

## CHANGES IN BOWEL HABIT

### Objectives:

- Define constipation and diarrhea
- Discuss the definition, etiology and classification of irritable bowel syndrome (IBS)
- Demonstrate history taking, physical examination, and management for patients presented with history suggestive of IBS.
- Discuss the alarm symptoms in patients presenting with change bowel habit.
- Identify the criteria for the referral to specialist
- Practical: Examination of Abdomen, How to do?

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### References

- Doctor's slides and notes

*Important* *Notes* *Extra* *Golden*

Editing file [link](#)



## Bowel Movements

- Normal bowel movement is between **3** times a **day** to **3** times a **week**.
- Problems arise when bowel movements frequency decreases or increases.

## Bowel Movements Disorders

### CONSTIPATION

Fewer than **three** bowel movements in a **week**, and stools are hard, dry, and small, making them painful and difficult to pass.

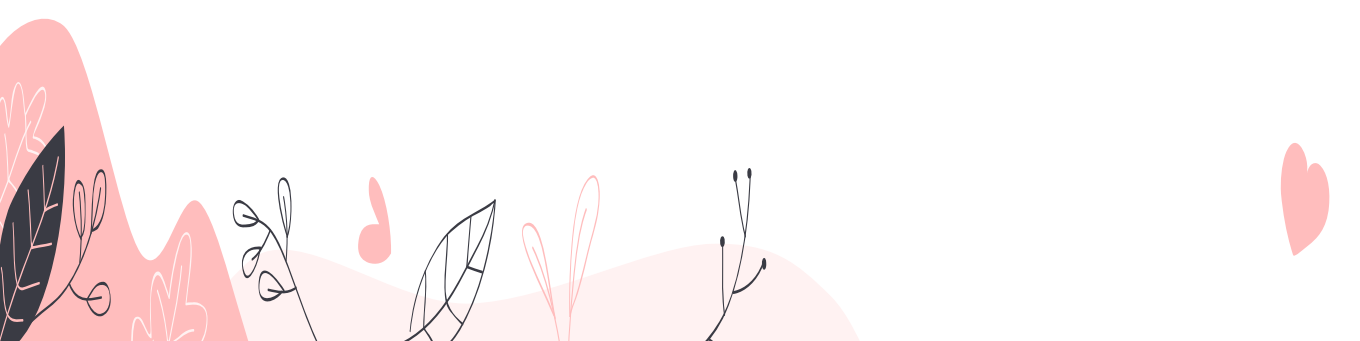
### DIARRHEA

Passage of **three or more loose or liquid** stools per **day** (or more frequent passage than is normal for the individual) or increase in stool weight to more than 200 g/day.

- **Acute diarrhea** lasts < 3 weeks,
- **Chronic diarrhea** is a persistent or recurring condition that lasts > 3 weeks.

## Irritable Bowel Syndrome (Ibs)

- **Irritable bowel syndrome (IBS) is the most common cause of functional diarrhea in the developed world.**
- IBS is a symptom complex of crampy abdominal pain accompanied by altered bowel habits, either with diarrhea or constipation.
- Usually watery diarrhea occurs while awake, often following meals. Discomfort is alleviated by defecation, and stool mucus is noted in one-half of patients.



## Irritable Bowel Syndrome (Ibs)

MALE SLIDES

- Known as functional gastrointestinal disorders (FGIDs).
- People with IBS present most commonly with diarrhea predominant or constipation predominant.
- Defined as chronic or recurrent abdominal pain, altered bowel habits, and bloating, with the **absence** of structural or biochemical abnormalities.
- IBS most often affects people **between the ages of 20-30 years** and is **twice as common in women as in men**. When you see it at extreme of age you begin to worry (>50 y/o)
- One of the top 10 reasons for visits to primary care physicians.
- Increased prevalence among students.
- Infection with **giardia lamblia** has been shown to be associated with an increased prevalence of IBS (association not causative)
- Two thirds of patients with IBS have psychological disorders.

