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Gastroparesis

WHAT EXACTLY IS "GASTROPARESIS"?

Gastroparesis literally translated means "stomach paralysis". It is a digestive disorder in which the motility of the stomach is either abnormal or absent. When the stomach functions normally, contractions of the stomach help to crush ingested food and then propel the food into the small intestine where further digestion and absorption of nutrients occurs. When gastroparesis is present the stomach takes too long to empty

WHAT ARE THE SYMPTOMS OF GASTROPARESIS?

Symptoms of gastroparesis include bloating, nausea with or without vomiting, early fullness while eating, heartburn, weight loss and epigastric pain. These symptoms are often referred to as dyspepsia. The most common symptom is early satiety, or the sensation of feeling full shortly after starting a meal. A patient with gastroparesis may regurgitate or vomit undigested food many hours after their last meal.

WHAT CAUSES GASTROPARESIS?

Diabetes is one of the most common causes for gastroparesis. Other causes include infections, endocrine disorders like hypothyroidism, connective tissue disorders like scleroderma, autoimmune conditions, neuromuscular diseases, idiopathic (unknown) causes, psychological conditions, eating disorders, certain cancers, radiation treatment applied over the chest or abdomen, some chemotherapy agents, and surgery of the upper intestinal tract.

Medications prescribed for a variety of conditions may have side effects that cause slow gastric emptying. The most common drugs that delay stomach emptying are narcotics and certain antidepressants. Other medications including tricyclic antidepressants, calcium channel blockers, clonidine, dopamine agonists, lithium, nicotine and progesterone can delay stomach emptying.

HOW IS GASTROPARESIS DIAGNOSED?

Inflammation, ulcer disease, or obstruction by a tumor can all cause similar symptoms to that of gastroparesis. Tests are used to exclude obstruction, to view the stomach lining and obtain biopsies, and to examine muscle contraction patterns.

Upper Endoscopy is performed by inserting a thin flexible tube through the mouth into the stomach. The endoscope has camera capabilities and allows the upper gastrointestinal tract to be evaluated for ulcers, inflammation, infection, cancer, hernias or other abnormalities. These conditions can cause symptoms similar to gastroparesis.

Gastric Emptying Study is a nuclear medicine test that examines the rate of emptying of solid or liquid material from the stomach. Food is eaten containing a tiny amount of a radioactive material which is measured by a scanning technique as it empties from the stomach.

WHAT TREATMENT IS AVAILABLE FOR GASTROPARESIS?

Nutrition is the most important treatment of gastroparesis.

Some foods are more difficult than others for the stomach to digest. Fatty foods take a longer time to digest, as do foods that are fibrous, like raw fruits and vegetables. Fiber when eaten should be chewed well and cooked until soft. Fortunately, even when stomach emptying is significantly impaired, thick and thin liquids (e.g. pudding and nutrient drinks) are usually tolerated and can pass through the stomach. Eating several small meals during the day instead of 2-3 large meals is often very helpful.

Medications

At the present time there are few medications available to treat gastroparesis and their use can be limited by undesirable side effects and limited effectiveness. The medications available include metoclopramide, domperidone and erythromycin.

Metoclopramide is a medication that acts on dopamine receptors in the stomach and intestine as well as in the brain. This medication can stimulate contraction of the stomach that leads to improvement in emptying. This medication also has the effect of acting on the part of the brain responsible for controlling the vomiting reflex and therefore may decrease the sensation of nausea and the urge to vomit. Use of this medication is limited in some people due to the side effects of dystonia, agitation and muscle twitching or “tardive dyskinesia”. Metoclopramide can also cause restlessness, insomnia, depression, as well as painful breast swelling and nipple discharge in both men and women. It is not recommended that this medication be taken long term. It comes in tablet, liquid, intravenous, as well as a new under-the-tongue disintegrating form.

Domperidone is another medication, similar to metoclopramide, which acts on dopamine receptors. Domperidone does not have the side effect of tardive dyskinesia and agitation that are seen with metoclopramide because it acts mostly on peripheral receptors, rather than in the brain. Domperidone is not available in the United States but is used in Mexico and Canada and in many European countries. It is available in oral and suppository forms.

Erythromycin is a commonly used antibiotic that binds to receptors in the stomach and small intestine called “motilin receptors”. Stimulation of motilin receptors results in contraction and improved emptying of the stomach. The beneficial effect of erythromycin can be short lived as individuals who use it frequently have a high likelihood of developing tolerance to the medication. Perhaps the best use of erythromycin is for acute worsening of symptoms or used on an intermittent basis in order to reduce the potential for tolerance. It is available in pill, liquid and intravenous forms.

Therapies Under Investigation for Gastroparesis

Serotonin receptor agonists have been used as treatment for other motility disorders and may offer some promise for the treatment of gastroparesis. Acetylcholine esterase inhibitors have been shown in some clinical trials to improve symptoms of dyspepsia. Ghrelin agonists are motilin-related peptides that accelerate gastric emptying, small intestine transit and improve postoperative ileus. Cholecystokinin receptor antagonists have been shown to reverse slow gastric emptying caused by a high fat meal. Many of these treatments are currently under investigation as treatments for gastroparesis.

Surgery for Gastroparesis

Surgery for gastroparesis is reserved for individuals with severe and refractory symptoms, intolerance to therapy, or malnutrition related to the condition. Venting tubes placed into the stomach may reduce symptoms and hospitalizations for individuals with recurrent vomiting and dehydration.

Electrical Gastric Stimulation

An area generating a great deal of interest and research is the use of electrical stimulation to enhance gastrointestinal contractile activity. This technique uses electrodes that are surgically or endoscopically attached to the stomach wall and when stimulated, trigger stomach contractions (figure 4). While gastric electrical stimulation does not lead to a significant improvement in gastric emptying, in the subgroup of patients with nausea and vomiting as their main symptoms, this treatment may provide relief of symptoms. How the device works is not well understood at this point, but it is thought that it has its effect on the nerves that control sensation within the stomach wall. Several studies have shown patients have a better quality of life and spend less time in the hospital for gastroparesis symptoms after the placement of the electrical stimulator.

Adapted from

Jean Fox, MD and Amy Foxx-Orenstein, DO, FACP, Mayo Clinic, Rochester, MN, and Scottsdale, AZ – Published August 2004. Updated November 2008. Updated December 2012.