DISORDERS OF GUT-BRAIN INTERACTION (DGBI) UPPER GIT

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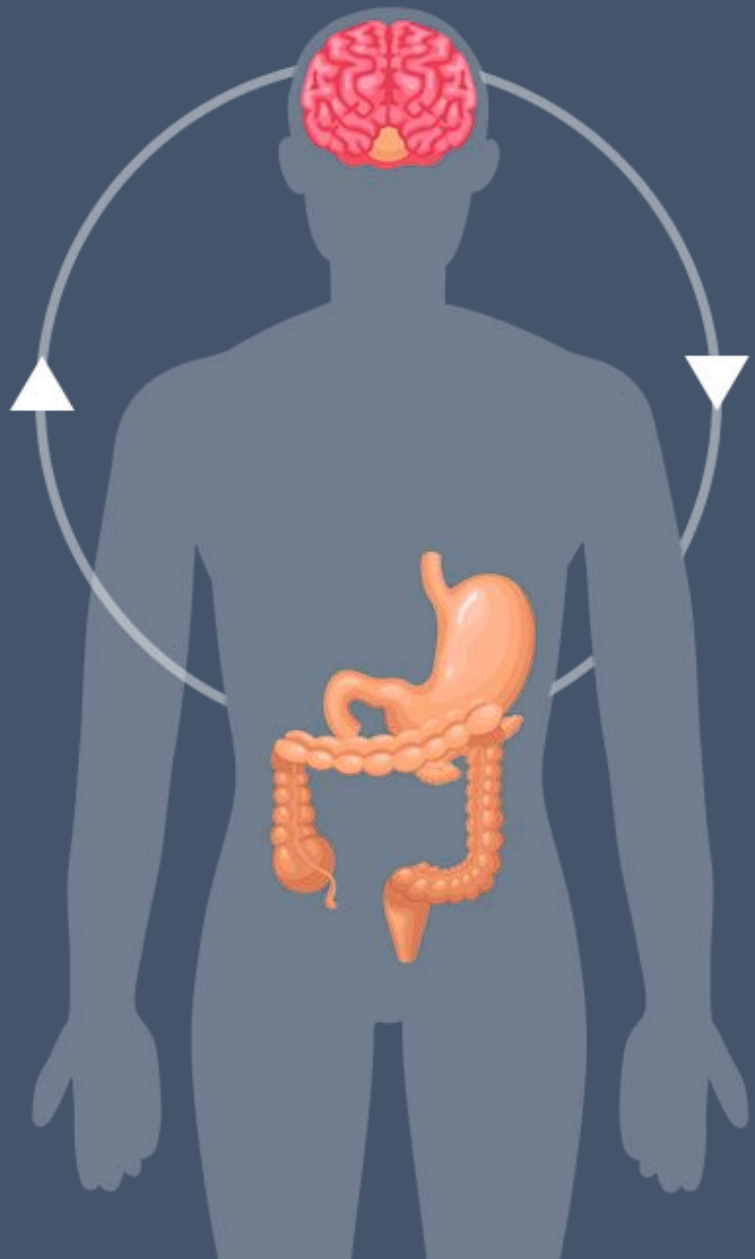


OUTLINE

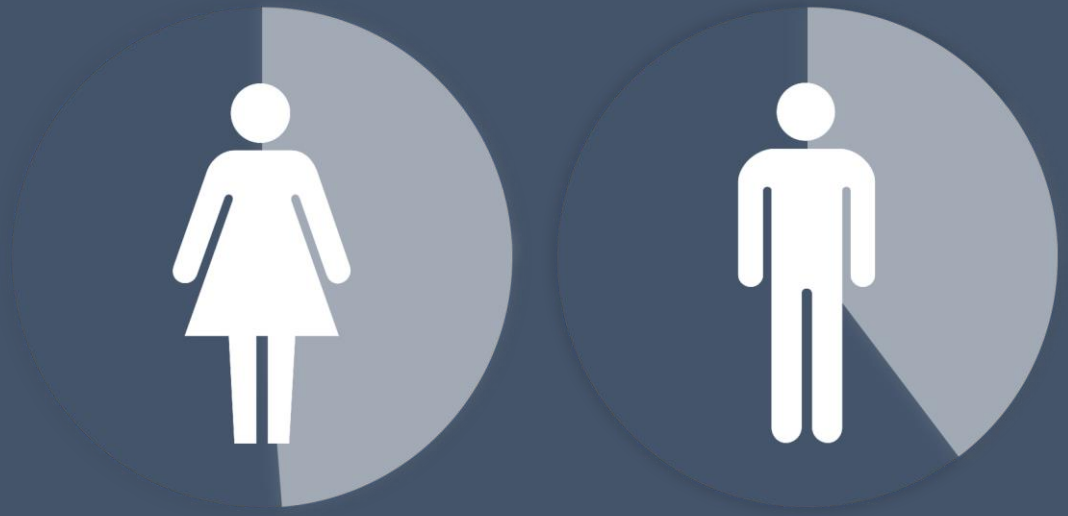
- Definition
- Epidemiology
- Pathophysiology
- Oesophageal disorders
- Gastroduodenal disorders
- References

DEFINITIONS

Functional gastrointestinal disorders (FGID) are a collection of conditions affecting every part of the GI that share most of the following features:

- Underlying pathophysiologic mechanisms are largely unknown
- No anatomic or traumatic defect that could cause the dysfunction
- No relation to metabolic abnormality such as hypothyroidism
- Symptoms are often vague and difficult to localize
- Functional in that the normal neuromuscular function of the affected part of gastrointestinal tract is impaired and/or causes discomfort

EPIDEMIOLOGY



- Common in women, 49% vs 37% report at least one DGBI
- Global internet survey of 54 127 adults in the communities of 26 countries 43% met the criteria
- Increased risk of both atopic and auto immune diseases
- Intercountry variation in prevalence
- Variability might also reflect contrasts in genetics, culture, lifestyle, and dietary traditions that exist between nations.