## Prevalence Of Ibs In Saudi Arabia

- **Prevalence of IBS in general population 5-10%**
- In a systematic review and a meta-analysis of published literature to estimate the prevalence of IBS among Asian children including Saudi Arabia, the prevalence of IBS ranges from 2.8% to 25.7%, with a pooled prevalence of 12.41% (95% confidence interval 9.87-14.95). Prevalence risk ratio of girl: boy is 1.39. Prevalence of subtypes is diverse and varies between studies
- KAU, Jeddah study included 597 medical students. The prevalence of IBS was 31.8% . In a systemic review involved 16 studies, the prevalence of IBS among medical students ranged from 9.3% to 35.5%.
- Another study included 229 nurses. The prevalence of IBS among nurses was 14.4%, and IBS-Mixed type was the commonest variety (54.5%) KSAU-HS study included 270 medical students. The overall prevalence of IBS was 21% (n=57), with a higher prevalence among females (26%, n=23) than males (19%, n=34). IBS was most and least prevalent among first-year students (14%, n=5) and fifth-year students (29%, n=21) respectively.

# Etiology Of Ibs

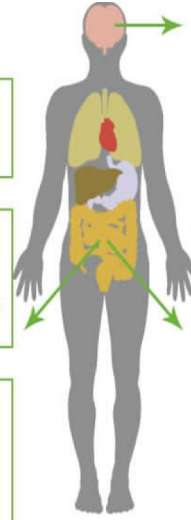
- The causes of irritable bowel syndrome remain poorly defined.
- **Possible etiologies for IBS include:**

- Brain – gut axis problems.
- gut hypersensitivity.
- disturbed colonic motility.
- bowel dysfunction after an infection.
- microbial imbalance in the gut (dysbiosis).
- low-grade inflammation or a defective antinociceptive (anti-pain) system are possible causes
- Stress commonly aggravates the disorder

**Familial tendency<sup>5</sup>**  
There is evidence that IBS has a slight familial component.

**Infection<sup>5</sup>**  
Approximately 25% of people report that their symptoms commenced after an episode of infective diarrhea.

**Food Sensitivity<sup>6</sup>**  
Many people with IBS report that symptoms are triggered by foods rich in carbohydrates, spicy or fatty foods, coffee, and alcohol.



**"Brain-gut" axis<sup>6</sup>**  
- Signals between the brain and nerves of the small and large intestines, also called the gut, control how the intestines work.  
- Problems with brain-gut signals may cause IBS symptoms.

**Intestinal dysmotility<sup>5</sup>**  
There are abnormalities of contractions in the small and large bowel in some patients.

**Hypersensitivity<sup>6</sup>**  
People with IBS have a lower pain threshold for bowel stretching caused by gas or stool compared with people who do not have IBS.

## Dietary FODMAPs and disaccharide maldigestion

**F**ermentable **O**ligosaccharides, **D**isaccharides, **M**onosaccharides, and **P**olyols (FODMAPs) are present in high amounts in some fruits, artificial sweeteners, legumes, and green vegetables, and are poorly absorbed in all individuals. FODMAPs have fermentative and osmotic effects, which might contribute to symptoms in some patients

### FOODS THAT MAY TRIGGER IBS SYMPTOMS

- Apples
- Beans
- Broccoli
- Cabbage
- Caffeine
- Cauliflower
- Gum, beverages, or foods sweetened w. fructose or sorbitol
- Chocolate
- Dairy products
- Fatty foods
- Margarine
- Nuts
- Orange & grapefruit juices
- Wheat products

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### Low FODMAP Diet

FOOD	EAT	AVOID
<b>Vegetables</b>	 lettuce, carrot, cucumber & more	 garlic, beans, onion & more
<b>Fruits</b>	 strawberries, pineapple, grapes & more	 blackberries, watermelon, peaches & more
<b>Proteins</b>	 chicken, eggs, tofu & more	 sausages, battered fish, breaded meats & more
<b>Fats</b>	 oils, butter, peanuts & more	 almonds, avocado, pistachios & more
<b>Starches, cereals &amp; grains</b>	 potatoes, tortilla chips, popcorn & more	 beans, gluten-based bread, muffins & more

This slide is very important



## Diagnostic criteria

Recurrent abdominal pain, on average for at least 1 day per week in the past 3 months, associated with two or more of the following: related to defecation, a change in frequency of stool, a change in stool form; criteria must be fulfilled for the past 3 months, with symptom onset at least 6 months before diagnosis

