

Gastro-oesophageal reflux disease (GORD)

Gastro-oesophageal reflux disease (GORD) is also called gastric reflux disease or acid reflux. It is a condition which develops when the reflux of stomach contents causes troublesome symptoms such as heartburn or complications such as oesophageal ulcers.

Causes

The oesophagus is a tube of muscle that connects the mouth to the stomach. In normal digestion the lower oesophageal sphincter (LOS) (the muscular ring at the lower end of the oesophagus) opens like a valve, allowing food to pass into the stomach and closes to stop stomach acids refluxing back up the oesophagus. However, in GORD the sphincter pressure reduces, relaxing the muscle and allows the stomach's acidic contents to reflux into the oesophagus.

The regurgitated stomach contents usually contain gastric acid and pepsin that are produced by the stomach (pepsin is an enzyme that helps digest proteins in the stomach). It may also contain bile that has backed-up into the stomach from the duodenum (the first part of the small intestine that attaches to the stomach).

Pepsin and bile irritates the lining of the oesophagus, however it is gastric acid that is the most damaging and causes most of the irritation. Repeated exposure to gastric acid causes inflammation and a burning sensation of the lining of the oesophagus, this is known as heartburn. The severity of GORD depends on how relaxed or damaged the oesophageal sphincter is as well as the type and amount of fluid contents brought up from the stomach and the neutralising effects of saliva.

A condition called gastroparesis caused by damage to the nerves in the intestinal tract that create the wave motion that moves and digests food. The stomach takes longer to dispose of stomach acid and excess acid can push up through the LOS causing gastric reflux. Gastroparesis is common in diabetics as high blood sugar levels damage nerves that control the function of the stomach.

How common is GORD?

GORD is a common digestive condition and is the most frequent cause of indigestion in Ireland. GORD affects up to 1 in 4 people. 10% to 20% of people in the western world have at least one bout of GORD per week. This figure is only about 5% in Asia which gives an indication that our western diet which tends to have a higher fat content is a factor in GORD. GORD can affect people at any age, including infants and young children. GORD is twice as common in men as it is in women. It is also a common problem for babies and infants leading to difficulty feeding in more severe cases. It can be controlled by food thickeners, alginates and removing cow's milk from the infant's diet if caused by lactose intolerance. I discuss GORD in infants and how to control it in a separate article.

Predisposing factors

There are a number of possible risk factors that increase the likelihood of developing GORD. These factors include both lifestyle and medications:

- being overweight or obese increases pressure on the stomach thus forcing the contents upwards
- fatty foods causes the stomach takes longer to expel stomach acids
- Too much alcohol, coffee, spicy foods or chocolate increases the acidity of the stomach contents and evidence shows they relax the oesophageal sphincter
- Smoking relaxes the oesophageal sphincter and is a major risk factor for GORD
- Pregnancy changes hormone levels which can weaken the oesophageal sphincter and increase the pressure on the stomach. The baby also pushes into the stomach which can push stomach contents upwards

- having a hiatus hernia – a hiatus hernia is when part of a stomach pushes up through the diaphragm (the muscle used for breathing)
- stress
- sleeping position

Medication

Some drugs that relax the LOS and thus can cause reflux include:

- Non steroidal anti-inflammatory drugs are anti-inflammatory pain killers and include aspirin, ibuprofen, diclofenic and naproxen.
- Antibiotics such as tetracyclines and ciprofloxacin
- Calcium-channel blockers – treats high blood pressure. Examples of calcium channel blockers include amlodipine (Istin[®]) and lercandipine (Zanidip[®])
- Theophylline – treats respiratory conditions including asthma and chronic pulmonary obstructive disorders (COPD) such as bronchitis and emphysema
- Benzodiazepines are tranquilisers that are used on a short term basis only to treat anxiety, panic attacks and sleeping disorders. Examples include diazepam (Valium[®]), alprazolam (Xanax[®]) and temazepam (Insomniger[®])
- Nitrates which treat angina by relaxing blood vessels thus reducing chest pains and discomfort associated with it. Examples include Isosorbide Mononitrate (Imdur[®]) and glyceryl trinitrate spray which is an under-tongue spray (eg) Glytrin Spray[®], Nitrolingual Spray[®].
- Biphosphonates treats osteoporosis and include Alendronic Acid (Fosamax[®], fosavance[®]), Risedronate (Actonel[®]) and ibandronic acid (Bonviva[®])
- Anticholinergics treat a wide range of respiratory, digestive, neurological problems (eg) Atrovent[®] and Spiriva[®] inhaler used for COPD, Detrusitol[®] used for urinary incontinence