PATHOPHYSIOLOGY

- Complex bidirectional dysregulations of gut–brain interaction
- Visceral hypersensitivity, abnormal gastrointestinal motility, and psychological disturbances have been recognised aetiologies
- Low-grade intestinal inflammation, increased intestinal permeability, immune activation, and disturbances in the microbiome have been identified aetiology lately
- CNS processing of pain and other gut signals are required for the subjective patient symptom experience
- Abnormal brain activity associated with visceral hyper sensitivity, as well as anxiety and depression, in patients with DGBI

BIOPSYCHOSOCIAL MODEL

- 50% of cases, DGBI begin with psychological distress, followed later by gastrointestinal symptoms

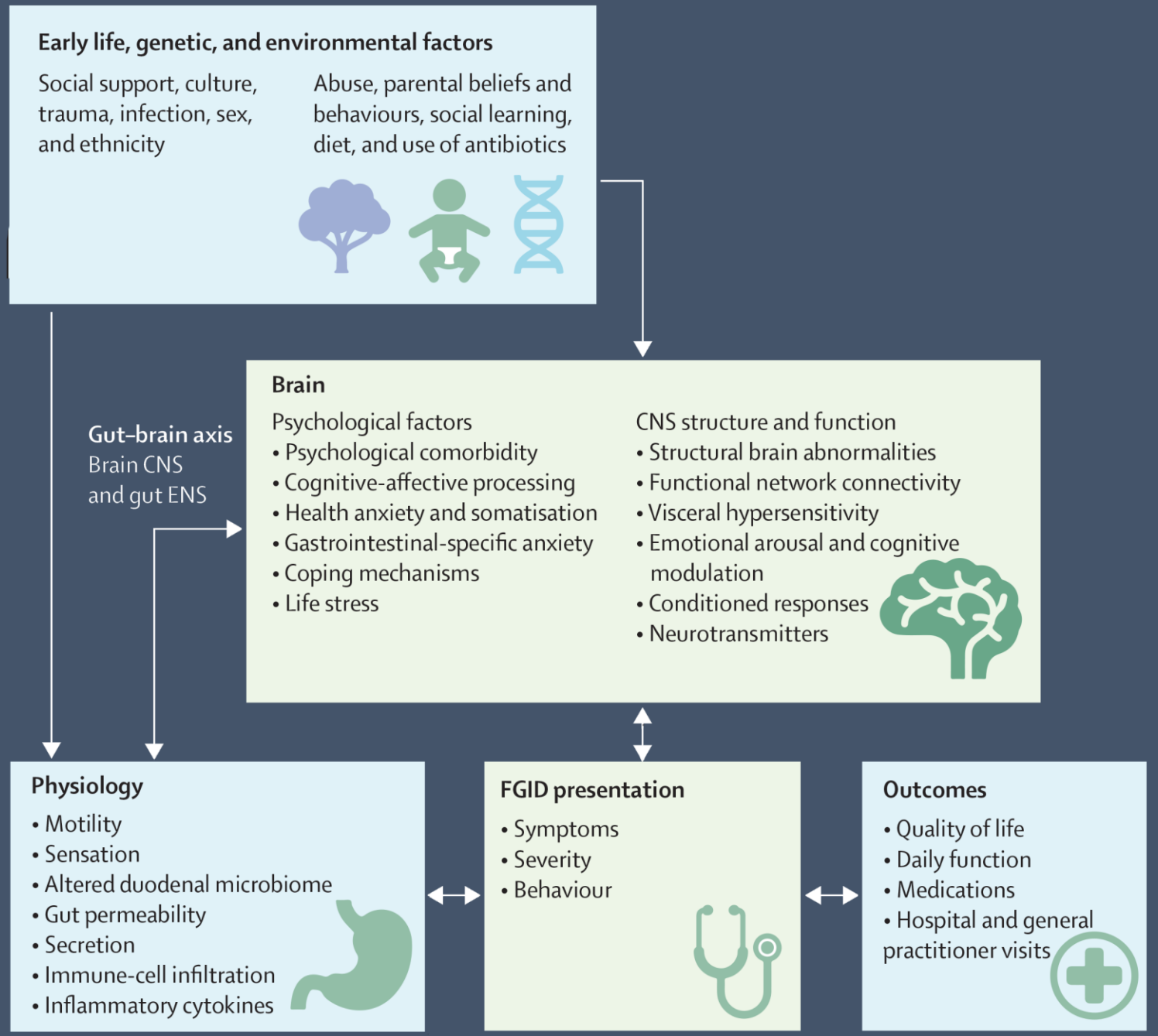
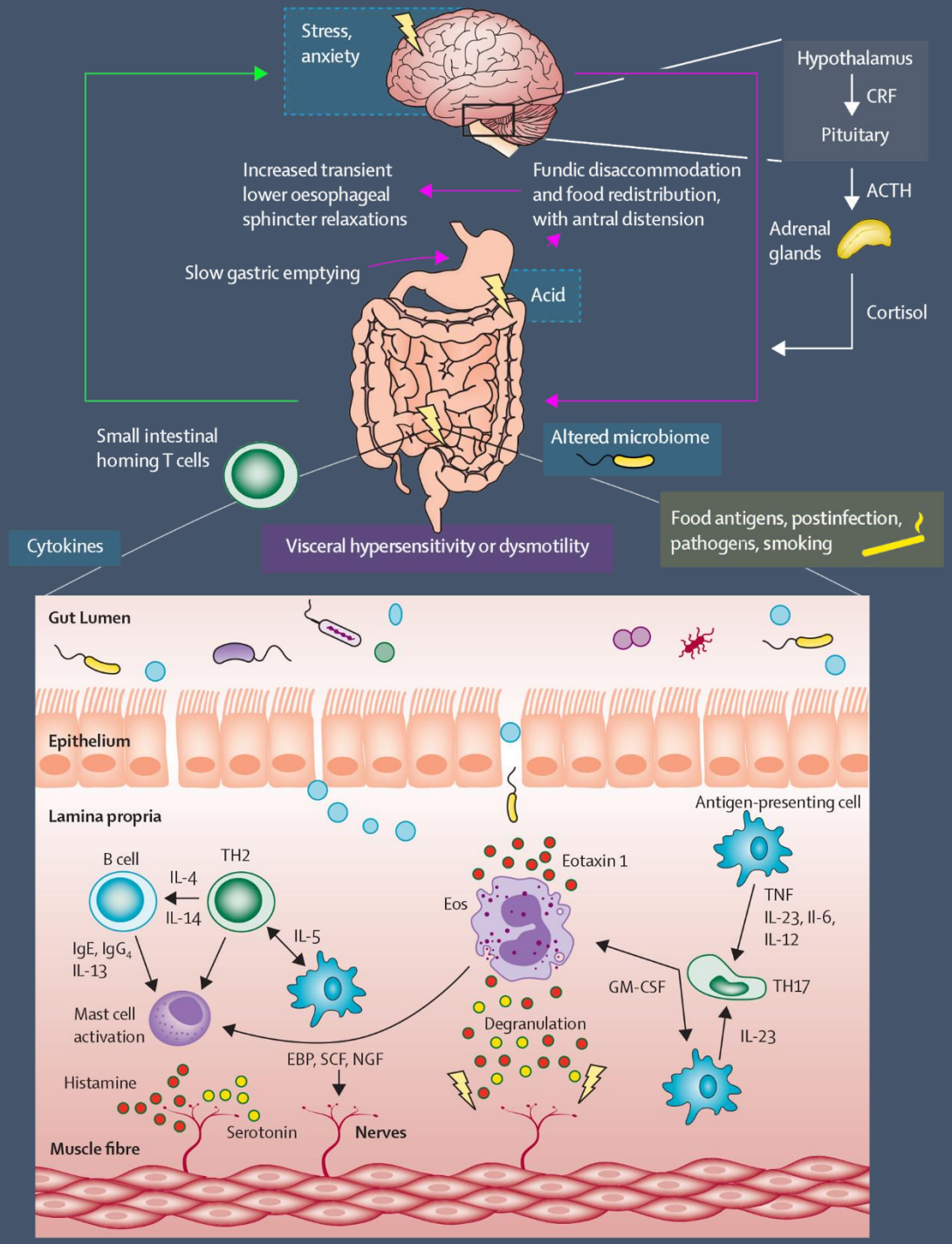