<b>IBS with constipation (IBS-C)</b>	Hard or lumpy stools for $\geq 25\%$ of bowel movements and loose (mushy) or watery stools for $\leq 25\%$ of bowel movements.
<b>IBS with diarrhoea (IBS-D)</b>	Loose (mushy) or watery stools for $\geq 25\%$ of bowel movements and hard or lumpy stool for $\leq 25\%$ of bowel movements.
<b>Mixed IBS (IBS-M)</b>	Hard or lumpy stools for $\leq 25\%$ of bowel movements and loose (mushy) or watery stools for $\leq 25\%$ of bowel movements. Difficult to manage
<b>Unspecified IBS</b>	Insufficient abnormality of stool consistency to meet criteria for above subtypes.

**Table 1. Rome IV Criteria for the Irritable Bowel Syndrome.\***

Patient has recurrent abdominal pain ( $\geq 1$  day per week, on average, in the previous 3 mo), with an onset  $\geq 6$  mo before diagnosis

Abdominal pain is associated with at least two of the following three symptoms:

- Pain related to defecation
- Change in frequency of stool
- Change in form (appearance) of stool

Patient has none of the following warning signs:

- Age  $\geq 50$  yr, no previous colon cancer screening, and presence of symptoms
- Recent change in bowel habit
- Evidence of overt GI bleeding (i.e., melena or hematochezia)
- Nocturnal pain or passage of stools
- Unintentional weight loss
- Family history of colorectal cancer or inflammatory bowel disease
- Palpable abdominal mass or lymphadenopathy
- Evidence of iron-deficiency anemia on blood testing
- Positive test for fecal occult blood



## Bristol stool chart

	Type 1 Separate hard lumps, like nuts (hard to pass)
	Type 2 Sausage-shaped, but lumpy
	Type 3 Sausage-shaped, but with cracks on surface
	Type 4 Sausage or snake like, smooth and soft
	Type 5 Soft blobs with clear-cut edges (easy to pass)
	Type 6 Fluffy pieces with ragged edges, mushy
	Type 7 Watery, no solid pieces (entirely liquid)

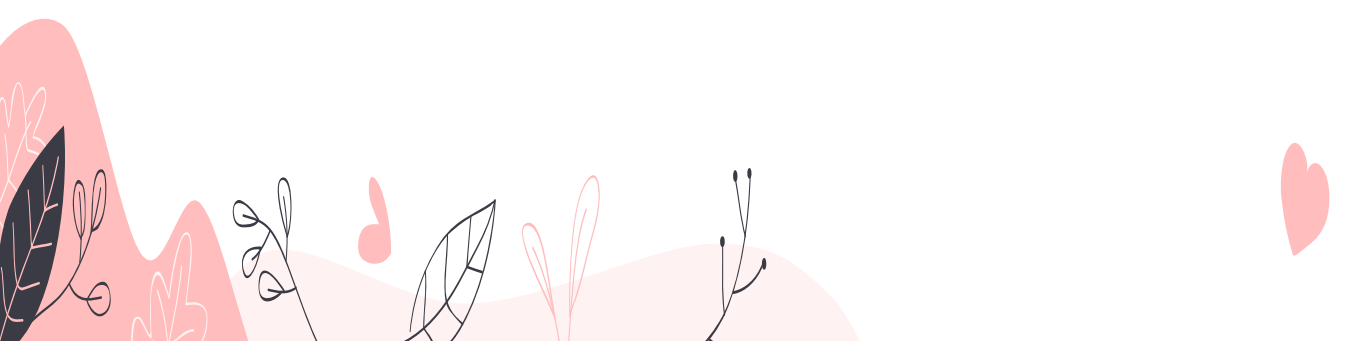
\* The information is from Mearin et al.<sup>1</sup> GI denotes gastrointestinal.



