GASTROPARESIS

BIBLE CLASS 17.01.2024

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Definition?

Definition of Gastroparesis

- Typical symptoms
- Proof of delayed emptying
- Obstruction absent

Delayed GE alone does NOT imply GP

Symptoms suggestive of Gastroparesis?

Clinical Score?

Gastroparese-Cardinal-Symptom-Index-Score

		none	Very mild	Mild	Moderate	Severe	Very severe	Sum	Aritheme tic Mean
1.	Nausea	0	1	2	3	4	5		
2.	Retching	0	1	2	3	4	5		
3.	Vomiting	0	1	2	3	4	5		
4.	Stomach fullness	0	1	2	3	4	5		
5.	Not able to finish a normal sized meal	0	1	2	3	4	5		
6.	Feeling extensively full after meals	0	1	2	3	4	5		
7.	Loss of appetite	0	1	2	3	4	5		
8.	Bloating	0	1	2	3	4	5		
9.	Stomach or belly visibly larger	0	1	2	3	4	5		

1-3 = nausea/vomiting

4-7 = post-prandial fullness/ early satiety

8-9 = bloating

Sum _____ _____

Total GCSI-Score:
Sum of all points
Of all quesions

Average GCSI-Score:
arithmetic mean of the three symptom subscores (=mean of 1-3, 4-7, 8-9)

Average GCSI Score: Es wird der Mittelwert für jeden der 3 Subscores errechnet, dann der Mittelwert aus den Punkten der Subscores. Ein GCSI von > 2.3 gilt als vereinbar mit Gastroparese.

Differential diagnosis?

Differential diagnosis

Gastroenterology 2021;160:2006–2017

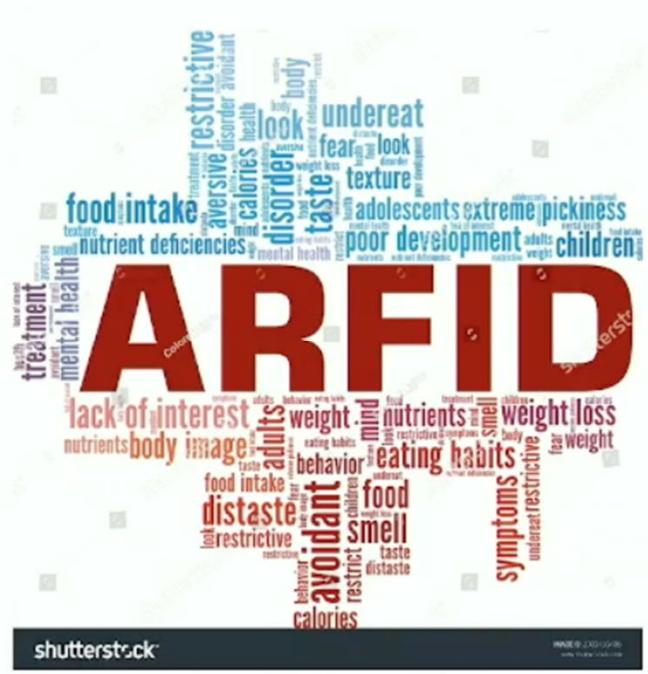
Functional Dyspepsia and Gastroparesis in Tertiary Care are Interchangeable Syndromes With Common Clinical and Pathologic Features

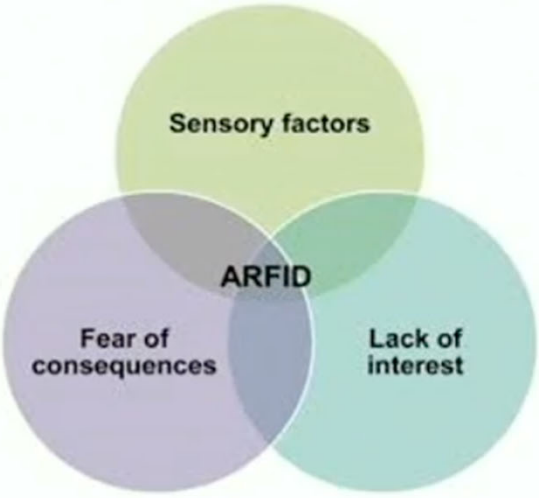
944 FD, 720 GP patients, 244 patients with normal empyting

- Identical symptoms at baseline
- Finding of delayed GE: unstable (48% category change)
- No correlation between GE and severity of symptoms

