

Team Medicine

Abdominal
Pain
including IBS

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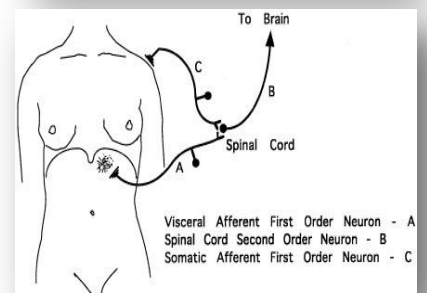
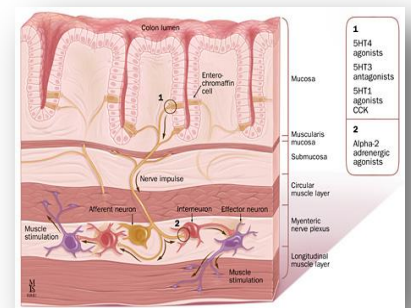


Abdominal pain (abd pain):

- One of the most common causes for OP & ER visits.
- Multiple abd and non-abd pathologies can cause abd pain, therefore an organized approach is essential.
- Some pathologies require immediate attention.
- Abdominal pain is an unpleasant experience commonly associated with tissue injury. The sensation of pain represents an interplay of pathophysiologic and psychosocial factors.

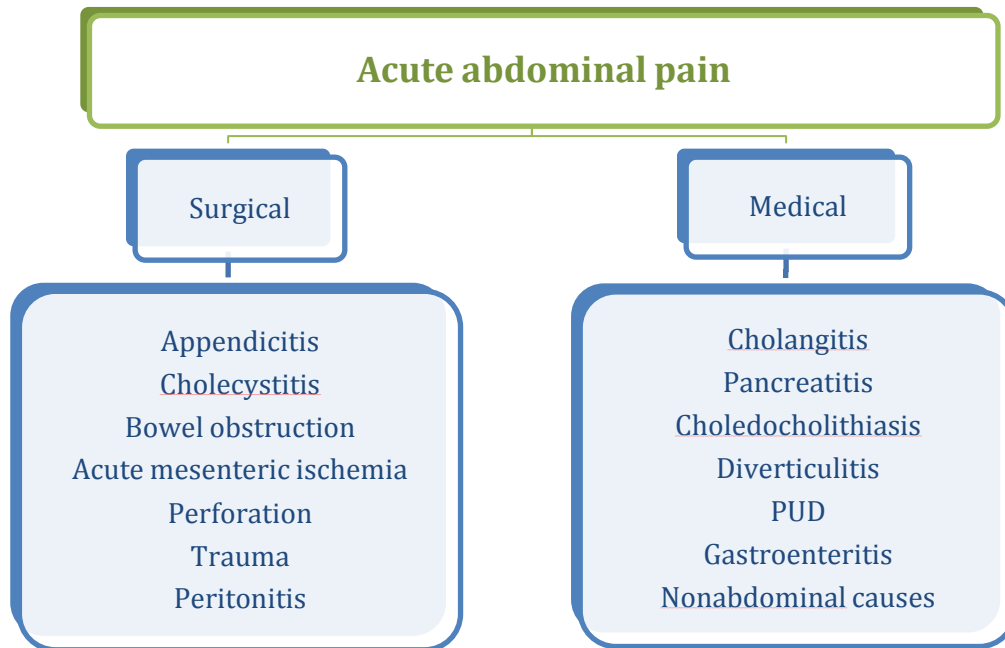
Anatomic Basis of Pain:

- Sensory neuroreceptors in abdominal organs are located within:
 - the mucosa
 - muscularis of hollow viscera
 - on serosal structures such as the peritoneum
 - within the mesentery.
- Two distinct types of afferent nerve fibers:
 - myelinated A-delta fibers
 - unmyelinated C fibers.
- **A-delta fibers** are distributed principally to **skin and muscle** and mediate the **sharp, sudden, well-localized pain** that follows an acute injury.
- **C fibers** are found in **muscle, periosteum, mesentery, peritoneum, and viscera**. Most nociception from abdominal viscera is conveyed by this type of fiber and tends to be **dull, burning, poorly localized** → **difficult to diagnose**.
- The abdominal pain receptors are directly activated by substances released in response to:
 - local mechanical injury
 - Inflammation
 - Tissue ischemia and necrosis
 - Thermal or radiation injury.



Definition:

- **Acute** abdominal pain with recent onset **within hours-days**
- **Chronic** abdominal pain is **intermittent or continuous** abdominal pain or discomfort **for longer than 3 to 6 months**.



