



Irritable Bowel Syndrome

By
Dr. Seham Seif



- IBS is best described as a functional disorder
- Functional disorder refers to a disorder where the primary abnormality is an altered physiological function rather than an identifiable structural or biochemical cause.

- Functional GIT disease can affect GIT from esophagus down to the anus. When affect the colon and small intestine it is **IBS**.

- **IBS was first called:**

- Spastic colon by Ryle in 1928.
- Mucous colitis by Bockus.
- Irritable colon by Chandhary 1962.
- **IBS**, the present name has been first suggested by Delor in 1976 and has been universally adopted since then.

Definition of IBS



Irritable bowel

Refers to disturbance in the regulation of bowel function that result in unusual sensitivity and muscle activity.

Syndrome

Refers to a number of symptoms and not one symptom exclusively.

So IBS is defined broadly as chronic, recurrent, non-inflammatory condition characterized by **abdominal pain** and altered **bowel habits** (diarrhea or constipation) and abdominal bloating in absence of organic disease that can produce similar symptoms.

Epidemiology of IBS

- It affect 10-20% of general population.
- The most common disease diagnosed by gastroenterologist and one of the most common disorders seen by primary care physician.
- 35-40% of the individuals who report IBS are male and 60-65% are female.

What are symptoms of IBS?

1. Abdominal pain :

- Chronic.
- Recurrent.
- Crampy or generalized discomfort.
- Periods of exacerbation with stress or emotional upset or with eating.



- ## 2. Slowed or rapid transportation → constipation (C-IBS) or diarrhea (D-IBS) respectively and ↑ amount of mucus coating the stool or sense of incomplete evacuation of the bowel movement.

- 3. Slowed transportation** → bacterial overgrowth ↑, gas formation which aggravate bloating and or abdominal distention and diarrhea .
4. 25-50% of patients may report heart burn, early satiety, nausea, abdominal fullness, feeling of urgency and incomplete emptying.
- 5. Non GI symptoms:** (fatigue, Muscle pain, sleep disturbances or sexual dysfunction). These symptoms due to coexistence or overlap of IBS with another conditions such as fibromyalgia, chronic fatigue syndrome or interstitial cystitis.
6. Low back ache or headache may occur and tend to correlate with the severity of **IBS**.

Symptoms are not characteristic of IBS (Alarm symptoms).

1. Anemia, GI bleeding, unexplained weight loss or fever.
2. Symptom awake the patient from sleep.
3. Family history of cancer colon or IBD.
4. Onset of symptoms over the age of 50.
5. Unexplained anemia, leucocytosis, \uparrow ESR or occult blood in the stools.

Diagnosis of IBS

- The original consensus criteria for IBS published in 1989 were modified to become the Rome criteria in 1990 and again in 1992. (*Rome II criteria*)
- Diagnosis of IBS is often difficult because there is no physical finding or diagnostic tests that confirm the diagnosis of IBS.

The diagnosis involves:

1. Identifying certain symptoms consistent with the disorder (symptoms complying with Rome criteria).
2. Excluding other medical condition that may have a similar clinical presentation.

The Rome II Diagnostic criteria:

The Rome II criteria state that in order to diagnose **IBS**, a patient should have suffered abdominal pain or discomfort for 12 weeks or more (not necessarily consecutive weeks) in the previous 12 months.



The pain or discomfort should have 2 out of 3 following features:

- Relief with defecation.
- Onset associated with change in the frequency of stool.
- Onset associated with change in form (appearance) of stool.

Other symptoms that are not essential but support a diagnosis of IBS are:

1. **Abnormal stool frequency** (>3 bowel movement / day) or <3 bowel movement / week).
2. **Abnormal stool form** (lumpy/hard or loose/watery stool).
3. **Abnormal stool passage** (straining, urgency or feeling of incomplete evacuation).
4. **Passage of mucous.**
5. **Bloating.**

Supportive symptoms of IBS

1. Fewer than three bowel movements a week.
2. More than three bowel movements a day.
3. Hard or lumpy stools.
4. Loose (mushy) or watery stools.
5. Straining during a bowel movement.
6. Urgency (having to rush to have a bowel movement).