Figure 1: **A biopsychosocial model of functional gastrointestinal disorders**
Adapted from van Oudenhove and colleagueas.35 FGID=functional gastrointestinal disorders. ENS=enteric nervous system.



GUT-BRAIN INTESTINAL DISEASE MODEL

- 50% of cases gut dysfunction occurs first, and psychological distress follows later

Figure 2: Intestinal immune activation model of functional gastrointestinal disorders

DIAGNOSIS

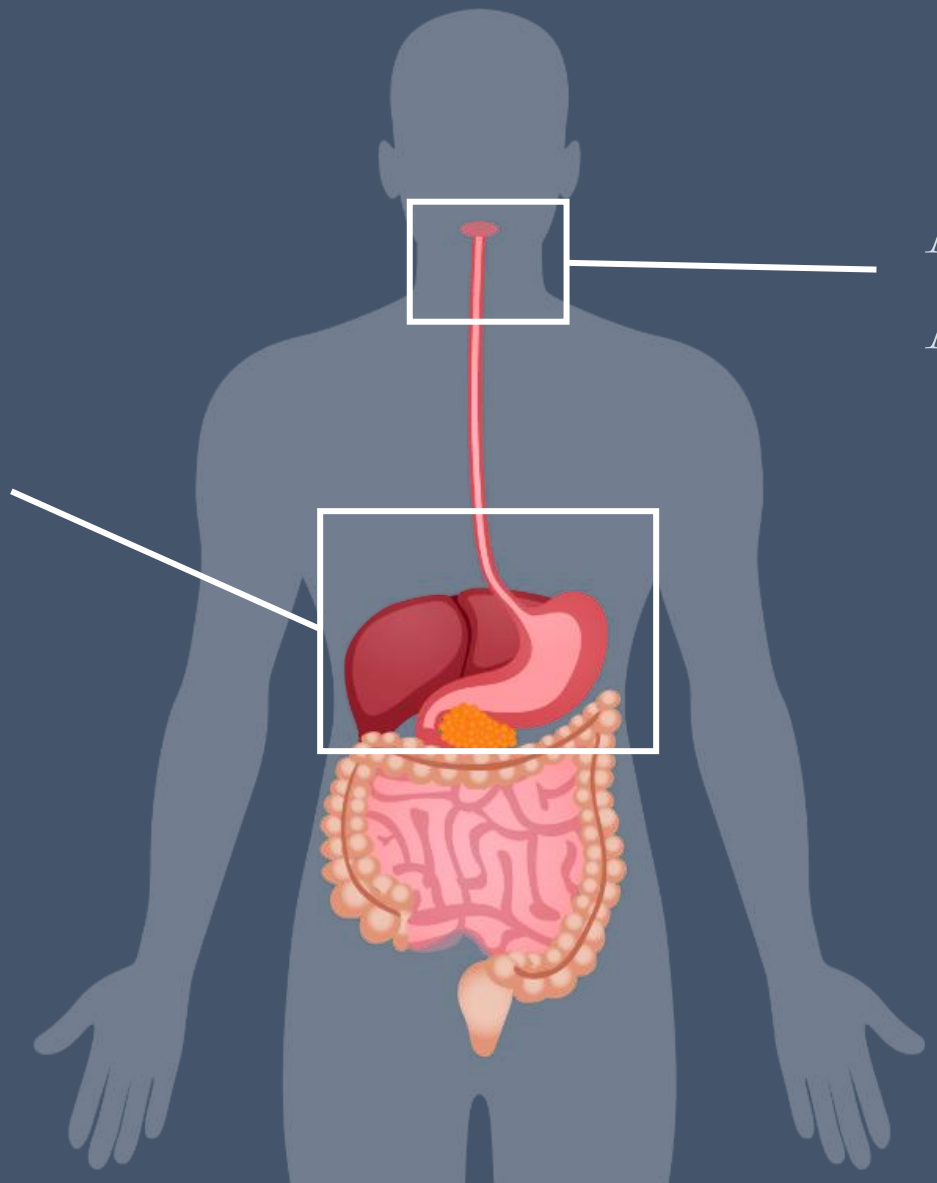
- Requires fulfilling symptom based criteria
- Exclude, in a cost-effective manner, other specific conditions with similar clinical presentation

OESOPHAGEAL DISORDERS

A1: Functional chest pain

A2: Functional heartburn

A3: Reflux hypersensitivity



A4: Globus

A5: Functional dysphagia

Fig. 3 Oesophageal Disorders

FUNCTIONAL OESOPHAGEAL DISORDERS

A1 Functional chest pain

- Recurring, unexplained retrosternal chest pain of presumed oesophageal origin
- Not explained on the basis of reflux disease, other mucosal or motor processes
- Representing pain different from heartburn
- Cardiology assessment, Endoscopy and biopsies, 24 h pH impedance studies and oesophageal manometry

FUNCTIONAL OESOPHAGEAL DISORDERS

Criteria for functional chest pain

- Criteria must be fulfilled for the previous 3 months with symptom onset at least 6 months prior to diagnosis, and a frequency of at least once a week.
- Retrosternal chest pain or discomfort; exclude cardiac causes.
- Absence of associated oesophageal symptoms, such as heartburn and dysphagia.
- Absence of evidence that gastroesophageal reflux or eosinophilic esophagitis are the cause of the symptom.
- Absence of major oesophageal motor disorders

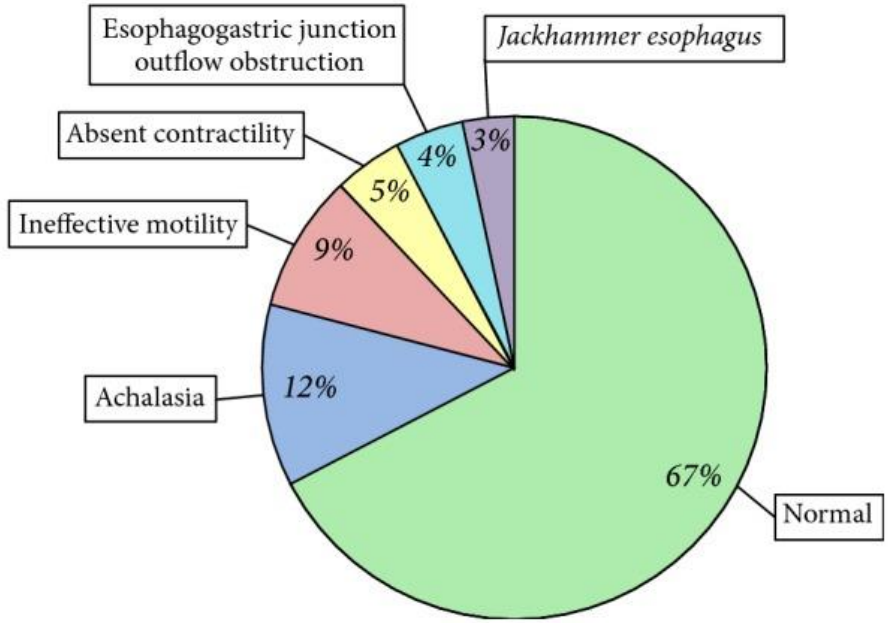


Fig. 4 Division of Gastroenterology, Gastro-Intestinal Motility Center, Montreal, QC, Canada

FUNCTIONAL CHEST PAIN

- Fass et al estimated that within NCCP cohorts

  50%–60% have GERD

  15%–18% had oesophageal dysmotility

  32%–35% had true functional chest pain.