Differential diagnoses

- Eating Disorders
  - Anorexia Nervosa
  - Bulimia Nervosa
  - ARFID
    (Avoidant/Restrictive Food
    Intake Disorder)

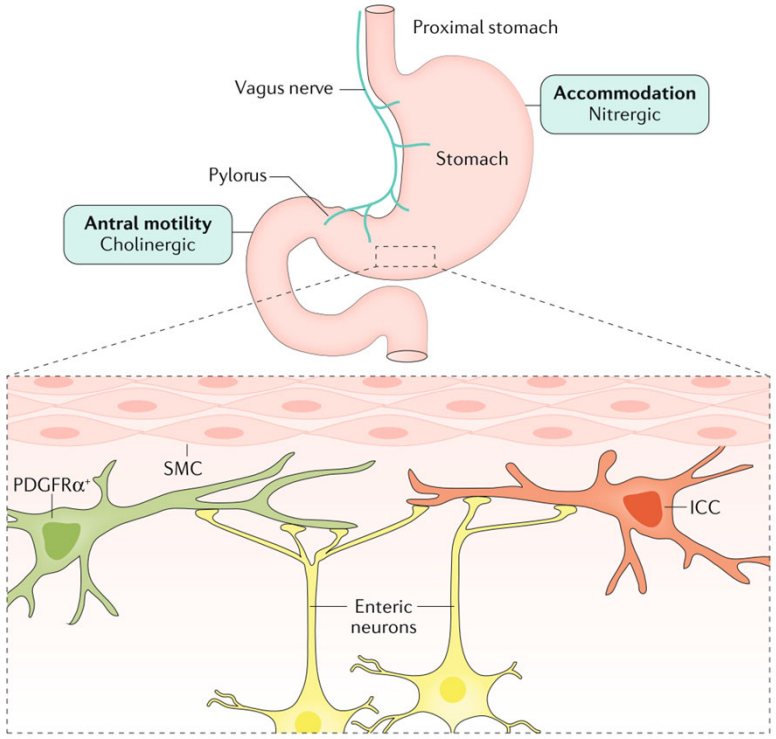




Common in GI patients: 20% in tertiary clinics
Harper et al. 2020

Pathophysiology of Gastroparesis?

Impaired neuromuscular gastric funtion



1. Function: impaired motor gastric activity, pylorospasm, impared antral coordiantion, small bowel and gradient. Altered signal processing in pain.

2. Cell: loss of expression of NO, loss of ICCs (diabetic AND idiopathic GP). Immune activation. Neuropathy in diabetes

3. Iatrogenic

Camillieri, Nat. Rev. Dis. Primers 2018

Aetiology of Gastroparesis?

Box 1 | **Causes of gastroparesis**

- Idiopathic
- Diabetes mellitus — type 1 and type 2
- Post-surgical (fundoplication and vagotomy)
- Medications (opioids, antibiotics, antiarrhythmics and anticonvulsants)
- Neurologic disorders (Parkinson disease, amyloidosis and dysautonomia)
- Post-viral infection (norovirus, Epstein–Barr virus, cytomegalovirus and herpesvirus)
- Connective tissue disorders (scleroderma and systemic lupus erythematosus)
- Renal insufficiency

Data from REF. [119]

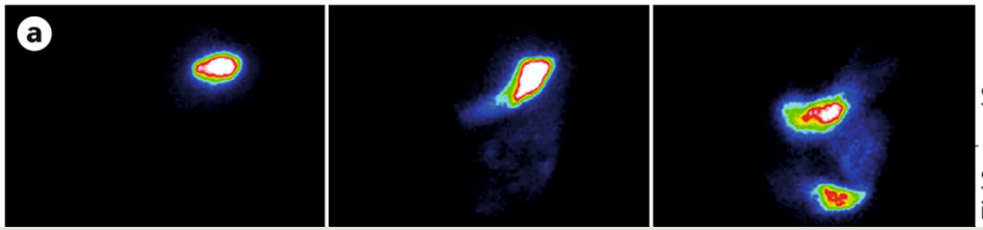
Camillieri, Nat. Rev. Dis. Primers 2018

Measurement of Gastric Emptying?

