Improving the Quality of Life in the Gastroparesis Patient

Definition of gastroparesis: Gastroparesis “paralysis of the stomach” is a symptomatic chronic digestive disorder that can be a very debilitating disease for many patients as symptoms include severe abdominal pain, nausea, vomiting, early satiety, and weight loss.

Background: Sherry Tarleton, RD, CNSC, and Lauri Rentz, CGRN, RN, coordinate the home enteral and parenteral nutrition patients at Mayo Clinic in Scottsdale, Arizona. One year ago they started a weekly class for gastroparesis patients due to the high number of patients they encountered with similar stories of frustration and isolation. The class has been successful in educating and giving patients the opportunity to meet others in similar situations.

Normal stomach emptying
- During the process of digestion, the stomach contracts to empty the food and liquid.
- The vagus nerve controls the movement of food from the stomach through the digestive tract.
- The upper portion of stomach, called the fundus, stores food and liquid.
- The lower stomach, called the antrum, grinds and churns the food into chyme and delivers it to the duodenum with the help of the stomach’s natural pacemaker.
- This pacemaker creates electrical activity causing waves of contraction (~3 times per minute).
- Normally stomach contractions will empty the contents of the stomach in less than 90 to 120 minutes after eating.

Stomach emptying in the setting of gastroparesis
- Lack of or decreased electrical wave leaves the food sitting in the stomach
- Stomach depends on gravity and stomach acid and digestive enzymes to break down food

Diagnosis of gastroparesis
- Four hour gastric emptying study
- Low-fat meal with gastric retention of > 10% of the test meal in four hours is positive

Some possible causes of gastroparesis/conditions associated with gastroparesis
- Diabetes
- Viral
- Damage to the vagus nerve/history of gastric surgery
- Disorders of Gastric Smooth Muscle (Scleroderma, Muscular dystrophy)
• Neuropathic Disorders (Parkinson’s disease)
• Mechanical Obstruction (ulcer, tumor)
• Acid-Peptic disease (ulcer, reflux)
• Psychogenic disorders (eating disorders, depression)
• Metabolic/Endocrine Disorders (diabetes, hypo/hyperthyroidism, hyperparathyroidism)
• Gastritis
• Celiac disease

Signs and symptoms of gastroparesis:
• Decreased appetite
• Bloating
• Fullness/early fullness
• Bad breath
• Fluctuating blood sugars after food
• Nausea and vomiting
• Abdominal pain

Psychosocial aspects of gastroparesis:
• Feeling unable to eat out and enjoy social events: fatigue, difficulty interacting with others
• Strain on relationships: Inability to care for children, children worry that their sick parent will never get better, friends don’t call as much
• Feelings of inadequacy due to inability to work
• Frustration with healthcare community
• Emotional factors should be addressed
• Psychological/psychiatric oriented treatment may be beneficial

Factors that may delay gastric emptying
• Large amount of food
• High fiber
• High fat
• Solids versus liquids
• Poor blood sugar control (if diabetic)
• Medications

The following list of medications may slow gastric emptying. Symptoms may vary between medications and individual tolerance. This is by no means a recommendation to stop taking any of these medications but to use as an education tool. This list does not include every medication that has a slow gastric emptying effect. Patients should be encouraged to always discuss the possibility of this side effect with their physician and/or pharmacist.

• Narcotics
• Aluminum hydroxide antacids
• Proton Pump Inhibitors
• Anticholergics
• Tricyclic antidepressants
• Calcium channel blockers
• Clonidine
• Sucralfate
• Selective serotonin reuptake inhibitors (SSRIs)
• Dopamine agonists
• Lithium
• Anti-diabetic agents
• Progesterone
• Potassium salts
• Octreotide

Medications that have been used to treat gastroparesis
• Metoclopramide (Reglan): Stimulates contraction of the stomach and can reduce nausea. It is NOT recommended to take this long term due to side effects.
• Erythromycin: Binds to receptors in the small intestine. Stimulation of these receptors causes contraction and improved emptying of the stomach. Tolerance to this medication can develop within two weeks.
• Domperidone (Motilium): Acts similar to metoclopramide but does not have the same side effects. Domperidone is not available in the United States but is used in Mexico and Canada and in some European countries.

Common conditions associated with gastroparesis

1.) Small Bowel Bacterial Overgrowth (SBBO) - Increased bacteria in the small bowel

Risk factors: fermentation of food that hasn’t left the stomach, decreased stomach acid, decreased movement in GI tract

Symptoms are compounded on top of gastroparesis symptoms:
Gas, bloating, distension/discomfort, nausea, diarrhea, weight loss, and decline in nutritional status

Diagnosis/Treatment:
• Breath test
• Biopsies of small bowel
• Some doctors may empirically treat symptoms without test
• Antibiotics: Metronidazole, Ciprofloxacin, Amoxicillin/Clavulanate or Doxycycline, sometimes Rifaximin is used. If persistent may require monthly rotating antibiotics to prevent its reoccurrences.

2.) Bezoar formations
• Food that is poorly digested can collect in the stomach and form a solid mass.
• This may cause a blockage, preventing the stomach from emptying and result in nausea and pain.
• It may be necessary for a doctor to endoscopically break up the bezoar apart and remove it.

Pictures through VCE capsule studies:

Bezoar present

Normal Stomach
3.) Vitamin/mineral deficiencies
- One multivitamin/mineral tablet daily
- **May use chewable for better tolerance**
- Sometimes additional supplementation is needed with deficiencies. Please get a confirmed blood test prior to adding extra.

Diet Therapy
- Small frequent meals
- Chew foods well (to baby food consistency)
- Lower fiber (10-15 g/day)
- Lower fat
- Liquid meals when symptoms are severe

This can be done by incorporating homemade blenderized cream soups and smoothies (all made with low fiber ingredients) and/or commercially made meal replacement drinks

Nutrition support
- Enteral nutrition should be trialed prior to parenteral nutrition
- Consider naso-jejunal feeds with low fiber polymeric formula to determine tolerance
- No oral intake at initiation of enteral feeding to avoid inability to isolate cause of symptoms
- Cautious of refeeding syndrome

Other Therapies:
- Botox
- Gastric Electrical Stimulation
- Venting tube
- Surgery

Some helpful websites:
- [www.motilitysociety.org](http://www.motilitysociety.org) - The American Neurogastroenterology and Motility Society
- [www.digestivedistress.com](http://www.digestivedistress.com) - The Gastroparesis & Dysmotilities Association
- [www.iffgd.org](http://www.iffgd.org) - International Foundation for Functional Gastrointestinal Disorders
- [www.g-pact.org](http://www.g-pact.org) – Gastroparesis Patient Association for Cures and Treatments

Phone app for Smartphones:
- GI Monitor (designed for patients with IBD to track meals, medications & symptoms but may also be helpful with gastroparesis)
References:

2.) Kashyap P, Farrugia G. Diabetic gastroparesis: what we have learned and had to unlearn in the past 5 years. Gut. 2010;59(12):1716-1726.