History [Most important in diagnosing]

- **Onset**
- **Character**
- **Location**
- **Severity**
- **Duration**
- **Aggravating and alleviating factors:**
 - Eating
 - Drinking
 - Drugs
 - Body position
 - Defecation

Like in patients with chronic ischemia and peptic ulcers disease
- **Associated symptoms:**

- Anorexia	- Weight loss	- Nausea/vomiting
- Bloating	- Constipation	- Diarrhea
- Hemorrhage	- Jaundice	- Dysurea
- Menstruation		
- **PMH (Past Medical History):**
 - Similar episodes in past
 - Other relevant medical problems (**chronic**)
 - Systemic illnesses such as scleroderma, lupus, nephrotic syndrome, porphyrias, and sickle cell disease often have abdominal pain as a manifestation of their illness.
- **PSH (Past Surgical History):** Adhesions, hernias, tumors, trauma, **surgery.**
- **Drugs:** ASA, NSAIDS, antisecretory, antibiotics (**related to colitis & C.difficile**), etc.
- **GYN (gynecological history):** LMP (**last menstrual period**) , bleeding, discharge.
- **Social:** Nicotin, ethanol, drugs, stress.
- **Family:** IBD, cancer, ect.

Physical Exam:

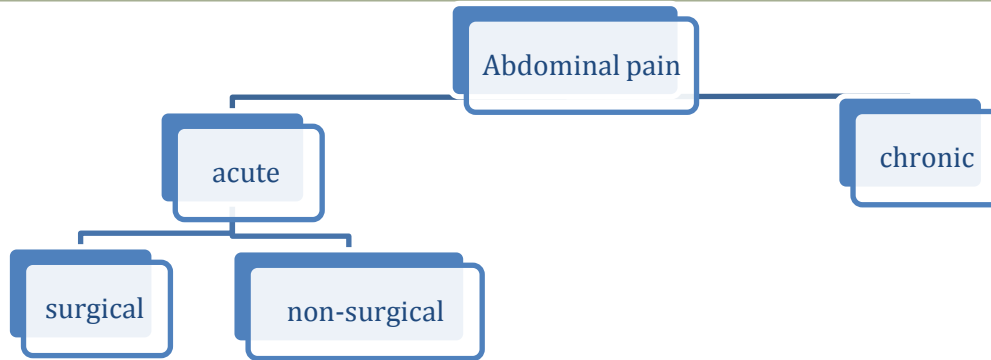
General appearance	Vital signs	Abdominal Examination		
		Inspection	Palpation	Auscultation
<ul style="list-style-type: none"> • Ambulant • Healthy or sick • In pain or discomfort • Stigmata of CLD <p>Sometimes patient might look fine even when having a serious problem (eg: thrombosis of bowel vessels, which will later give symptoms when ischemic bowel disease occurs)</p>		<ul style="list-style-type: none"> • Distention • Scars • Bruises • hernia 	<ul style="list-style-type: none"> • tenderness • guarding • Rebound • masses 	Abdominal Sounds: <ul style="list-style-type: none"> • Present • Hyper • absent

Investigations:

Laboratory Testing	Imaging	Endoscopy
CBC (anemia e.g sickle cell, infection, ischemia...)	Start with simple → Plain films (can detect abd perforation)	EGD
Liver profile (biliary problem, hepatitis)	Ultrasonography (gall stone)	Colonoscopy
Amylase (pancreatitis)	Computed Tomography (Appendicitis, pancreatitis, diverticulitis)	ERCP/EUS
Glucose (DKA can cause abd pain)	Chest X-ray showing air under diaphragm (dome shaped air-fluid level) indicating perforated peptic ulcer disease	
Urine dipsticks		
Pregnancy test (ectopic pregnancy)		



Approach:

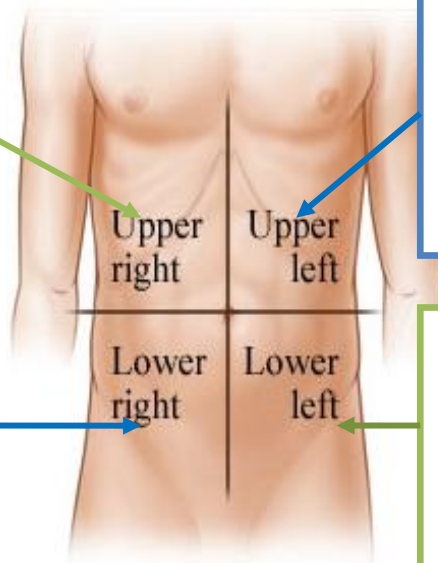


RUQ-PAIN:

- Cholecystitis.
- Cholangitis.
- Hepatitis.
- RLL pneumonia.
- Subdiaphragmatic abscess.

LUQ- PAIN:

- Splenic infarct.
- Splenic abscess.
- Gastritis/PUD.