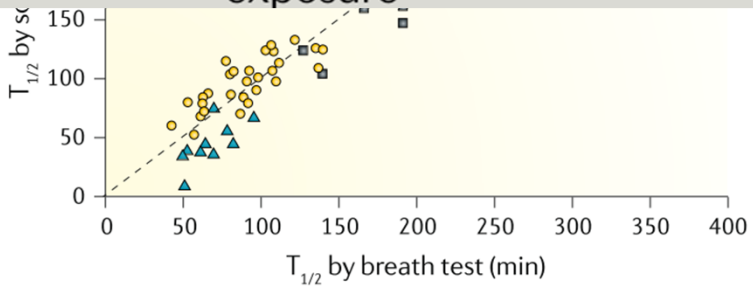
Measurement of Gastric Emptying

- Scintigraphy: Solid meal Gastric Emptying Study over >3 hours
- Stable isotope (13C-spirulina) breath test
  (currently not distributed in Europe)
- MRI
- Wireless motility capsule: off the market
- Radioopaque markers

Diagnosis



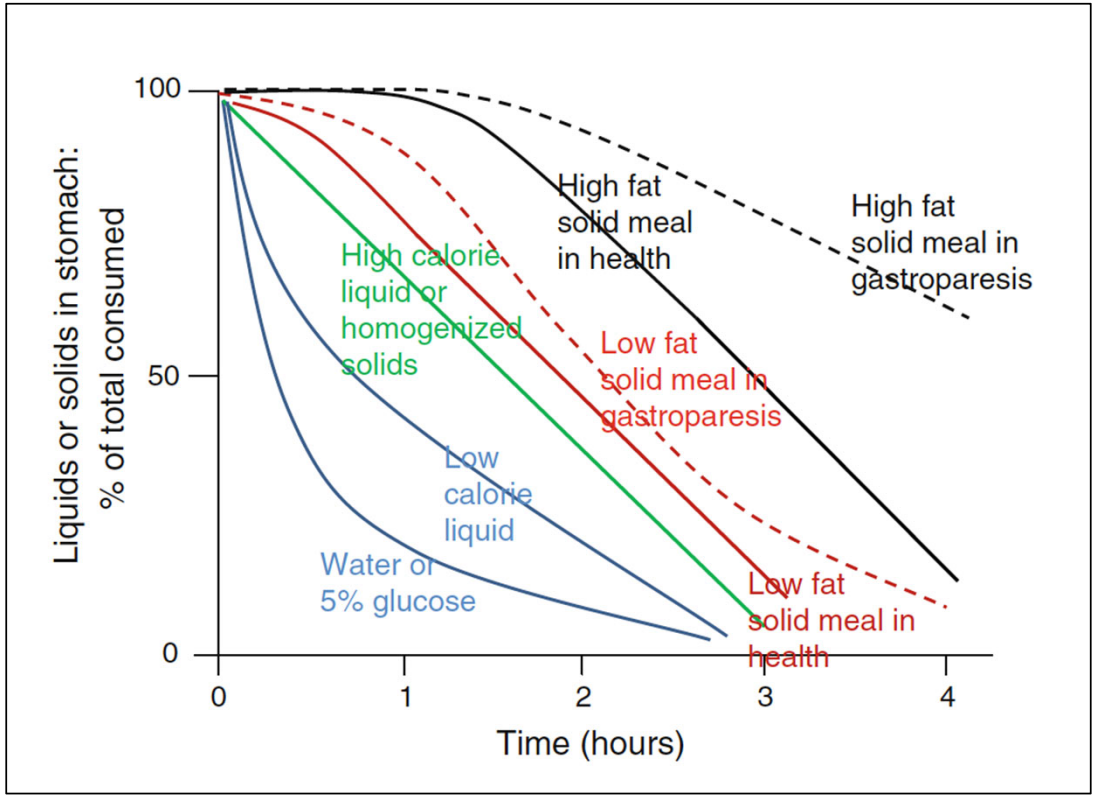
Scintigraphy with solid meal	• Well validated • Reproducible	• Western-style meal type is not familiar to Asian patients • Solid meal is not tolerable in some patients
Stable isotope breath test	• Easy to perform • No risk of radiation exposure	Easily influenced by physical activity



Viramontes, B. E. et al. Neurogastroenterol. Motil. 13, 567–574 (2001)

Drawbacks: intolerance to ingested test meal!

Physiology of gastric emptying



3 Phases:

Lag phase: Triturition to particle size <2 mm

Linear Phase: Influenced by caloric density

Migrating Motor Complex (MMC):
Emptying of large size remnants

Camilleri & Shin Dig Dis Sci 2013; 58:1813–1815

Treatment of Gastroparesis?