## Clinical presentation and differential diagnosis

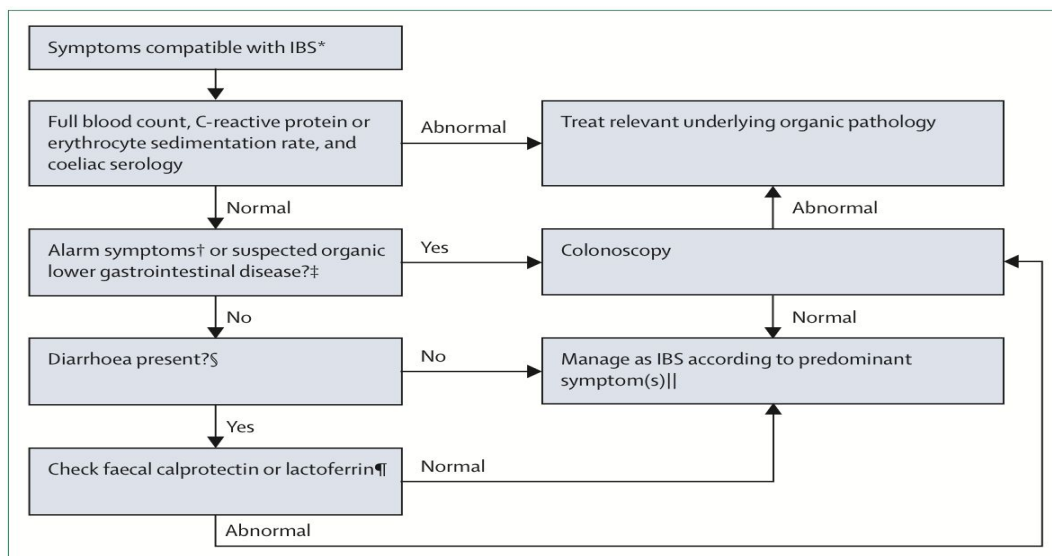
- The condition is most common among women aged 20–40 years,
- although in some countries it appears more prevalent in younger men (aged 16–30 years). IBS can occur at any age.
- The presence of **abdominal pain is essential** to the definition of IBS.
  - **First**, as IBS is a chronic disorder, causes of acute abdominal pain are ruled out.
  - **Second**, the pain is recurrent, but it is intermittent rather than continuous.
  - **Third**, pain is usually in the lower abdomen,
  - **Finally**, and most crucially, pain in IBS is associated with defecation, and occurs at the time when the patient has alterations in stool frequency or consistency
- Abdominal bloating is not a cardinal symptom but is very common and supports the diagnosis, particularly if it is diurnal.
- Such bloating is often accompanied by visible abdominal distension.

## DDx

- **Colorectal Cancer/ Carcinoid tumor.**
  - **Inflammatory bowel disease. (crohn's disease & Ulcerative colitis)**
  - **Celiac disease/ Lactose intolerance**
  - GI infection (Recent Antibiotic use)
  - Ischemic colitis / microscopic colitis.
  - Thyroid dysfunction.
- 

## Investigations

- No specific tests
- In people who meet the IBS diagnostic criteria, the following tests should be undertaken to **exclude other diagnoses**:
  - ★ **Absence of nocturnal stools**
  - ★ **Presence of anxiety, depression, or extraintestinal symptoms**
  - ★ **CBC**
  - ★ **ESR**
  - ★ **CRP**
  - ★ **Endomysial antibodies [EMA] and anti-tissue transglutaminase [TTG] to rule out celiac disease**
  - ★ **Faecal calprotectin, which is a cytosol protein released by neutrophils, can differentiate between IBS and IBD**