RLQ-PAIN:

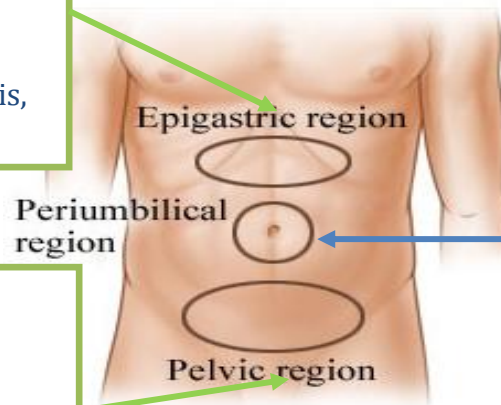
- **Appendicitis.**
- Inguinal hernia.
- Nephrolithiasis.
- IBD.
- Salpingitis.
- Ectopic pregnancy.
- Ovarian pathology.
- **Crohn's disease**

LLQ-PAIN:

- **Diverticulitis**
- Inguinal hernia
- Nephrolithiasis
- IBD
- Salpingitis
- Ectopic pregnancy
- Ovarian pathology

Epigastric-Pain:

- PUD.
- Gastritis.
- GERD.
- Pancreatitis.
- Cardiac (MI, pericarditis, etc).



Periumbelical-Pain:

- Pancreatitis.
- Obstruction.
- Early appendicitis.
- Small bowel pathology.
- Gastroenteritis.

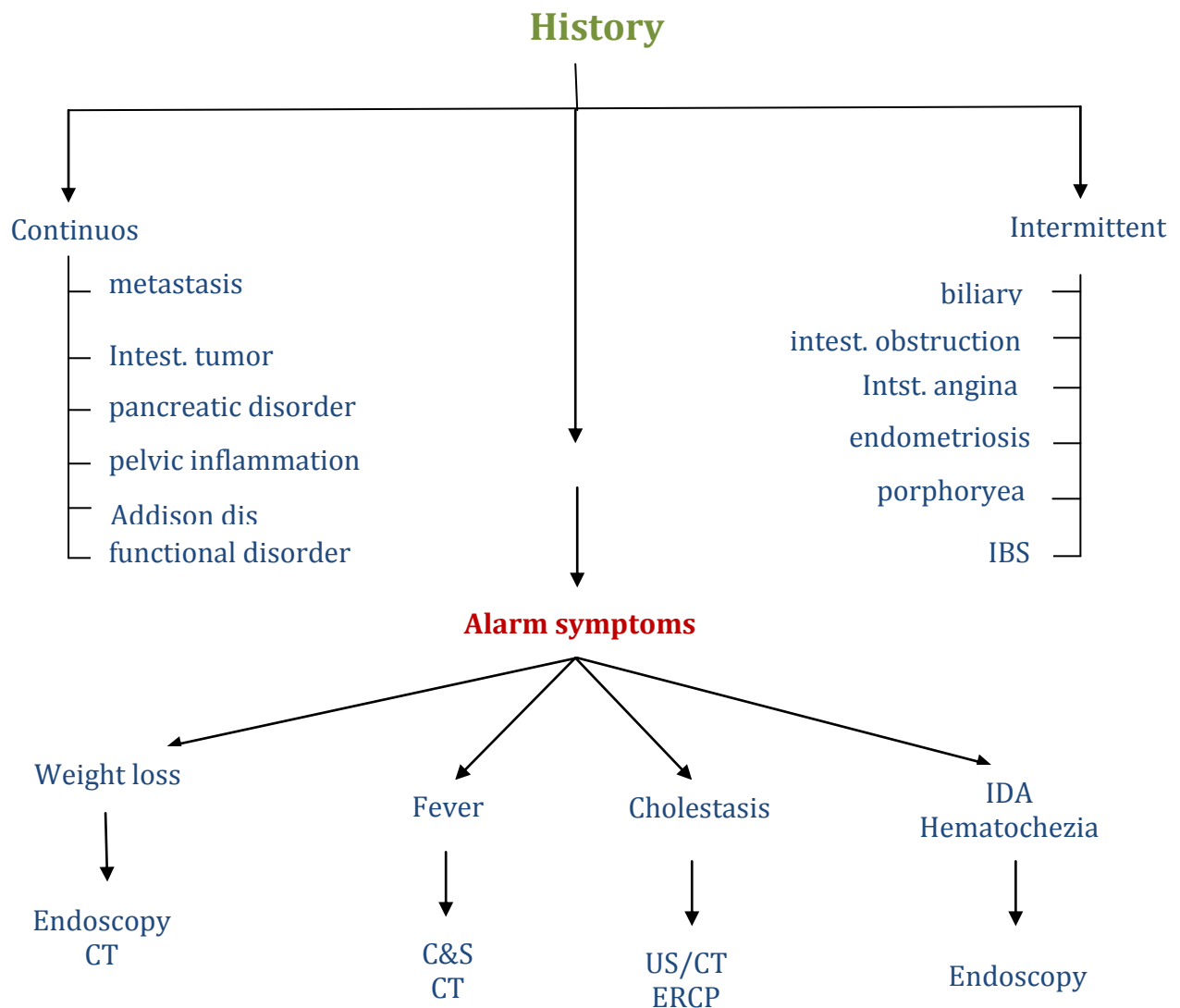
Pelvic-Pain:

- UTI.
- Prostatitis.
- Bladder outlet obstruction.
- PID.
- Uterine pathology.