Treatment of Gastroparesis

Nutritional support

Pharmacologic

Interventions at the pylorus

Gastric pacing

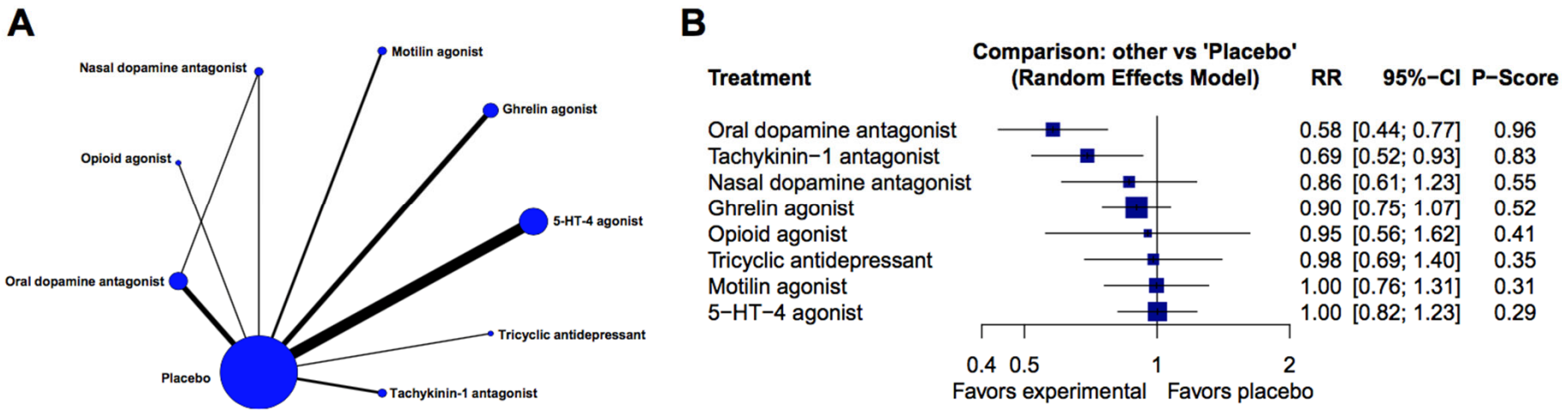
Resection

Treatment of Gastroparesis

Nutritional support:

- Frequent, small particle meals
- Nasojejunal catheter
- PEG with jejunal branch