IBS sub-classification

■ Diarrhea predominant (D-IBS):

1 or more of 2, 4 or 6 and none of 1,3 or 5;
or 2 or more of 2, 4 or 6 and one of 1 or 5 (3
hard or lumpy stools do not qualify).

■ Constipation predominant (C-IBS):

1 or more 1; 3 or 5 and none of 2, 4 or 6; or:
2 more of 1, 3 or 5 and one of 2, 4 or 6.

■ Alternating IBS (A-IBS):

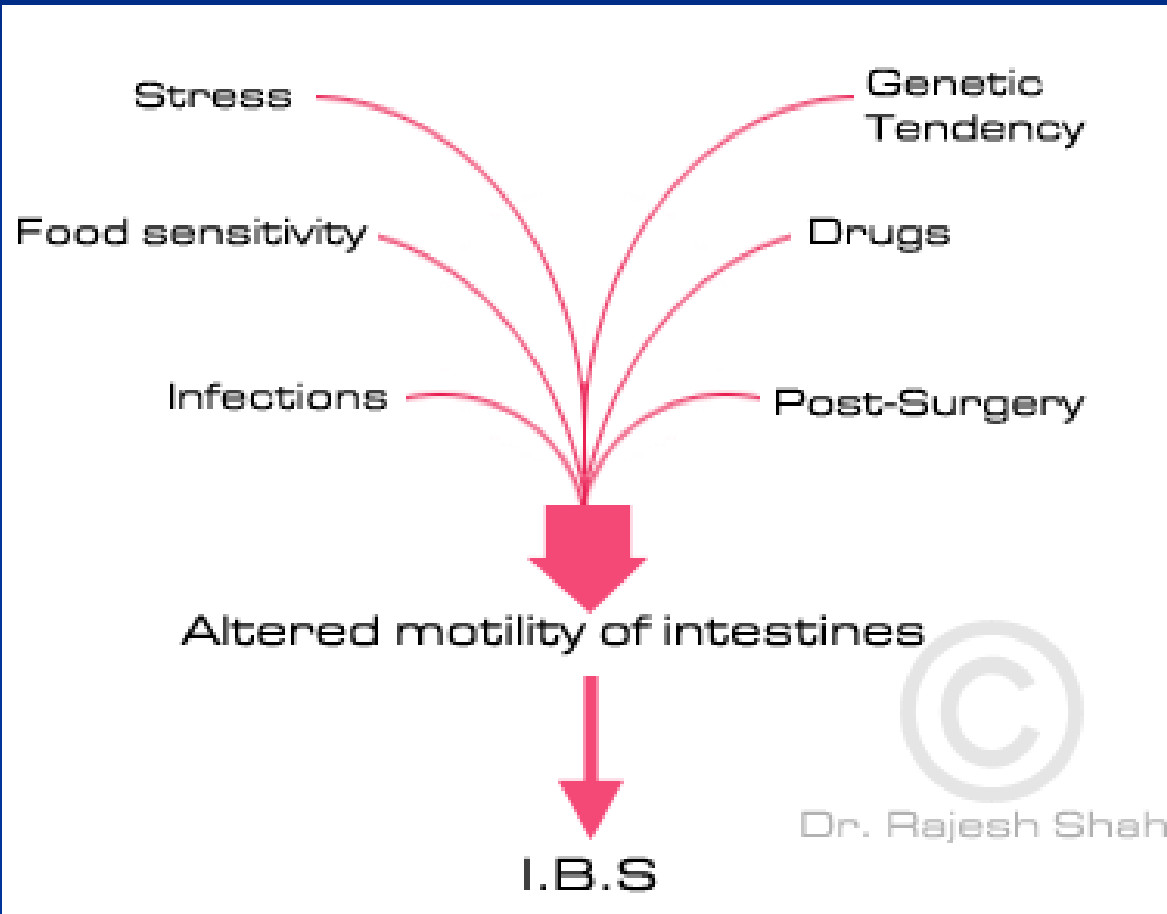
Exclusion of non functional GI disease.

The use of diagnostic studies to exclude organic disease should be prudent but not exhaustive and based on the presenting symptoms (diarrhea or constipation) and made on the context of entire clinical picture.