Symptoms

Heartburn

Heartburn is the main symptom. This is a burning feeling of discomfort which rises from the upper abdomen or lower chest up towards the neck. It has actually nothing to do with the heart.

Regurgitation

Regurgitation of acid usually causes an unpleasant, sour taste at the top of the throat or the back of the mouth.

Dysphagia

Dysphagia means difficulty swallowing. Around 1 in 3 people with GORD have problems swallowing. It occurs when stomach acid causes scarring of the oesophagus which causes oesophageal narrowing and swallowing food difficult. People with GORD associated dysphagia describes it as feeling like a piece of food becoming stuck somewhere near the breastbone.

Severe chest pain

This is a non cardiac chest pain caused by GORD that has been found in up to 50% of patients with chest pain and normal coronary angiography. Usually there is no relationship to exercise and this helps to differentiate most cases of reflux induced chest pain from true angina.

Other common symptoms include nausea, bloating and belching. These symptoms tend to come and go, and tend to be worse after a meal or when bending or lying down.

Other symptoms caused by irritation and damage due to gastric acid exposure include:

- pain on swallowing
- dental problems including decay

- Respiratory symptoms include laryngitis (inflammation of the larynx), causing pain, hoarseness, chronic cough particularly at night, and asthmatic symptoms like wheezing and shortness of breath. This could be due to the refluxed acid irritating the trachea (windpipe). Up to 10% of cases of chronic cough are caused by GORD.

Complications of gastro-oesophageal reflux disease

Oesophageal ulcers

The excessive acid that is produced by GORD can damage the lining of oesophagus which can eventually lead to the formation of ulcers. Ulcers can bleed and cause pain which makes swallowing difficult.

Oesophageal stricture

Constant exposure to acid can cause scar tissue to form the lining of the oesophagus. When scar tissue builds up, it can cause oesophageal stricture where the oesophagus becomes narrowed causing poor swallow and pain.

Barrett's oesophagus

Persistent GORD can cause changes in the cells lining the oesophagus causing Barrett's oesophagus. About 1 in 10 people with GORD develop Barrett's oesophagus and the most common age of diagnosis is age 50 to 70. Barrett's oesophagus does not usually cause any symptoms other than those that are caused by GORD. However, there is a small risk that the cells that are affected by Barrett's oesophagus could turn cancerous and trigger the onset of oesophageal cancer. It is estimated that 1 in 200 people with Barrett's oesophagus go on to develop cancer each year.

Oesophageal cancer

Certain factors increase the risk of oesophageal cancer. For example you are more at risk if you are a man, you are obese, smoke, have symptoms of GORD for more than 10 years and have three or more bouts of heartburn and related symptoms per week.

Diagnosis

Generally a doctors can diagnose GORD from the symptoms the patient describes. Further tests may be advised if symptoms are severe, or do not improve with treatment, or are not typical of GORD. Tests will check for any other possible causes of the symptoms, such as bleeding from an ulcer, abnormal growths and cancer of the oesophagus.

Endoscope

Endoscopy is advisable if the person is over 55 years of age, or with unexplained, persistent symptoms or have alarm features such as pain on swallowing which require prompt examination due to the increased risk of ulcers or cancer.