Treatment: GE



Ingrosso et al. Gastroenterology 2023;164:642–654

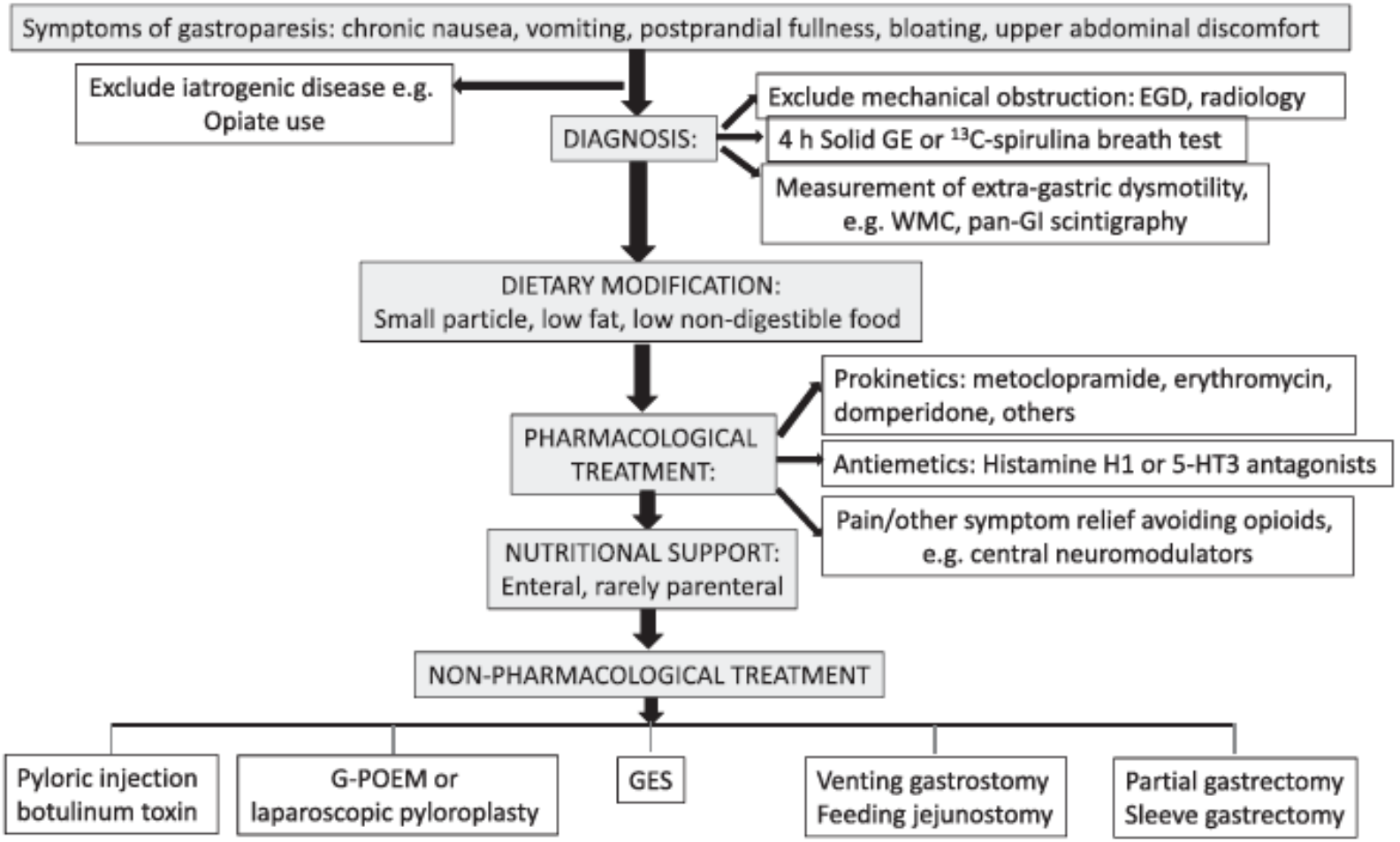
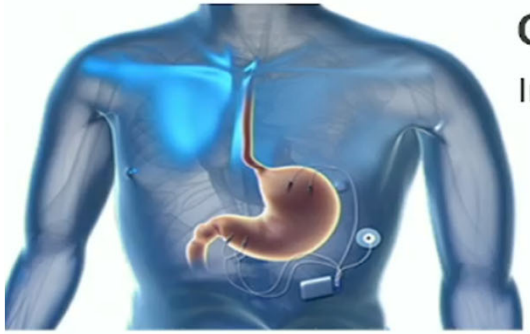


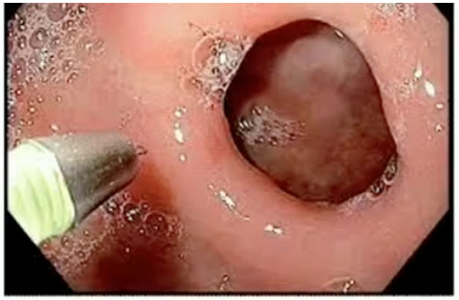
Figure 1. This algorithm updates the algorithm from the 2013 ACG guideline on gastroparesis (1). ACG, American College of Gastroenterology, EGD, esophagogastoduodenoscopy; GE, gastric emptying; GI, gastrointestinal; G-POEM, gastric per-oral endoscopic myotomy; WMC, wireless motility capsule.

Camilleri M Am J Gastroenterl 2022



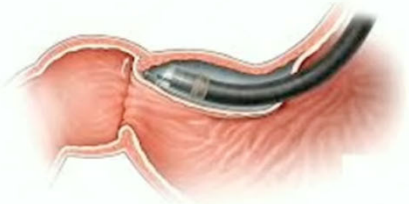
Gastric pacing:

Improvement in Sx, nutrition



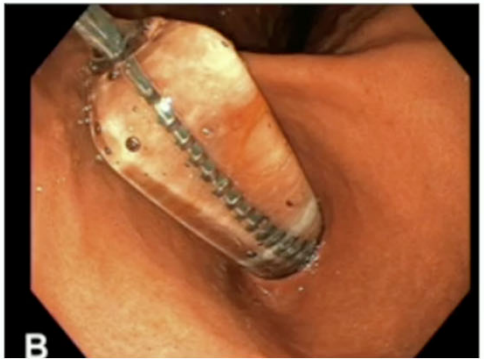
Pyloric botox

Improvement in Sx, nutrition



G-POEM:

Improvement in gastric emptying> symptoms



Pyloric dilation

Improvement in Sx