- Hypersensitivity from peripheral and/or central sensitization

  - altered central processing of visceral stimuli

  - altered autonomic activity

- Treatment SSRI/TCA

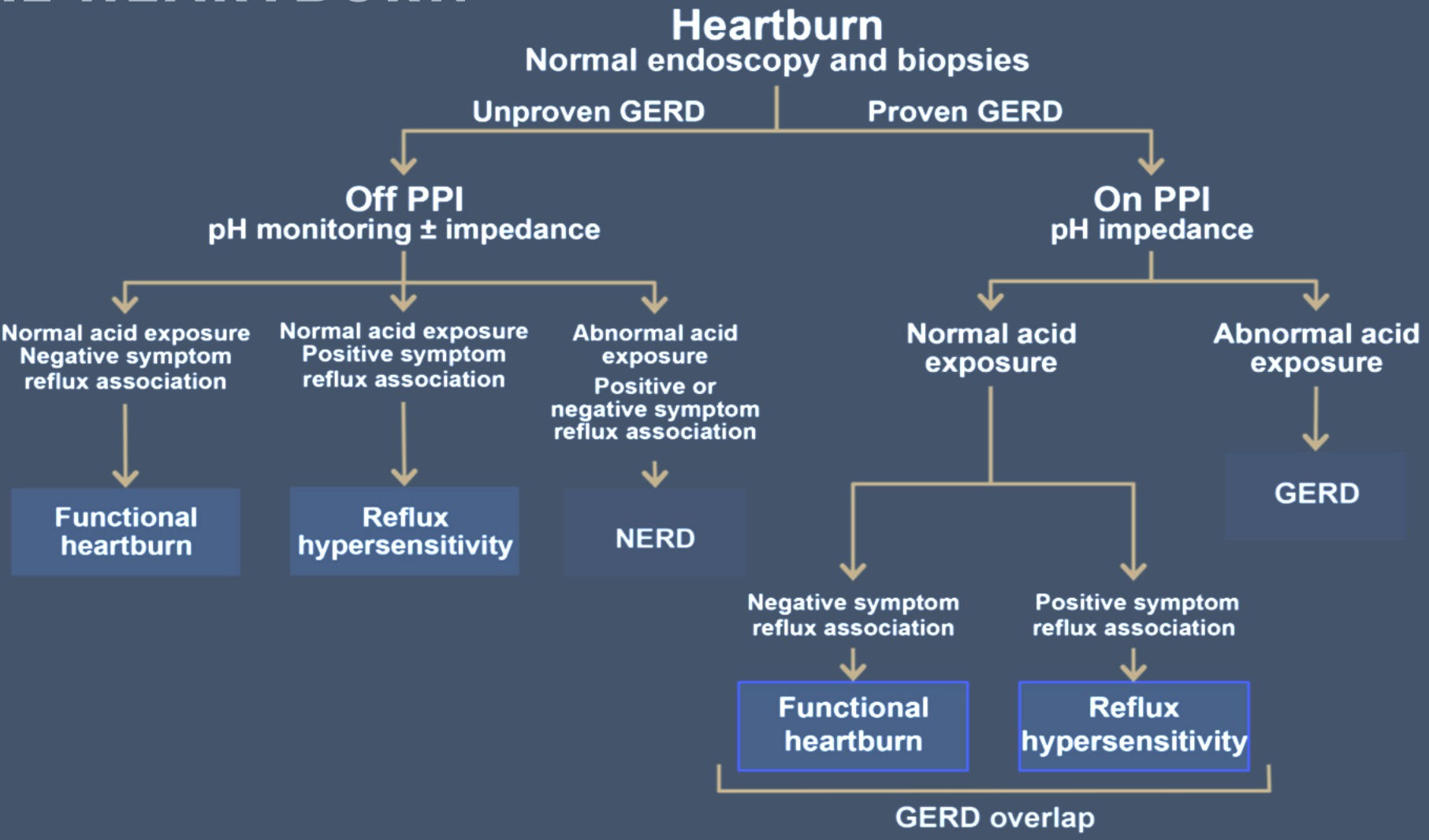
  Behavioural therapies are alternative and or complementary to medical therapy

FUNCTIONAL OESOPHAGEAL DISORDERS

FUNCTIONAL HEARTBURN

- Burning retrosternal discomfort or pain refractory to antisecretory therapy
- Absence of evidence that GERD or EoE , oesophageal motor disorders and histopathologic mucosal abnormalities