Alarm features include:

- Unintentional weight loss
- Swallowing difficulties
- Recurrent vomiting
- Pain on swallowing
- Vomiting blood
- Blood in stools
- Anaemia from gastrointestinal haemorrhage or upper abdominal mass
- Family history of colorectal cancer
- Chronic NSAID use

If oesophageal cancer is diagnosed early, treatment can be successful. Treatment for oesophageal cancer is called photodynamic therapy (PDT). PDT involves injecting the oesophagus with a type of medication that makes it very sensitive to the effects of light. A laser that is attached to an endoscope which burns any cancerous cells.

Endoscopy is a common test used to diagnose gastrointestinal conditions. An endoscope is a thin, flexible tube with a video camera at one end is passed down the oesophagus into the stomach. An endoscope checks the surface of the oesophagus for damage by stomach acid. An endoscope is commonly used to help identify the causes of abdominal pain, nausea and vomiting, heartburn, bleeding and swallowing disorders.

Oesophageal manometry

If an endoscopy does not confirm diagnosis, a test called a manometry may be done. Manometry indicates how well the oesophagus can perform peristalsis, or in simple terms, how well the oesophagus moves food down to the stomach.

Manometry can confirm diagnosis of GORD or determines if it is less common oesophageal problems such as muscle spasms or achalasia (a rare swallowing problem). Do not eat or drink anything for at least eight hours before the endoscope.

24-hour pH monitoring

If the manometry test cannot find any problems with the oesophageal sphincter muscles, another test called the 24-hour pH monitoring can be used. It tests for acidity in the oesophageal area.

Barium swallow

If the patient is showing dysphagia (poor swallow), they may be referred for a test known as barium swallow. The barium swallow test assesses swallowing ability. The test can often identify blockages or problems with the muscles used during swallowing. As part of the test, the patient drinks some barium solution. Barium shows up clearly on an X-ray.

Treatments

Antacids

Antacids are medicines that neutralise the effects of stomach acid. A dose usually gives quick relief. Antacids are used 'as required' for mild or infrequent bouts of heartburn. Examples of antacids are Rennie[®] and Maalox[®].

Antacids can cause many drug interactions generally by reducing absorption of other drugs. Antacids may alter the pH of the stomach contents or urine sufficiently to alter drug absorption or excretion. The interactions can be avoided by taking these other drugs one hour before or three hours after the antacid.

Antacids can reduce absorption of antibiotics such as and ciprofloxacin and tetracycline, antifungals such as fluconazole (Diflucan[®]), blood pressure medication such as propranolol and captopril, ranitidine and famotidine (used to reduce stomach acid) and iron supplements. Antacids can also increase the effect of Sodium Valproate (Epilim[®]) which is used to treat epilepsy. Antacids can also damage enteric coating which many medicines have in order to protect the stomach from irritation.

Alginates

Alginates are an alternative to antacids. They produce a protective coating that protects the lining of the stomach and oesophagus from the effects of stomach acid. Examples include Gaviscon[®] and Acidex[®] and they should be taken after food and at night.

Acid-suppressing drugs

There are two groups of acid-suppressing drugs available proton pump inhibitors (PPIs) and histamine receptor blockers (H2 blockers). PPIs are more effective and are used more often than H2 blockers.

Proton pump inhibitors work by completely blocking the production of stomach acid. Proton pump inhibitors include: omeprazole (Losec[®], Romep[®]), lansoprazole (Zoton[®], Zotrole[®]), pantoprazole (Protium[®], Pantup[®]), rabeprazole (Pariet[®], Razole[®]), and esomeprazole (Nexium[®], Nexazole[®]). Side effects of PPIs are uncommon but may include headaches, diarrhoea, nausea, abdominal pain and constipation. The PPI pantoprazole has recently become available over the counter in pharmacies; Whelehans stock the less expensive generic brand, Pantup Relief[®].

Interactions of PPIs

Reducing stomach acid can interfere with the absorption of some drugs. PPIs reduce the absorption of ketoconazole (anti-fungal medication) and can increase the absorption of digoxin (used for irregular heart rhythm). PPIs can also reduce the break-down of some drugs by the liver and lead to an increase in their concentration in the blood. Omeprazole is more likely than the other PPIs to reduce the break-down of drugs by the liver.

