FUNCTIONAL GASTROINTESTINAL DISORDERS

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Definition: A large group of gastrointestinal disorders in which symptoms occur in the absence of any demonstrable structural abnormalities in the GIT.

Pathophysiology:

a. Abnormalities in visceral sensation and low pain threshold (visceral hyperalgesia).

b. GI dysmotility

c. Psychological factors.

Visceral hypersensitivity possibly relates to:

- Altered receptor sensitivity at the viscus itself
- Increased excitability of the spinal cord dorsal horn neurones
- Altered central modulation of sensations

- **The brain–gut axis** describes a combination of intestinal motor, sensory and CNS activities.
- Thus extrinsic (e.g. vision, smell) and intrinsic (e.g. emotion, thought) information can affect gastrointestinal sensation because of the neural connections from higher centres.
- Conversely, viscerotropic events can affect central pain perception, mood and behavior.

Therefore, FGID should be regarded as a dysregulation of brain–gut function.

- Psychological stress can exacerbate gastrointestinal symptoms, and psychological disturbances are more common in patients with FGIDs.

They have psychosocial consequences with poor quality of life at home and work.

Classification :

Modified Rome III functional gastrointestinal disorders:

- A Functional **oesophageal** disorders
- B Functional **gastroduodenal** disorders
- C Functional **bowel** disorders
- D Functional **abdominal pain** syndrome
- E Functional **gall bladder** and **sphincter of Oddi** (SO) Disorders

Functional oesophageal disorders

a) Heartburn

b) Chest pain of presumed oesophageal origin

c) Dysphagia

d) Globus

Functional chest pain, of presumed oesophageal origin:

- Episodes of mainly midline chest pain, not burning in nature, that are potentially of oesophageal origin and which occur in the absence of a cardiological cause, gastro-oesophageal reflux and achalasia.

- ***Treatment*:**

✓high-dose acid suppression

✓nitrates

✓calcium-channel blockers.

✓Antidepressant therapy, e.g. **amitriptyline** or the selective serotonin reuptake inhibitor **citalopram**, have been shown to be effective.

Globus:

- Persistent or intermittent sensation of a lump or foreign body in the throat
- Occurrence of the sensation between meals
- The absence of dysphagia and pain on swallowing (odynophagia).

Treatment :

explanation and reassurance and a trial of antireflux therapy.

Antidepressants may be tried.

Functional gastroduodenal disorders

- Non-ulcer dyspepsia
- Nausea and vomiting disorders
- Rumination syndrome in adults

Functional dyspepsia

- This is the second most common functional gastrointestinal disorder (after irritable bowel syndrome).

Functional dyspepsia subgroups:

- Two subgroups based on the predominant (or most bothersome) single symptoms :

➢ ***Epigastric pain syndrome :*** with pain centred in the upper abdomen

➢ ***Postprandial distress syndrome :*** with an unpleasant or troublesome non-painful sensation (discomfort) centred in the upper abdomen.

- There is considerable overlap between these two groups.

Investigations:

- ***Helicobacter pylori*** infection should be serologically excluded, but many young patients (<50) require no further investigation.
- Older patients or those with alarm symptoms require ***endoscopy.***

Treatment:

- Reassurance
- Explanations
- Proton pump inhibitors
- Prokinetic agents
- Reducing intake of fat, coffee, alcohol and cigarette smoking helps.
- SSRI medication is tried in refractory cases.
- *H. pylori* eradication therapy has been shown to be effective in some patients

Aerophagia:

- A repetitive pattern of swallowing or ingesting air and belching.
- It is usually an unconscious act unrelated to meals.
- Usually no investigation is required.
- Explanation that the symptoms are due to swallowed air and reassurance
- treatment of associated psychiatric disease.

Functional bowel disorders:

Irritable bowel syndrome (IBS)

- IBS is the commonest FGID. Up to **40%** of all patients seen in specialist gastroenterology clinics will have IBS.
- ***Diagnostic criteria (Rome III 2006)***
- In the preceding 3 months, there should be at least 3 days/month of **recurrent abdominal pain** or discomfort associated with two or more of the following:
- 1. **Improvement** with **defecation**
- 2. **Onset** associated with a change in **frequency** of stool
- 3. **Onset** associated with a change in form (**appearance**) of stool.

Subtyping irritable bowel syndrome by predominant stool pattern :

- **IBS with constipation (IBS-C)**
- Hard lumpy stools >25% and loose or watery stools <25% of bowel movements
- **IBS with diarrhea (IBS-D):**
- Loose or watery stools >25% and hard or lumpy stools <25% of bowel movements
- **Mixed IBS (IBS-M):**
- Hard or lumpy stools >25% and loose or watery stools >25% of bowel movements
- **Unsubtyped IBS** :
- Insufficient abnormality of stool consistency to meet criteria for IBS-C, D or M

- The decision as to whether to investigate and the choice of investigations should be based on clinical judgement.

