PRIMEVIEW

GASTROPARESIS

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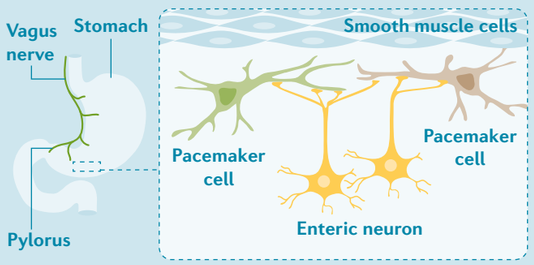
Gastroparesis is a chronic disorder of the stomach, which is characterized by the delayed gastric emptying of solid food. The key symptoms of gastroparesis include early satiety, postprandial fullness, nausea, vomiting, upper adominal pain, belching and bloating.

MECHANISMS

Gastroparesis has several underlying causes, including type 1 and type 2 diabetes mellitus, certain types of preceding surgery or viral infections, certain medical treatments (for example, opioids) or it may be idiopathic.The symptoms of gastroparesis are caused by delayed gastric emptying, which occurs in the absence of any mechanical obstruction of the stomach. Gastroparesis and other disorders of gastric accommodation, such as functional dyspepsia, are caused by neuromuscular dysfunction. In the stomach, excitatory or inhibitory signals from intrinsic or extrinsic neurons are transmitted to the smooth muscle of the stomach by pacemaker cells, thereby facilitating the accommodation, digestion and emptying of solid food. Diabetic and idiopathic gastroparesis are associated with decreased numbers of inhibitory neurons and damage to pacemaker cells, which may disrupt innervation of gastric smooth muscle tissue. Hyperglycaemia, oxidative stress and inflammation are important in the pathophysiology of diabetes mellitus and these processes may conceivably contribute to gastric neuromuscular dysfunction.



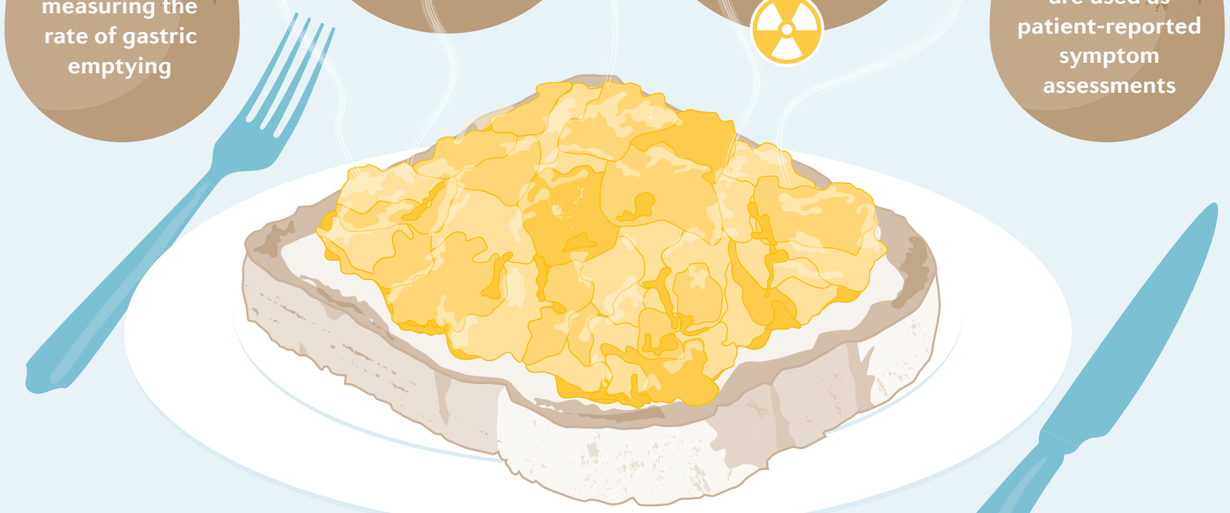
DIAGNOSIS

Functional assessment is made by measuring the rate of gastric emptying

Before functional assessment, patients with symptoms must first undergo upper gastrointestinal endoscopy to rule out other causes

Gastric emptying scintigraphy measures the rate of gastric emptying after ingestion of a solid meal (usually egg-based) containing a radioisotope with a short half-life

Several symptom severity scales exist, which are used as patient-reported symptom assessments



Stable isotope breath test measures breath excretion of the ^{13}C isotope after ingestion of a meal (usually egg-based), which correlates with the rate of gastric emptying

Accurate diagnosis is important, as the nonspecific symptoms overlap with other conditions

EPIDEMIOLOGY

Evaluating the global epidemiology of gastroparesis is challenging as symptoms overlap with those of functional dyspepsia. A population-based American study estimated prevalence at 9.6 patients per 100,000 men and 37.8 patients per 100,000 women.

QUALITY OF LIFE

Patients with gastroparesis have a substantially lower quality of life (QOL) compared with the general population. Notably, vomiting has a negative effect on QOL, and increased severity of vomiting is associated with greater impairments in QOL. Other factors that can affect QOL include bloating and upper abdominal pain.

MANAGEMENT

The management of gastroparesis aims to correct fluid and nutritional deficiencies, to effectively manage symptoms and to treat any underlying cause of neuromuscular dysfunction (such as diabetes mellitus). Dietary modifications, such as a small-particule, low-fat, low-fibre diet, can be used to ensure adequate nutrition in those with mild or moderate gastoparesis; by contrast, those with severe disease may require tube feeding. Several drugs that enhance gastric emptying (prokinetics) and reduce nausea and vomiting (antiemetics) can be used to reduce the symptoms of gastroparesis. In addition, several medical and surgical interventions may be beneficial for patients with severe or treatment-refractory gastroparesis, including gastric electrical stimulation of gastric smooth muscle, botulinum toxin injections of the pylorus or pyloroplasty to widen the pylorus.

OUTLOOK

New diagnostic techniques are on the horizon for gastroparesis, including wireless motor capsule technology to accurately measure gastric emptying and endoluminal imaging probes to measure pyloric sphincter abnormalities. In addition, several new drugs have promise, such as relamorelin (a prokinetic drug), prucalopride (a prokinetic drug) and aprepitant (an antiemetic drug); however, these drugs require further validation in robust phase III clinical trials. These improvements may help realize a specific goal for future research, which is personalized treatment for patients with gastroparesis with specific pathophysiological features.

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