Diffuse Pain:

- Gastroenteritis.
- Ischemia.
- Obstruction.
- DKA.
- **IBS.**
- Others:
 - FMF (**F**amilial **M**editerranean **F**ever)
 - AIP (**A**cute **I**ntermittent **P**orphyrria)
 - Vitamin D deficiency.
 - Adrenal insufficiency.

Chronic Abd Pain Approach:



Take Home Points (Abd Pain):

- Good history and physical exam is important
(**History is the most important step of the diagnostic approach**)
- Lab studies limitations.
- Imaging studies selection (appropriate for presentation and location).
- Alarm symptoms oriented investigations.
- Early referral of sick patients.
- Treatment initiation.

What is IBS?

- It is an intestinal disorder that causes **abdominal pain or discomfort**, cramping or bloating, and diarrhea or constipation. Irritable bowel syndrome is a long-term but manageable condition.
- 50% of patients present **<35 years old**.
- 70% of sufferers are symptom free after 5 years (**relieved after diagnosis**).
- GPs (**general practitioners**) will diagnose one new case per week... GPs will see 4-5 patients a week with IBS.
- Only about 30% of patients will consult a doctor about their symptoms.
- IBS tends to be **more common in women**, IBS is 2 to 3 times more common than in men.

Subtypes:



Associated Symptoms:

- In people with IBS in hospital OPD.
 - 25% have **depression**.
 - 25% have **anxiety**.
- Patients with IBS symptoms who do not consult doctors [population surveys] have identical psychological health to general population.
- In one study 30% of women IBS sufferers have fibromyalgia.

Diagnostic Criteria:

1. Manning's Criteria:

The positive predictive value (PPV) of the Manning criteria for the diagnosis of IBS has ranged between 65 and 75%. **(low specificity and sensitivity).**

2. Rome III Diagnostic Criteria (Latest criteria, high specificity and sensitivity):

- **At least 12 weeks (3 months) history, which need not be consecutive in the last 12 months of abdominal discomfort or pain that has 2 or more of the following:**
 - a. **Relieved by defecation.**
 - b. Onset associated with change in **stool frequency.**
 - c. Onset associated with **change in form (consistency)** of the stool.

- Supportive symptoms.

IBS is a syndrome of pain rather than diarrhea or constipation

- Constipation predominant: one or more of:
 - BM less than 3 times a week.
 - Hard or lumpy stools.
 - Straining during a bowel movement.
- Diarrhoea predominant: one or more of:
 - More than 3 bowel movements per day.
 - Loose [mushy] or watery stools.
 - Urgency.

"In IBS all laboratory tests are normal, and no mucosal lesions are found on sigmoidosc-opy. So, IBS is a clinical diagnosis and a diagnosis of exclusion."
Step-up to Medicine, 430