Pointers to the need for thorough investigation:

- rectal bleeding
- nocturnal pain
- fever
- weight loss
- clinical suspicion of organic diarrhoea.
- A raised stool calprotectin or lactoferrin would suggest inflammation needing further investigation.

IBS – a multisystem disorder:

- IBS patients suffer from a number of non-intestinal symptoms which may be more intrusive than the classical features.

Non-gastrointestinal features of IBS:

1- Gynaecological symptoms :

- ❑Painful periods (dysmenorrhoea)
- ❑Pain following sexual intercourse (dyspareunia)

2- Urinary symptoms

- ❖Frequency
- ❖Urgency
- ❖Passing urine at night (nocturia)
- ❖Incomplete emptying of bladder

3- Other symptoms :

- ❑Back pain
- ❑Headaches
- ❑Bad breath, unpleasant taste in the mouth
- ❑Poor sleeping
- ❑Fatigue

Some factors that can trigger onset of IBS:

- Affective disorders, e.g. depression, anxiety
- Psychological stress and trauma
- Gastrointestinal infection
- Antibiotic therapy
- Sexual, physical, verbal abuse
- Pelvic surgery
- Eating disorders

Treatment of IBS:

1. End organ treatment

- Explore dietary triggers: ---------- →Refer to **dietitian**
- High-fibre diet ± **fibre** supplements for **constipation** ---- → Refer to **dietitian**
- Alter the **microbiota** : ---------- → **Rifaximin**
- **Anti-diarrhoeal** drugs for bowel frequency ----- →**Loperamide** and Codeine phosphate
- **Constipation** ---------- → **Lubiprostone** and **Linaclutide (FDA approved)**
- Smooth muscle relaxants for **pain** --------- →**Mebeverine hydrochloride** and Peppermint oil

2. Central treatment

- Explain physiology and symptoms
- Psychotherapy
- Hypnotherapy
- Cognitive behavioural therapy
- Antidepressants :

  - Functional diarrhoea ---------- →clomipramine
  - Diarrhoea-predominant IBS -- → tricyclic group, e.g. amitriptyline
  - Constipation-predominant IBS -------- → SSRI, e.g. paroxetine

- ***Probiotics and prebiotics:***

I. ***Probiotics*** are live or attenuated bacteria or bacterial products that confer significant health benefit to the host.

- Recent studies have shown a beneficial effect of specific probiotics such as *Bifidobacterium infantis* 35624 on IBS.

II. ***Prebiotics*** are non-digestible food supplements that are fermented by host bacteria thereby altering the microbiota of the host often by stimulating the growth of healthy bacteria.

- There is early evidence that they may have a beneficial impact on some IBS symptoms.

Pain/gas/bloat syndrome/midgut dysmotility

- predominantly affects the small intestine or midgut.
- The symptom-based ***diagnostic criteria*** are :

❑ **Abdominal pain**, often **exacerbated by eating** and :

❑ **NOT** relieved by opening the bowels

❑ **NOT** associated with constipation or diarrhea.

❑ **Abdominal distension (bloating**)

❑ **postprandial fullness**

❑ **nausea** and

❑ on occasions, **anorexia and weight loss**.

Treatment :

It is not easy; and in some, pain can be chronic and severe.

Central and **end-organ** targeted treatment approaches should be combined:

- Selective serotonin reuptake inhibitor **paroxetine** combined with a prokinetic agent **domperidone** or smooth muscle relaxant, e.g. **mebeverine.**
- Patients can be referred to a **dietician**

Functional diarrhoea

Symptoms occur in the absence of abdominal pain.

- The passage of several stools in rapid succession usually first thing in the morning. No further bowel action may occur that day or defecation only after meals
- The first stool of the day is usually formed, the later ones are looser or watery
- Urgency of defecation
- Anxiety, uncertainty about bowel function with restriction of movement (e.g. travelling)
- Exhaustion after the defecation.

- Chronic diarrhoea without pain is caused by many diseases indistinguishable by history from functional diarrhoea.
- Features **atypical for a functional disorder** (e.g. large-volume stools, rectal bleeding, nutritional deficiency and weight loss) call for more extensive investigations.

Treatment :

- **loperamide** often combined with a **tricyclic antidepressant** prescribed at night (e.g. clomipramine 10–30 mg).