

What is gastroparesis?

Gastroparesis (gastric = stomach; paresis = paralysis) literally means stomach paralysis. It happens when nerves to the stomach are damaged or stop working. The vagus nerve controls the movement of food through the digestive tract. If the vagus nerve is damaged, the muscles of the stomach and intestines do not work normally, and the movement of food is slowed or stopped.

What causes gastroparesis?

The cause is not known, but gastroparesis is a common complication of Type 1 insulin-dependent diabetes occurring in about 20% of patients - especially in those who have developed other signs of nerve damage (diabetic neuropathy) such as numbness or burning of the feet. People with Type 2 diabetes get it also, but less often. Diabetic gastroparesis can be a vicious cycle since diabetes causes nerve damage which leads to gastroparesis. And gastroparesis can worsen diabetic control since delayed stomach emptying makes digestion unpredictable which results in uneven blood sugar levels.

Other causes of gastroparesis may include anorexia nervosa, surgery on the stomach or vagus nerve. Some systemic disorders such as kidney failure, lupus, Parkinson's disease, scleroderma, and thyroid disorders can also delay gastric emptying. Up to 30% of individuals with gastroparesis are *idiopathic*, meaning that there is no identifiable cause. It is felt that some of these may be due to an acute viral infection. Lastly, some medications such as anticholinergics (antispasmodics) or narcotics can worsen the situation.

What are the symptoms of gastroparesis?

- Nausea
- Vomiting (often occurs 1 to 3 hours after meals and can cause low blood potassium, dehydration, and malnutrition)
- An early feeling of fullness when eating, frequent burping, acid-reflux
- Extreme bad breath
- Unplanned weight loss (due to fear of eating)
- Abdominal bloating, distention and discomfort
- Diabetics may have complications because of poor blood sugar control.

These symptoms may be vague and mild or severe, depending on the person. Most symptoms occur because the stomach doesn't empty completely.

What is the treatment?

The primary treatment goal for gastroparesis *related to diabetes* is to regain control of blood sugar levels. Treatments include insulin, oral medications, changes in what and when you eat, and, in severe cases, feeding tubes and intravenous feeding.

It is important to note that in most cases treatment does not cure gastroparesis--it is usually a chronic condition. Treatment helps you manage the condition so that you can be as healthy and comfortable as possible.

Medications

Several drugs are used to treat gastroparesis. Your doctor may try different drugs or combinations of drugs to find the most effective treatment.

- **Metoclopramide (Reglan).** This drug stimulates stomach muscle contractions to help empty food. It also helps reduce nausea and vomiting. Metoclopramide is taken 20 to 30 minutes before meals and at bedtime. Side effects of this drug are fatigue, sleepiness, and sometimes depression, anxiety, and problems with physical movement.
- **Cisapride (Propulsid).** Cisapride stimulates stomach movement and also causes intestinal contractions, which can be helpful. This drug is generally more potent than metoclopramide, and causes fewer side effects (headache, abdominal cramps, and diarrhea). Cisapride is also taken 20 to 30 minutes before meals and at bedtime. Metoclopramide and cisapride are called promotility agents.
- **Erythromycin.** This antibiotic also improves stomach emptying. It works by increasing the contractions that move food through the stomach. Side effects are nausea, vomiting, and abdominal cramps.
- **Domperidone.** The Food and Drug Administration is reviewing domperidone, which has been used elsewhere in the world to treat gastroparesis. It is a promotility agent like cisapride and metoclopramide. Domperidone also helps with nausea.

- **Other medications.** Other medications may be used to treat symptoms and problems related to gastroparesis. For example, an antiemetic can help with nausea and vomiting. Antibiotics will clear up a bacterial infection. If you have a bezoar, the doctor may use an endoscope to inject medication that will dissolve it.

Dietary modifications

- It may help to change how, what and when you eat. This depends on your tolerance and preference. It is best to eat **six small meals a day** instead of three large meals to prevent becoming overly full.
- The doctor or Registered Dietitian may suggest that you try several liquid meals a day until your blood glucose levels are stable and the gastroparesis is corrected. Liquid meals provide all the nutrients found in solid foods, but can pass through the stomach more easily and quickly. Supplements that are semi-elemental may be needed, ask your Registered Dietitian.
- The doctor may also recommend low-fat, low-fiber foods since fat naturally slows digestion and fiber is difficult to digest. The indigestible part of high fiber foods remain in the stomach too long and possibly form bezoars.
- Chew your foods well. Choose soft, well-cooked and/or mechanically altered foods.
- Avoid highly acidic and gas-producing foods. Start with a clear liquid diet, advance slowly to full liquids without lactose to aid digestion.
- In severe cases of gastroparesis, avoiding meat, fish and poultry may be beneficial.
- Use carbohydrate counting to plan meals to aid insulin administration and blood glucose control.

Jejunostomy Tube

If other approaches do not work, you may need surgery to insert a feeding tube. The tube, called a jejunostomy tube, is inserted through the skin on your abdomen into the small intestine. The feeding tube allows you to put nutrients directly into the small intestine, bypassing the stomach altogether. You will receive special liquid food to use with the tube. A jejunostomy is particularly useful when gastroparesis prevents the nutrients and medication necessary to regulate blood glucose levels from reaching the bloodstream. By avoiding the source of the problem--the stomach--and putting nutrients and medication directly into the small intestine, you ensure that these products are digested and delivered to your bloodstream quickly. A jejunostomy tube can be temporary and is used only if necessary when gastroparesis is severe.

Parenteral Nutrition

Parenteral nutrition refers to delivering nutrients directly into the bloodstream, bypassing the digestive system. The doctor places a thin tube called a catheter in a chest vein, leaving an opening to it outside the skin. For feeding, you attach a bag containing liquid nutrients or medication to the catheter. The fluid enters your bloodstream through the vein. Your doctor will tell you what type of liquid nutrition to use.

This approach is an alternative to the jejunostomy tube and is usually a temporary method to get you through a difficult spell of gastroparesis. Parenteral nutrition is used only when gastroparesis is severe and is not helped by other methods.

Resources:

1. National Digestive Disease Information Clearinghouse, 2 Information Way, Bethesda, MD 20892-3570; E-mail: nddic@info.niddk.nih.gov
2. American Dietetic Association @ www.eatright.org
3. Gastroparesis and Dysmotility Association; www.digestivedistress.com
4. American Diabetes Association; www.diabetes.org