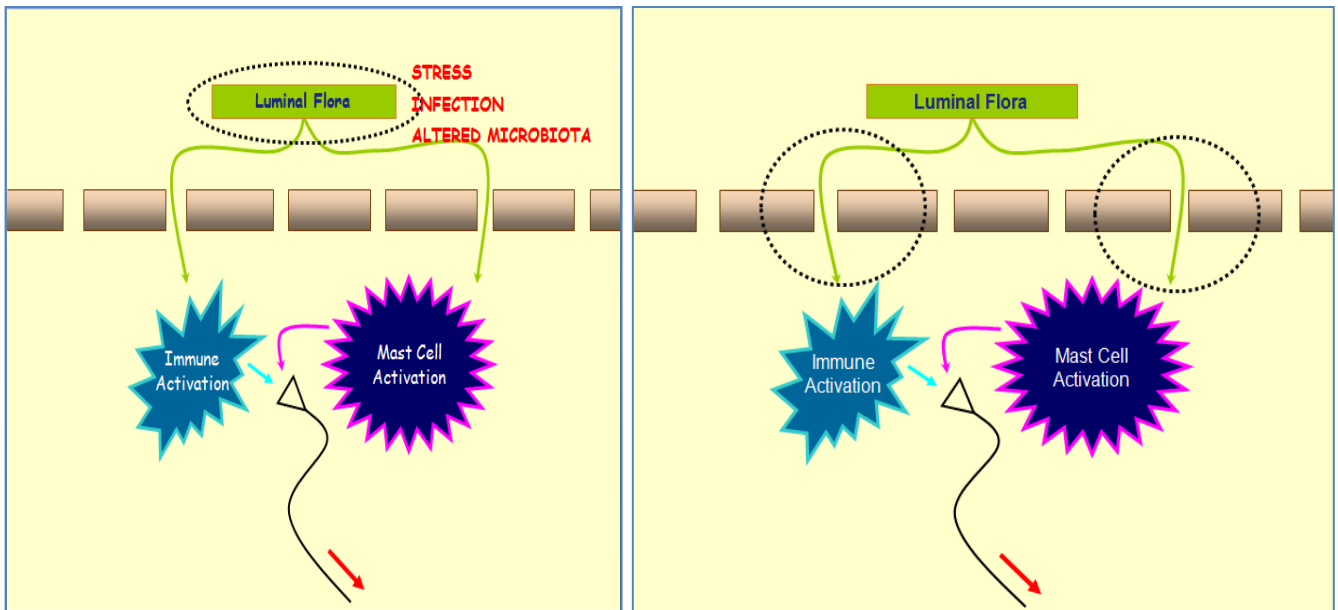
- General

- **Feeling of incomplete evacuation.**
- Passing **mucus per rectum.**
- **Abdominal fullness, bloating or swelling.**

IBS Pathophysiology:

- Heredity; nature vs nurture.
- **Dysmotility**, "spasm".
- **Visceral Hypersensitivity** (inject through the catheter to the rectum 100 cc of water then compare between IBS patient and control → IBS patients cannot tolerate the abd distension while control can tolerate rather it is huge amount of distension.)
- **Altered CNS perception** of visceral events.
- **Psychopathology.**
- **Infection**/Inflammation.
- Altered Gut Flora.

"The pathophysiology of IBS is complex, but poorly understood mechanisms are involved. Including all of these."
Medicine Recall, 240



A new paradigm: factors related to intestinal flora (stress, infection, altered microbiota) might trigger autoimmune response: immune

Systemic Immune Compartment in IBS:

Serum Cytokines:

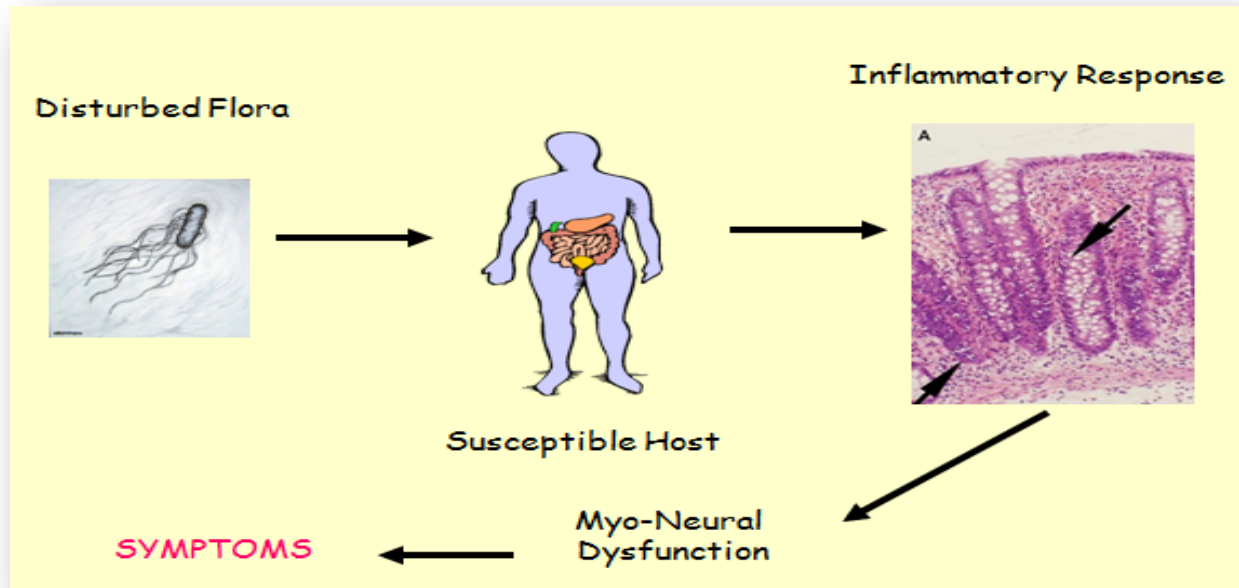
[Some research was mentioned in slides showing increase in IL-6 and sIL-6r in IBS]

Mucosal Compartment:

- Frank inflammation
- Immune Activation
 - ↑ IEL's
 - ↑ CD3+, CD25+
- Decreased IgA+ B Cells.
- Altered expression of genes involved in mucosal immunity.