FUNCTIONAL HEARTBURN



Adapted from Oesophageal disorders, Gastroenterology 2016;150:1368–1379

FUNCTIONAL OESOPHAGEAL DISORDERS

Reflux hypersensitivity

- Retrosternal symptoms including heartburn and chest pain
- Normal endoscopy and absence of evidence that EoE is the cause of the symptoms
- Absence of major oesophageal motor disorders
- Evidence of triggering of symptoms by reflux events despite normal acid exposure on pH- or pH-impedance monitoring

PATHOPHYSIOLOGY AND TREATMENT

Pathophysiology and treatment

- similar to those underlying functional chest pain and functional heartburn
- evidence of up-regulation of acid-sensitive receptors (eg, TRPV1 receptor)
- psychological features are an important component of reflux hypersensitivity
- antisecretory therapy may be better than in other functional oesophageal disorders
- Mainstay TCI/SSRI

FUNCTIONAL OESOPHAGEAL DISORDERS

GLOBUS

- Persistent or intermittent, non-painful sensation of a lump or foreign body in the throat with no structural lesion identified on physical examination, laryngoscopy, or endoscopy
- Occurrence of the sensation between meals
- Absence of dysphagia or odynophagia
- Absence of a gastric inlet patch in the proximal oesophagus
- Absence of evidence that gastroesophageal reflux or eosinophilic oesophagitis is the cause of the symptom
- Absence of major oesophageal motor disorders

GLOBUS

- Globus sensation may be a function of the perception of
- a space occupying lesion, a manifestation of GERD, associated, with a gastric inlet patch and potentially related to a major motor disorder
- Psychiatric diagnosis is prevalent
- Mainstay of treatment rests with explanation and reassurance.
- anecdotal evidence supports use of antidepressants and behavioural therapy

FUNCTIONAL OESOPHAGEAL DISORDERS

FUNCTIONAL DYSPHAGIA

- Sense of solid and/or liquid foods sticking, lodging, or passing abnormally through the oesophagus
- Absence of evidence that oesophageal mucosal or structural abnormality is the cause of the symptom
- Absence of evidence that gastroesophageal reflux or EoE is the cause of the symptom
- Absence of major oesophageal motor disorders

FUNCTIONAL DYSPHAGIA

Pathophysiology

- Limited data supporting a higher likelihood of psychological distress

Treatment

- Functional dysphagia may regress over time
- Reassurance and simple non-pharmacologic measures
- Eating in the upright position, avoiding precipitating food, items, careful chewing of food, and chasing food with liquids may suffice
- TCAs can be tried - poor evidence
- bougie dilation to 50–54F can be considered

B: GASTRODUODENAL DISORDERS

- B1: Functional dyspepsia
- B1a: Postprandial distress syndrome
- B1b: Epigastric pain syndrome
- B2: Belching disorders
- B2a: Excessive supragastric belching
- B2b: Excessive gastric belching
- B3: Nausea and vomiting disorders
- B3a: Chronic nausea vomiting syndrome
- B3b: Cyclic vomiting syndrome
- B3c: Cannabinoid hyperemesis syndrome
- B4: Rumination syndrome

FUNCTIONAL DYSPEPSIA

- Characterised by one or more symptoms, including postprandial fullness, early satiety, epigastric pain, or epigastric burning, which are unexplained after routine clinical investigation
- Endoscopy and biopsies if alarm symptoms are present

B1a. Postprandial Distress Syndrome

Must include one or both of the following at least 3 days per week:

1. Bothersome postprandial fullness impacting usual activities
2. Bothersome early satiation preventing finishing a regular-size meal

B1B: EPIGASTRIC PAIN SYNDROME

Must include at least 1 of the following symptoms at least 1 day a week:

1. Bothersome epigastric pain impacting usual activities

AND/OR

2. Bothersome epigastric burning impacting on usual activities

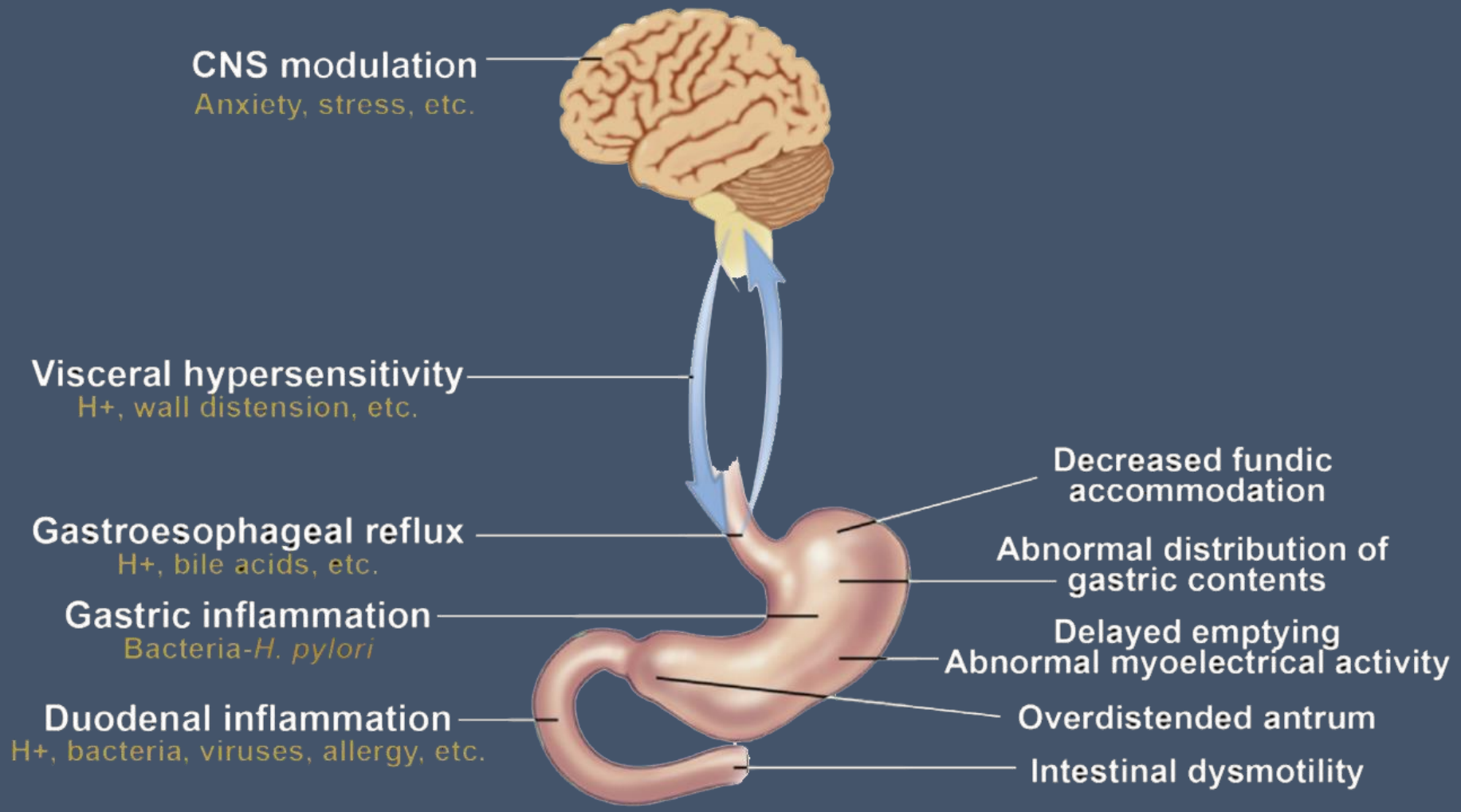
No evidence of organic, systemic, or metabolic disease

Supportive remarks

1. Pain may be induced or relieved by ingestion of a meal or fasting
2. Postprandial epigastric bloating, belching, and nausea can also be present
3. Persistent vomiting likely suggests another disorder