This tests include:

1. **Stool examination** (reveals infection, signs of inflammation.
2. **Routin blood test** looking for unsuspected disease.
3. **Radiological studies**
 - Abd. UIs
 - Small bowel series.
 - X ray studies.
 - Endoscopic studies.
4. **Small bowel series** for examining the small intestine.
5. **Barium enema** for examining the colon and terminal ileum.

Etiology



The etiology of IBS are unknown

■ Psychological stress:

psychiatric disorders don't initiate IBS symptoms but aggravate their impact on the patient and drive him or her to ask for medical help. It is also possible that psychiatric disorder are the result of long standing **IBS** symptom themselves.



- **IBS and bowel inflammation.**

It was suspected by repeated observation that about 25-30% of **IBS** cases follow recent attack of gastroenteritis (**PI- IBS**).



- **IBS and dietary fibres.**

Dietary fibre has nothing to do with the etiopathogenesis of IBS but may have a role in symptomatic treatment.

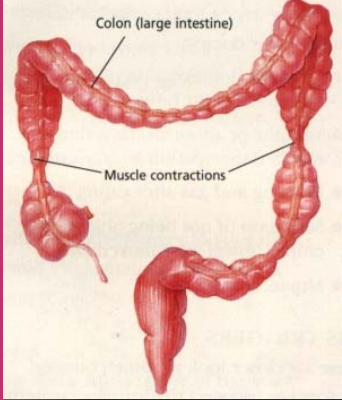
■ IBS and menstruation.

The well known observation that IBS is commoner in women and that the symptoms are often precipitated or exacerbated by menses, raises the possibility that female sex hormone might have an etiologic or aggravating role.

The hormonal effect if present should be looked to as a trigger of symptoms and not a cause of disease.

Pathogenesis

- Nobody at present can tell confidently the exact etiology, pathogenesis or pathophysiology.
- Research in the last 50 years has concentrated on four areas:
 1. **Bowel motility.**
 2. **Bowel sensitivity.**
 3. **Brain-gut interaction.**
 4. **Bowel serotonin.**



Bowel Dysmotility

Imbalance between the propulsive and non propulsive contraction

Hypertonic gastroclonic response

Strong cluster contraction

Diarrhea
D - IBS

Constipation
C - IBS

Bowel changes in some people

Coincide with pain episodes

↑ propulsive contraction

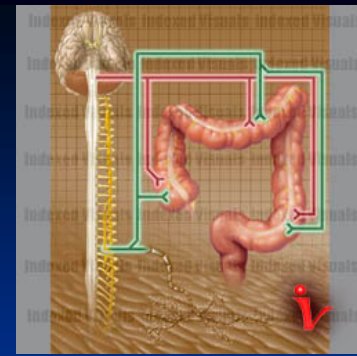
↑ nonpropulsive contraction

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Altered bowel sensitivity

Normal people can “Sense” but can not “Feel” their bowel but IBS patients can both “Sense” and “Feel” their bowels that the normal sensory stimuli from the bowel are transmitted as abnormal by the hyper-reactive receptors.

Brain - gut interaction



The brain receives the sensory signals from the gut subconsciously in normal persons and consciously in IBS patients and it is able to modulate the bowel motility according to these signals through **vagovagal reflex**. So long as the brain and gut are closely connected so why do always assume that the IBS patient have an **“irritable gut”** and not an **irritable brain** or **irritable autonomic nervous system**.

Serotonin Dysfunction in IBS

considering the physiologic action of serotonin can explain **D-IBS** (Serotonin hyper function) and serotonin hypo function (**C-IBS**).

Serotonin receptors

7 receptors of which 5-HT₃ and 5HT₄ receptors are the most important to gastroenterologists, through these receptors serotonin exerts its physiological motor, sensory and secretory effect on the bowel.

Both 5-HT₃ and 5HT₄ receptors are synergistic and activate the bowel function together.

Treatment of IBS



Treatment of IBS is **difficult** and **unsatisfactory** and few drugs have been shown to be effective in treating IBS, this difficult situation exists for many reasons:

- a) **IBS** is not a life threatening illness and has receives little research funding.
- b) Lack of researches → lack of understanding of physiologic process that causes **IBS** and the effective drugs can not be developed until there is an understanding of these mechanisms.
- c) Researches in **IBS** is difficult. **IBS** is defined by subjective symptoms rather than objective signs.