Post-Infectious IBS:

- 10-14% incidence following confirmed bacterial **gastroenteritis**
- Risk factors
 - Female
 - Severe illness
 - Pre-morbid psyche
 - Depression
 - *Persistent inflammation*
 - EC cells
 - T lymphocytes



Lessons from Post infection IBS

Differential Diagnosis:

- **Inflammatory bowel disease.**
- **Cancer.**
- **Diverticulosis.**
- **Endometriosis.**
- **Celiac disease.**

Blood test for IBS:

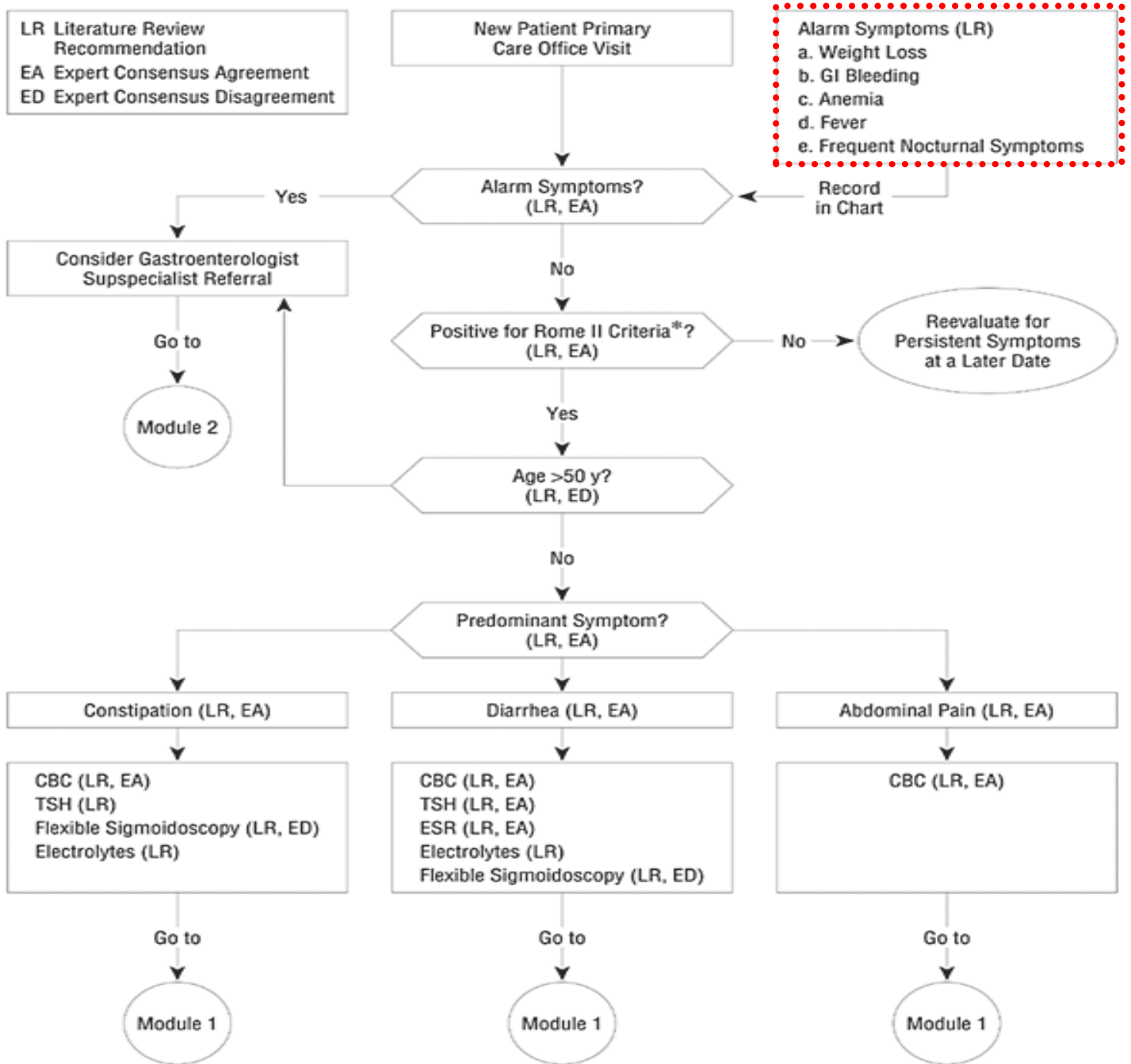
- Current best evidence does not support the routine use of blood tests to exclude organic gastrointestinal disease in patients who present with typical IBS symptoms without alarm symptoms.

Reasons to Refer:

- ▶ Age > 45 years at onset.
- ▶ Family history of bowel cancer.
- ▶ Failure of primary care management.
- ▶ Uncertainty of diagnosis.
- ▶ Abnormality on examination or investigation.