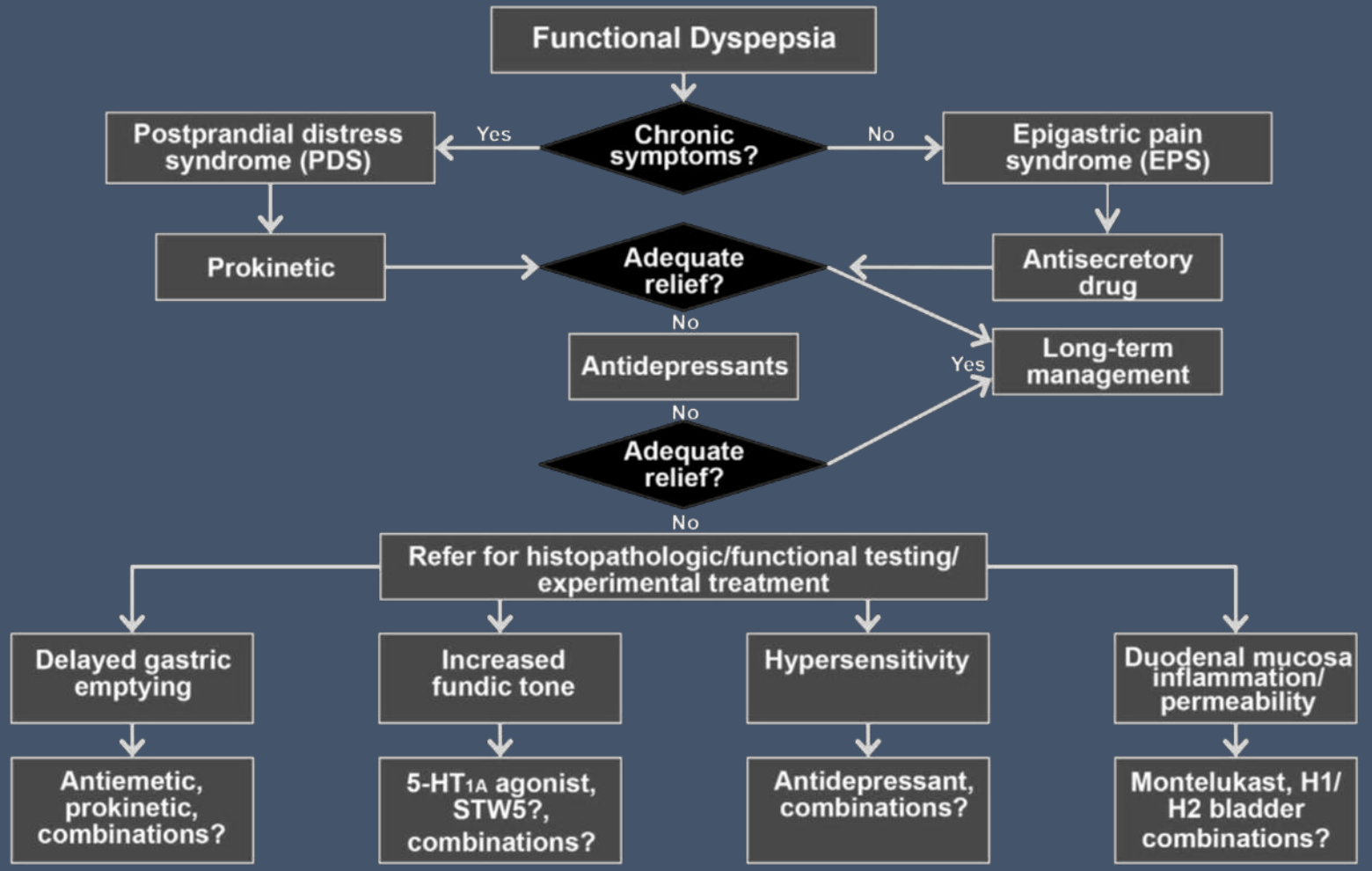
4 Heartburn may co exist

FUNCTIONAL DYSPEPSIA PATHOGENESIS



Adapted from gastroduodenal disorders, Gastroenterology 2016;150:1380–1392

EVALUATION AND TREATMENT OF FD



Adapted from Gastroduodenal Disorders, Gastroenterology 2016;150:1380–1392

B2: BELCHING DISORDERS

Belching from the oesophagus or stomach more than 3 days a week

- B2a. Excessive Supragastric Belching (from oesophagus)
- B2b. Excessive Gastric Belching (from stomach)

Supportive criteria

1. Supragastric belching is supported by observing frequent, repetitive belching
2. Gastric belching has no established clinical correlate
3. Objective intraluminal impedance measurement is required to distinguish supragastric from gastric belching

TREATMENT OF BELCHING

Supragastric

- Reassurance, speech therapy, more studies are required
- Referral to psychiatrist

Gastric

- Severe acute case are common in mentally disabled patients can result in volvulus and diaphragm impingement - NGT
- Chronic case - eat slowly, avoid carbonated drinks
- Speech therapy
- Baclofen may decrease both gastric and supragastric belching events

B3: NAUSEA AND VOMITING DISORDERS

B3a: Chronic Nausea and Vomiting Syndrome (CNVS)

- Bothersome nausea, occurring at least 1 day per week and/or 1 or more vomiting episodes per week
- Self-induced vomiting, eating disorders, regurgitation, rumination are excluded
- No evidence of organic, systemic, or metabolic

3BbCyclic vomiting syndrome

- Stereotypical episodes of vomiting, with an acute onset, and lasting less than 1 week, with the absence of vomiting between episodes
- History is usually typical, but if history is atypical, endoscopy, computed tomography of the brain, and a porphyria screen should be considered

NAUSEA AND VOMITING DISORDERS

B3c: Cannabinoid Hyperemesis Syndrome (CHS)

1. Stereotypical episodic vomiting resembling cyclic vomiting syndrome (CVS) in terms of onset, duration, and frequency
2. Presentation after prolonged excessive cannabisuse
3. Relief of vomiting episodes by sustained cessation of cannabis use

- May be associated with prolonged hot baths or showers

EVALUATION OF NAUSEA AND VOMITING

- Consider gastroparesis, intestinal pseudo-obstruction, mechanical obstruction, metabolic, central nervous system diseases and rumination.
- Exclude electrolyte and acid base abnormalities, hypercalcemia, hypothyroidism, and Addison's disease
- Upper endoscopy and bowel imaging can evaluate for gastroduodenal disease and small bowel obstruction
- CTB is necessary to exclude space-occupying lesions
- Consider a gastric-emptying evaluation
- Oesophageal pH testing to exclude atypical presentation of GERD

TREATMENT OF NAUSEA AND VOMITING DISORDERS

- CNVS-antiemetic , 5HT3 superior for vomiting.
- CVS-supportive care and aggressive medication

  10% dextrose electrolytes replenishment as needed with antiemetics especially serotonin 5-HT3 ` antagonists
- CHS- withdrawal of marijuana

B4: RUMINATION SYNDROME

- Persistent or recurrent regurgitation of recently ingested food into the mouth with subsequent spitting or re-mastication and swallowing
- Regurgitation is not preceded by retching

Supportive remarks

- Effortless regurgitation events are usually not preceded by nausea
- Regurgitant contains recognizable food that might have a pleasant taste
- The process tends to cease when the regurgitated material becomes acidic

EVALUATION AND TREATMENT

- Combined impedance and high-resolution manometry shows elevations in intragastric pressure before or concurrently with oral oesophageal fluid propulsion
- Mainstay of treatment for rumination syndrome involves behavioural modification
- PPI can prolong rumination how ever suppress heartburn and protect the oesophageal mucosa
- Baclofen blunts transient LES relaxations how lack of data to support use
- Data is insufficient for Nissen fundoplication

TAKE HOME MESSAGES

- No organic explanation for symptoms
- Bidirectional dysregulation of gut–brain interaction
- Psychological comorbidity is common
- Prompt identification and treatment
- Symptom-based criteria, with judicious use of limited investigations
- Treatment is based on a biopsychosocial understanding

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THANK YOU