heart failure / Voronkov L.H. – moderator, working group of the Ukrainian Association of Heart Failure Specialists. – 2017.
2. Respiratory diseases / Ghanei M. - In Tech, 2012. - 242 p.
3. Clinical respiratory medicine / Spiro S., Silvestri G., Agusti A. - Saunders, 2012. - 1000 p.
4. Principles and practice of interventional pulmonology / Ernst A., Herth F. -Springer, 2012. - 757 p.
5. Clinical respiratory medicine / Spiro S., Silvestri G., Agusti A. - Saunders, 2012. - 1000 p.

6. Petrov Y. The chief symptoms and syndromes in patients with cardiovascular pathology : The practical handbook fur medical students / Ye. Petrov, Yu. Goldenberg, N. Chekalina; UMSA. - Poltava : TexcepBic, 2010. - 143 .
7. Gastroenterology and Hepatology Board Review: Pearls of Wisdom, Third Edition (Pearls of Wisdom Medicine) by John K. DiBaise (May 11, 2012)
8. Clinical Pulmonology 2012 (The Clinical Medicine Series) by M.D., C. G. Weber (Oct 30, 2011) - Kindle eBook
9. Clinical Nephrology 2012 (The Clinical Medicine Series) by M.D., C. G. Weber (Sep 19, 2011) - Kindle eBook
10. Clinical Nephrology 2012 (The Clinical Medicine Series) by M.D., C. G. Weber (Sep 19, 2011) - Kindle eBook
11. Hematology: Clinical Principles and Applications, 4e by Bernadette F. Rodak MS MLS (Feb 18, 2017)
12. Rheumatology, 2-Volume Set: EXPERT CONSULT - ENHANCED ONLINE FEATURES AND PRINT, 5e by Marc C. Hochberg MD MPH, Alan J. Silman MD, Josef S. Smolen MD and Michael E. Weinblatt MD (Oct 19, 2019)
13. Endocrine Pathology: Differential Diagnosis and Molecular Advances by Ricardo V. Lloyd (Nov 5, 2018)
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