Urgent Referral:

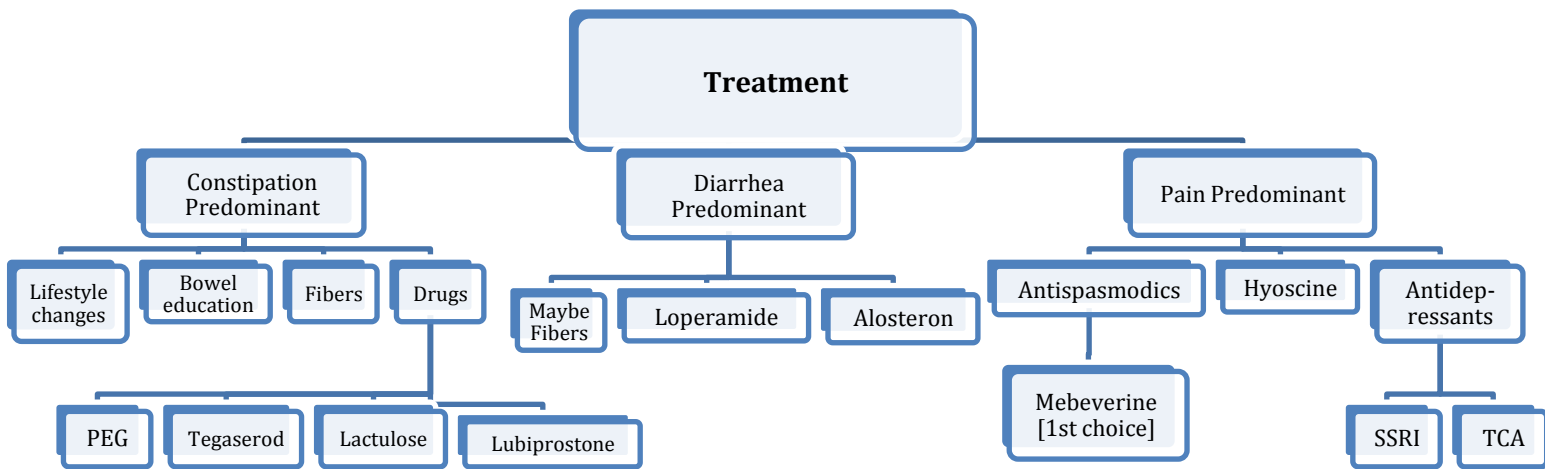
- ▶ Constant abdominal pain.
- ▶ Constant diarrhoea.
- ▶ Constant distension.
- ▶ Rectal bleeding.
- ▶ Weight loss or malaise.



Treatment:

- **Patients' concerns:**
 - Usually very concerned about a serious cause for their symptoms.
 - Take time to explore the patients agenda.
 - Remember that investigations may heighten anxiety.
- Explanation.
- Treatment approaches:
 - Placebo effect of up to 70% in all IBS treatments.
 - Treatment should depend on symptom sub-type.
 - Often **considerable overlap** between sub-groups.

Reassurance is the most important step in patient's treatment



Pain Predominant IBS Treatment:

- **Antispasmodics** will help 66%:
 - **Smooth Muscle Relaxants:**
 - **Mebeverine is probably first choice.**
 - Some patients improve particularly those whose symptoms are induced by meals.
 - A data from studies involving 12 different antispasmodic agents demonstrated modest improvements in global IBS symptoms and abdominal pain.
 - However, up to 68% of patients suffered side effects when given the high dose required to improve abdominal pain .
- **Hyoscine (anticholinergic)** 10mg qid can be added.
- **Antidepressants:**
 - Tricyclic Antidepressants:
 - TCAs likely modulate pain both centrally and peripherally
 - The best data was from a study evaluating desipramine.
 - This highlights the fact that if a patient can tolerate some of the side effects of a TCA, then he or she is more likely to note an improvement in chronic abdominal pain compared with a patient treated with placebo

- Selective Serotonin Reuptake Inhibitors (SSRIs):
 - 2 Studies conducted involved fluoxetine, paroxetine and citalopram .
 - Most patients noted an improvement in overall wellbeing, although none of the studies showed any benefit with regards to bowel habits, and abdominal pain was generally not improved.
 - A trial provided a head-to-head comparison between a TCA (imipramine 50 mg) and an SSRI (citalopram 40 mg)... But neither drug demonstrated significant improvements in global IBS symptoms over placebo .