➤ So treatment of IBS is directed mainly at symptoms which are primarily:

1. Constipation.
2. Diarrhea.
3. Abdominal pain.

Constipation

It is due to → slow transport of intestinal content mainly through the colon.

→ serotonin hypo function.

1. **Treatment begin with** a trial of medication that treat constipation of any cause → **fibre**

→ **wheat bran**

→ **Laxative**

2. **In 2002 FDA approved tegaserod**, the first drug specifically for treatment of constipation and abdominal pain in women.

Tegaserod

- **Tegaserod** is an amino guanidine indol compound it is selective partial agonist of 5 HT4 receptors.
- It ↑peristaltic reflex and motor activity.
- Modulate visceral sensitivity and accordingly improve abdominal pain and bloating.
- Dose 6 mg bid.

Side effect:

1. Diarrhea only side effect.
2. No effect on :
 1. Liver
 2. kidney
 3. Blood counts
 4. ECG
 5. Blood Pressure.
 6. Pulse and body wt.

Cisapride

- Medication similar to tegaserod promote intestinal muscle contraction but withdrawn from the market due to Fatal effect on electrical rhythm of the heart.

Diarrhea

1. Loperamid (Imodium)

- Work by slowing down the contraction of the muscles of the small intestine and colon.
- Improve diarrhea and not abdominal pain.

2. Alosetron (Lotronex)

- it was approved by FAD in February 2000 to treat diarrhea and abdominal discomfort in women with sever D-IBS.
- It is 5HT₃. antagonist.
- Dose: 1mg twice daily.
- **Side effects:**
 - Constipation.
 - Ischemic colitis with rectal bleeding or a sudden worsening of abdominal pain.

Abdominal pain

Smooth muscle relaxant (Antispasmodic) are thought to relieve GI symptoms by inhibiting intestinal smooth muscle contraction and decreasing colonic motor activity.

Example:

- Hyoscyamin.
- Mebeverin
- Dicyclomine
- Donnatal (smooth muscle relaxant with sedative effect).

Psychotropic drugs

- **IBS** patients are frequently to be suffering from depression.
- It is unclear if the depression
 - The cause of IBS.
 - The result of IBS
 - Unrelated to IBS
- Several trails have shown that antidepressants are effective in **IBS** in relieving abdominal pain and perhaps diarrhea.
- **Example:**
 - Tricyclic antidepressants (amitriptyline & desipramine).
 - Newer class of antidepressants (serotonin – reuptake inhibitors):
 - Fluxetine (prozac)
 - Sertraline (zoloft)



Psychological treatment

- a) Cognitive behavioral therapy.
- b) Hypnosis
- c) Psychodynamic and relaxation stress therapy.

It reduce anxiety, IBS symptoms especially pain and diarrhea.

Diet



- It is unclear if diet has much effect on symptoms of IBS nevertheless, patients often associate their symptoms with specific foods.
- To find out which food are a problem write down this information:

- What you eat during the day?
- What symptoms you have?
- When symptoms occur?
- What food always make you feel bad?



Foods make IBS worse

- Fatty food.
- Milk product
 - Cheese
 - Ice cream
- Chocolate – alcohol
- Caffeine
- Carbonated drinks like soda.



Foods make IBS better

- Fibre reduces **IBS** symptoms especially C-IBS.

Fruits	Vegetables	Breads, cereals, and beans
Apples Peaches	Broccoli, raw Cabbage Carrots, raw Peas	Kidney beans Lima beans Whole-grain bread Whole-grain cereal

Stress relief

- **With less stress** you may find that your patient has less cramp and pain. Also, you may find it easier to manage your patient symptoms.