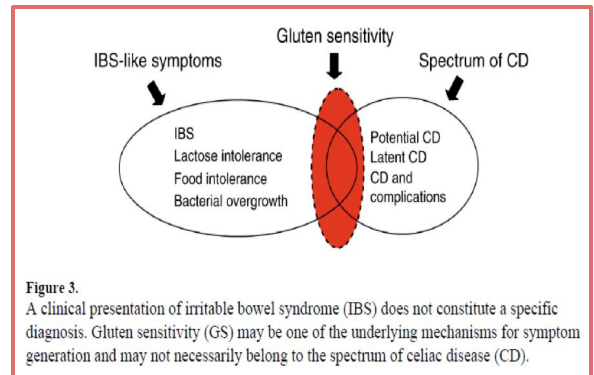


**Figure 4: Suggested diagnostic algorithm for patients with suspected IBS**

IBS=irritable bowel syndrome. \*Abdominal pain, related to defecation, associated with change in stool form or stool frequency.<sup>5</sup> †See panel. ‡Especially if family history of inflammatory bowel disease, coeliac disease, or colorectal cancer, or features suggestive of microscopic colitis (female aged  $\geq 50$  years, coexistent autoimmune disease, proton pump inhibitor or non-steroidal anti-inflammatory drug use, duration of diarrhoea <12 months, weight loss, or nocturnal diarrhoea).<sup>68,69</sup> §Consider measuring SeHCAT retention, serum  $7\alpha$ -hydroxy-4-cholesten-3-one, serum FGF19, or 48 h faecal bile acid excretion (where available), or consider a trial of a bile acid sequestrant to exclude bile acid diarrhoea. ¶If the initial faecal calprotectin or lactoferrin concentration is within the abnormal range according to local laboratory values and the suspicion for inflammatory bowel disease is high, proceed to colonoscopy.<sup>70</sup> If the initial faecal calprotectin or lactoferrin concentration is indeterminate, repeat the test off non-steroidal anti-inflammatory drugs and refer for colonoscopy if the repeat test remains indeterminate or is within the abnormal range. ||If features suggestive of a defaecatory disorder are present, including obstructive symptoms (eg, a feeling of incomplete evacuation or the need to digitate during defecation) or paradoxical anal contraction on straining during digital rectal examination, consider anorectal manometry with balloon expulsion testing.

## IBS and Celiac Disease

- A meta-analysis showed an almost three times higher odds of positive coeliac serology in patients with symptoms suggestive of IBS (OR 2.75; 95% CI 1.35–5.61) compared with healthy controls, irrespective of predominant stool pattern.
- A systematic review and meta-analysis has concluded that celiac disease, as diagnosed by positive serology and positive biopsy, was four-fold more prevalent among patients with a clinical presentation of IBS than in non-IBS populations.
- A patient with confirmed celiac disease is no longer considered to have IBS. Despite this, it has never been determined whether celiac disease and IBS cannot coexist.
- About 3% of patients with a “clinical” presentation of IBS were subsequently diagnosed with celiac disease. **People with celiac disease who don't maintain a gluten-free diet have a greater risk of developing intestinal lymphoma**



**Figure 3.** A clinical presentation of irritable bowel syndrome (IBS) does not constitute a specific diagnosis. Gluten sensitivity (GS) may be one of the underlying mechanisms for symptom generation and may not necessarily belong to the spectrum of celiac disease (CD).

## Definite referral criteria for lower GI alarming symptoms & signs

⚡ Aged 40 years or over with unexplained weight loss and abdominal pain

⚡ Aged 50 years or over with unexplained rectal bleeding

⚡ Aged 60 years or over with change in bowel habit, a positive faecal occult blood test, or iron deficiency anaemia

Regardless of age, a patient with unexplained rectal bleeding or iron deficiency anaemia (especially if accompanied by abdominal pain, change in bowel habit, or weight loss), or an abdominal or rectal mass, needs investigation to exclude other gastrointestinal disorders, including cancer.



## Management

- Long-term efficacy of medical management is unknown.
- An empathetic approach is key; this approach can improve quality of life and symptoms, reduce health-care visits, and enhance adherence to treatment.
- Management should commence with explanation of the disorder, its pathophysiology, and natural history.
- Treatment aims to improve abdominal pain and bowel habit, but often is targeted towards the most troublesome symptom.
- **First-line therapies include dietary changes, soluble fibre, and antispasmodic drugs.**
- In patients with severe symptoms, treatments include **central neuromodulators**, including low-dose tricyclic antidepressants, intestinal secretagogues, drugs acting on opioid or 5-HT receptors, antibiotics, and psychological therapies