Constipation Treatment:

- ▶ Lifestyle Modifications
- ▶ Bowel Training and Education
- ▶ **Fiber :**
 - Some studies noted an improvement in stool frequency (polycarbophil and ispaghula husk), while one study noted an improvement in stool evacuation.
 - No improvement in abdominal pain.
 - 30-50% of patients treated with a fiber product will have a significant increase in gas.
- ▶ Over-the-counter Medications:
 - PEG.
 - Lactulose.
 - **Tegaserod** stimulate gastrointestinal peristalsis, increase intestinal fluid secretion and reduce visceral sensation, **5 HT agonist** FDA approved **for chronic constipation in women.**
 - Lubiprostone stimulates type 2 chloride channels in epithelial cells of the gastrointestinal tract thereby causing an efflux of chloride into the intestinal lumen.
 - It was approved by the FDA for the treatment of adult men and women with chronic constipation in January 2006
 - Nausea and diarrhea 6-8%

Diarrhea predominant IBS Treatment:

- **Increasing dietary fibre** is sensible advice.
- Fibre varies, 55% of patients **will get worse** with bran.
- “Medical fibre” adds to placebo effect.
- **Loperamide** may help: inhibiting intestinal secretion and peristalsis, loperamide slows intestinal transit and allows for increased fluid reabsorption, thus improving symptoms of diarrhea.
- **Alosetron** is **5-HT₃ receptor antagonist** that slows colonic transit:
 - four-fold increased risk for ischemic colitis compared to placebo.

Recent Therapy:

- **Antibiotics**
- **Probiotics**

Antibiotics:

- “Target” Trials:
- Rifaximin **550 mg, 3 times daily**, for 2 weeks
- Patients were assessed for adequate relief of IBS symptoms and relief of IBS bloating (during first weeks).
- **Some improvement was noticed in some patients**

Probiotics: Probiotic is a bacteria administered in form of pills

Mode of Action of Probiotics?

- Compete with, and exclude pathogens
- Anti-bacterial:
 - Produce bacteriocins
 - Destroy toxins
- Enhance barrier function, motility
- Enhance host immunity
 - Immune modulation
 - Cytokine modulation
 - IgA production
- Metabolic functions.

Global Assessment of Symptom Relief:

- ▶ **B. Infantis (bifidobacterium infantis) was prescribed in one study**
- ▶ Prospective, multicenter, double-blind, placebo-controlled, crossover trial assessing the efficacy and safety of the probiotic, VSL#3 (**live lactic acid bacteria**)
- ▶ Patients treated with VSL#3 had a significant improvement in the primary endpoint, which was the global relief of IBS symptoms. Secondary endpoints of abdominal pain and bloating were also improved.

What about Diet? Other considerations in treatment?

Diet:

- **Avoid caffeine.**
- **Limit your intake of fatty foods.** Fats increase gut sensations, which can make abdominal pain seem worse.
- If **diarrhea** is your main symptom, **limit dairy products, fruit**, or the artificial sweetener **sorbitol**.
- **Increasing fiber** in your diet may help relieve **constipation**. "either dietary or supplemental fiber, such as psyllium) Medicine Recall, 420"
- Avoiding foods such as beans, cabbage, or uncooked cauliflower or broccoli can help relieve bloating or gas.

Alternative Medicine:

- **Hypnosis:** can help some people relax, which may relieve abdominal pain.
- Relaxation or meditation: may be helpful in reducing generalized muscle tension and abdominal pain.
- Biofeedback training: may help relieve pain from intestinal spasms. It also may help improve bowel movement control in people who have severe diarrhea.



Self-help:

- IBS network.
- IBS support group.
- Awareness.

Summary:

- Abdominal pain can be acute or chronic.
- Acute abdominal pain with recent onset within hours-days, and it can be due to surgical or medical causes.
- Chronic abdominal pain is intermittent or continuous abdominal pain or discomfort for longer than 3 to 6 months.
- **History** is the most important step of the diagnostic approach of abdominal pain.

- IBS is a mixed group of abdominal symptoms for which no organic cause can be found.
- 50% of patients present <35 years old, and it is more common in females.
- There are several diagnostic criteria exist (eg Manning, Rome III).
- Rome criteria: is the presence of abdominal discomfort or pain, along with 2 or more of the following symptoms, for 12 weeks in the preceding 12 months (not necessarily consecutive):
 - 1- Relief of pain with defecation.
 - 2- Change in frequency of bowel movements.
 - 3- Change in form of stool.
- Pathophysiology of IBS is complex, but poorly understood mechanisms are involved. Most are probably due to disorders of intestinal motility or enhanced visceral perception.
- There might be an autoimmune element associated with IBS.
- Treatment of IBS involves both medications and nonmedication therapy.
- Nonmedication therapy includes reassurance with diet and fiber therapy.
- Medication therapy include:
 - 1- Antispasmodics (dicyclomine and hyoscyamine).
 - 2- Antidepressants (tricyclics and SSRIs).
 - 3- Tegaserod (5-HT4 agonist) → constipation in women.
 - 4- Loperamide or alosetron → predominant diarrhea.
- Probiotic is a new therapy introduced for the treatment of IBS.

Congrats! You've just finished your last medicine lecture this semester!

Wish you all the best of luck