Treatment of IBS based on the therapy of SIBO

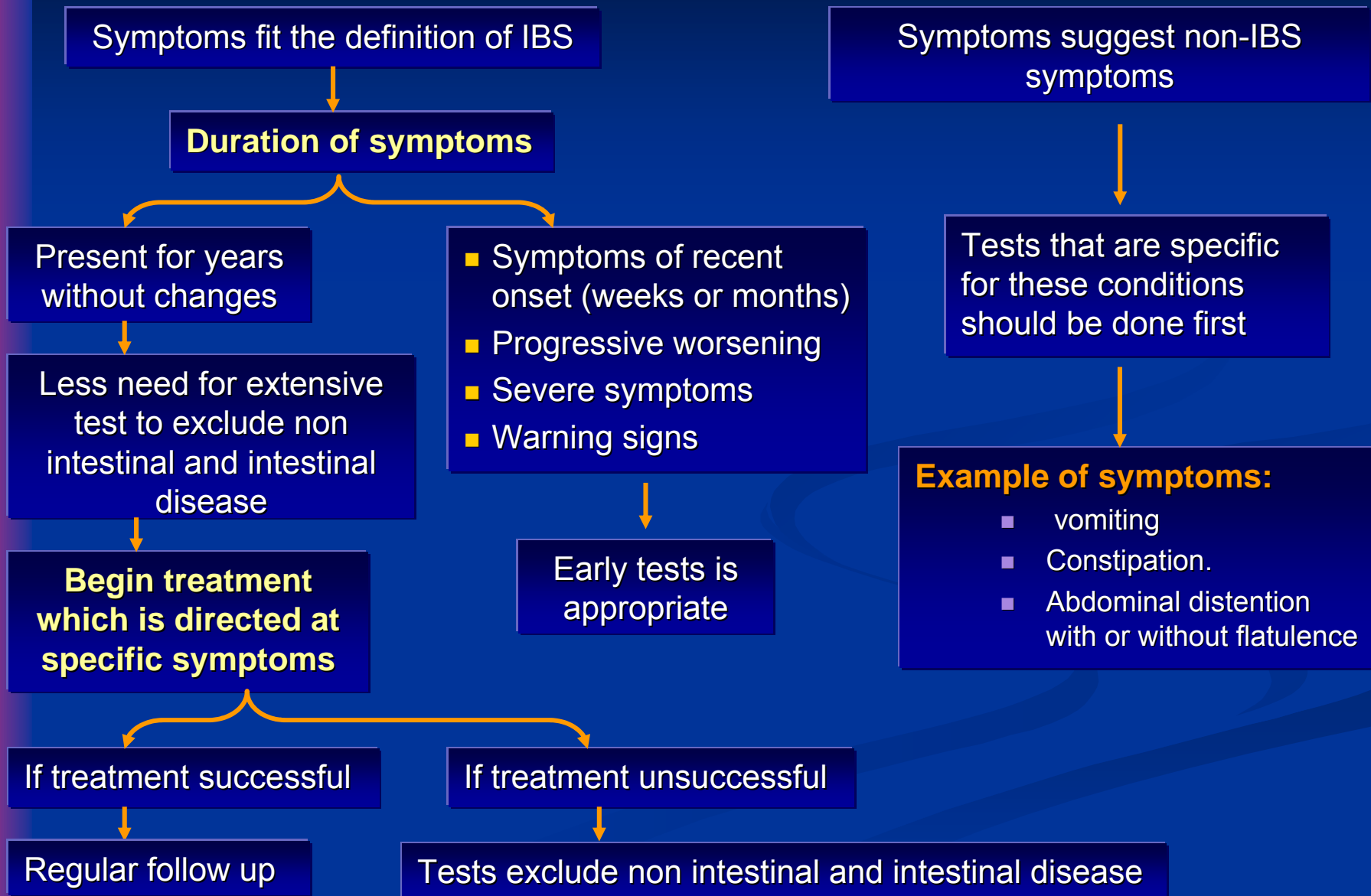
- **Probiotics:** live microbial food supplement or components of bacteria, the most common probiotic bacteria are **lactobacilli** and **bifidobacteria**.
- **Mechanism of action unknown but it:**
 - Inhibit other pathogenic bacteria which cause symptoms.
 - Production of antimicrobial antibodies, mucosal conditioning and immune modulation
 - However the data of the use of probiotics are still very limited.

- Several antibiotics either alone or in combination are reported to be successful in treating **SIBO** in patient with IBS.

- **Antibiotic:**

- neomycin orally for 10 days.
- Levofloxacin or ciprofloxacin for 7 days.
- Metronidazol for 7 days.
- Rifaximin (Xifaxan) for 7 days. It is unique antibiotic that is not absorbed from intestine. Dose (400 or 800mg/day).

Approach to IBS



Thank

you