This can increase the concentration in the blood of diazepam, warfarin and phenytoin. PPIs can also reduce the concentration and effectiveness of clopidogrel (Plavix[®]), a drug used to prevent blood clots in patients with heart problems. If possible an H2 blocker and / or antacid should be considered instead of a PPI in these patients

H2- blockers

Histamine causes cells in the stomach to produce acid. H2-blockers stop histamine from working on these cells so they reduce acid in the stomach and include cimetidine (Tagamet[®]), famotidine (Pepcid[®]), nizatidine (Axid[®]) and ranitidine (Zantac[®]). Side effects are similar to PPIs but may also include a rash, dizziness and / or tiredness. Cimetidine is now rarely used as it interacts with many other drugs.

Drugs that increase stomach emptying

These are drugs that speed up the movement of food through the stomach. They include domperidone (Motillium[®], Domerid[®]) and metoclopramide (Maxolon[®]). They are not commonly used for GORD but help in some cases, especially if bloating or belching occurs.

Surgery

Surgery may be performed in severe cases where medication is not working.

Laparoscopic nissen fundoplication (LNF) is one of the most common types of surgery used for GORD. LNF is keyhole surgery that involves the surgeon making a series of small incisions in the stomach. During LNF, the surgeon will wrap the upper section of the stomach around the oesophagus and staple it in place. This tightens the lower oesophageal sphincter (LOS), which prevents acid moving back out of the stomach. LNF is carried out under general anaesthetic and takes 60 to 90 minutes to complete. Most people can leave hospital within two to three days and should be able to return to work within three to six weeks.

Endoscopic injection of bulking agents involves the surgeon injecting a combination of plastic and liquid into the site where the stomach and oesophagus meet (known as the gastro-oesophageal junction). This narrows the junction and helps to prevent acid leaking up from the stomach.

Endoscopic augmentation with hydrogel implants is a relatively new technique. It is a similar technique to an endoscopic injection, except the surgeon uses gel to seal the oesophageal junction..

Endoluminal gastroplication involves the surgeon sowing a series of folds into the LOS. This restricts how far the LOS can open, preventing acid from leaking up from the stomach.

Self care tips

There are a number of self-care techniques that can help to relieve the symptoms of GORD.

- Maintaining a healthy weight. If overweight, losing weight helps to reduce the severity and frequency of symptoms, because it will reduce the pressure on the stomach
- Avoid tight-fitting clothing. Clothes that fit tightly around the waist put pressure on the abdomen and the lower oesophageal sphincter
- Smoking decreases relaxes the lower oesophageal sphincter and irritates the digestive system. Giving up smoking will relieve symptoms
- Avoid foods that trigger heartburn. Common triggers such as fatty, fried or spicy foods. Alcohol, chocolate and caffeine can make heartburn worse
- Eat smaller, more frequent meals rather than three large meals a day
- Avoid eating late in the evening to ensure that the stomach is empty at bedtime
- Drink alcohol only in moderation with meals
- Eat slower and take time to chew and digest food. Studies show that eating quickly exacerbates symptoms of GORD
- Avoid bending too much, especially after meals
- Raise the head of the bed by 8 inches by placing a piece of wood under it. This can help prevent stomach contents from rising up into the oesophagus

Alternative medicine

Complementary and alternative therapies may provide some relief but should not be considered an alternative to proper medical assessment.

Herbal remedies. Herbal remedies sometimes used for GORD symptoms include; liquorice, slippery elm, chamomile, angelica, clowns mustard plant, lemon balm and marshmallow. Herbal remedies can have serious side effects and they may interfere with other medications.

Relaxation therapies. Techniques to calm stress and anxiety may help reduce signs and symptoms of GORD, such as progressive muscle relaxation.

Acupuncture. Some people benefit from acupuncture but studies are unclear about how effective it is.

Disclaimer: Please ensure you consult with your healthcare professional before making any changes recommended

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