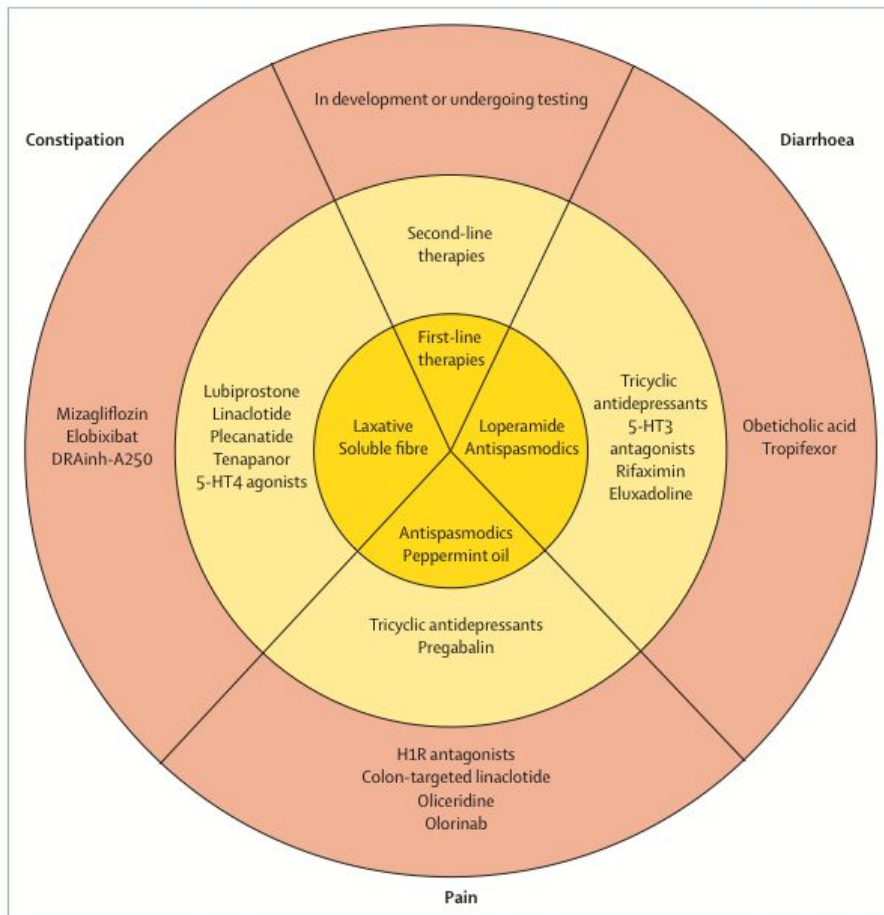


Figure 5: Current and emerging treatment options for IBS  
IBS=irritable bowel syndrome.

	IBS subgroup studied	Efficacy	Quality of data	Adverse events
<b>Diet, lifestyle, and probiotics</b>				
Soluble fibre (eg, ispaghula 20–30 g/day)	No specific IBS subgroup recruited	Effective	Moderate	Total adverse events no more common with soluble fibre than with placebo in three RCTs
Low FODMAP diet*	No specific IBS subgroup recruited	Might be effective	Very low	Total adverse events rarely reported
Exercise	No specific IBS subgroup recruited	Might be effective	Very low	Total adverse events not reported
Probiotics	No specific IBS subgroup recruited	Might be effective	Very low	Total adverse events no more common with probiotics than with placebo in a meta-analysis of 36 RCTs
<b>First-line therapies</b>				
Peppermint oil (200 mg three times a day)	No specific IBS subgroup recruited	Effective	Low	Total adverse events no more common with peppermint oil than with placebo in a meta-analysis of six RCTs
Laxatives (eg, polyethylene glycol 13.8 g once a day and titrated)	Patients with IBS with constipation	Unclear efficacy	Low	Rates of abdominal pain numerically higher with polyethylene glycol than with placebo in one RCT
Antidiarrhoeals (eg, loperamide 4 mg as required)	Patients with IBS with diarrhoea and IBS with mixed stool pattern	Unclear efficacy	Very low	Total adverse events no more common with antidiarrhoeals than with placebo in two RCTs
Antispasmodics (eg, cimetropium 50 mg three times a day, hyoscine 10–20 mg three times a day, otilonium 20–40 mg three times a day, or pinaverium 50 mg three times a day)	No specific IBS subgroup selected, other than one RCT in patients with IBS with diarrhoea	Might be effective	Very low	Total adverse events significantly more common with antispasmodics than with placebo in a meta-analysis of 26 RCTs, particularly dry mouth, dizziness, and blurred vision
<b>Second-line therapies</b>				
5-HT <sub>4</sub> agonists (eg, tegaserod 6 mg twice a day)	IBS with constipation	Effective	High	Diarrhoea significantly more common with tegaserod than with placebo in a meta-analysis of six RCTs
5-HT <sub>3</sub> antagonists (eg, alosetron 0.5–1.0 mg twice a day, ramosetron 2.5–5.0 µg once a day, or ondansetron 4 mg once a day and titrated)	IBS with diarrhoea and IBS with mixed stool pattern	Effective	High	Constipation significantly more common with alosetron than with placebo in a meta-analysis of three RCTs
Tricyclic antidepressants (eg, amitriptyline 10–30 mg at night or desipramine 50 mg at night)	No specific IBS subgroup selected, other than one RCT in patients with IBS with diarrhoea	Effective	Moderate	Total adverse events significantly more common with tricyclic antidepressants than with placebo in a meta-analysis of six RCTs, particularly dry mouth and drowsiness
Eluxadoline (100 mg twice a day)	IBS with diarrhoea	Effective	Moderate	Rates of constipation, nausea, and vomiting numerically higher with eluxadoline than with placebo in a pooled analysis of two RCTs
Antibiotic rifaximin (550 mg three times a day)	IBS with diarrhoea and IBS with mixed stool pattern	Effective	Moderate	Total adverse events no more common with rifaximin than with placebo in a pooled analysis of three RCTs
Selective serotonin reuptake inhibitors (eg, fluoxetine 20 mg once a day)	No specific IBS subgroup selected, other than one RCT in patients with IBS with constipation	Might be effective	Low	Total adverse events no more common with selective serotonin reuptake inhibitors than with placebo
Pregabalin (225 mg twice a day)	No specific IBS subgroup recruited	Might be effective	Low	Total adverse events numerically higher with pregabalin than with placebo, particularly blurred vision, dizziness, and altered sensation
<b>Intestinal secretagogues</b>				
Linaclotide (290 µg once a day)	IBS with constipation	Effective	High	Diarrhoea significantly more common with linaclotide than with placebo in a meta-analysis of three RCTs
Lubiprostone (8 µg twice a day)	IBS with constipation	Effective	Moderate	Nausea significantly more common with lubiprostone than with placebo in a meta-analysis of three RCTs
Plecanatide (3–6 mg once a day)	IBS with constipation	Effective	Moderate	Diarrhoea significantly more common with plecanatide than with placebo in a meta-analysis of two RCTs
Tenapanor (50 mg twice a day)	IBS with constipation	Effective	Moderate	Diarrhoea more frequent with tenapanor than with placebo
<b>Psychological therapies</b>				
Cognitive behavioural therapy or gut-directed hypnotherapy	No specific IBS subgroup recruited	Effective	Very low	Adverse events not reported in individual RCTs, precluding their assessment in a meta-analysis of 36 RCTs

# QUESTIONS

1. Irritable bowel syndrome is a functional gastrointestinal disorder with symptoms including abdominal pain associated with a change in stool form or frequency. In community survey the condition affects between:
- A. 5-10%
  - B. 11-15%
  - C. 16-20%
  - D. 21-25%
2. Survey in general population shows that irritable bowel syndrome is more common:
- A. Among men than women
  - B. Employed individuals
  - C. People with fibromyalgia
  - D. People at 50 or older
3. A 31-year-old female teacher with four years history of lower abdominal pain and alternating bowel habits. Symptoms increased whenever there is stress in her life. First-line therapies for this patient include:
- A. Antibiotics
  - B. Antispasmodic drugs
  - C. Intestinal secretagogues
  - D. Tricyclic antidepressants
4. According to Rome IV diagnostic criteria, patients with IBS-D should have:
- A.  $\geq 25\%$  of bowel movements of Bristol Stool Form type 1 or 2, and  $<25\%$  of Bristol Stool Form type 6 or 7
  - B.  $\leq 25\%$  of bowel movements of Bristol Stool Form type 6 or 7, and  $<25\%$  of Bristol Stool Form type 1 or 2
  - C.  $\geq 25\%$  of bowel movements of Bristol Stool Form type 6 or 7, and  $<25\%$  of Bristol Stool Form type 1 or 2
  - D.  $\leq 25\%$  of bowel movements of Bristol Stool Form type 1 or 2, and  $<25\%$  of Bristol Stool Form type 6 or 7
5. The most well recognised risk factor for IBS, observed in approximately 10% of patients is:
- A. Abdominal or pelvic surgery
  - B. Acute gastrointestinal infection
  - C. Life stress
  - D. Somatisation

## Answers:

- 1. A
- 2. C
- 3. B
- 4. C
- 5. B