

Heartburn

Heartburn is a form of indigestion, or dyspepsia, also more formally known as gastro-esophageal reflux disease (GERD). Symptoms of heartburn are caused when there is reflux of gastric contents, particularly acid, into the esophagus, which irritate the sensitive mucosal surface (esophagitis).

Patients will often describe the symptoms of heartburn – typically a burning discomfort/pain felt in the stomach, passing upwards behind the breastbone (retrosternal).

Patient assessment and Questions

Age

The symptoms of reflux and esophagitis occur more commonly in patients aged over 55 years. Heartburn is not a condition normally experienced in childhood, although symptoms can occur in young adults and particularly in pregnant women. Children with symptoms of heartburn should therefore be referred to their doctor.

Symptoms/associated factors

A burning discomfort is experienced in the upper part of the stomach in the midline (epigastrium), and the burning feeling tends to move upwards behind the breastbone (retrosternal). The pain may be felt only in the lower retrosternal area or on occasion right up to the throat, sometimes associated with an acid taste in the mouth.

Heartburn is often brought on by bending or lying down. It is more likely to occur in those who are overweight and can be aggravated by a recent increase in weight. It is also more likely to occur after a large meal.

Alcohol and smoking are known to cause or aggravate heartburn. Stress is also a factor in the condition.

Severe pain

Sometimes the pain can come on suddenly and severely and even radiate to the back and arms. In this situation differentiation of symptoms is difficult as the pain can mimic a heart attack and urgent medical referral is essential.

Difficulty in swallowing (dysphagia)

Difficulty in swallowing, or dysphagia, must always be regarded as a serious symptom. A sensation that food sticks in throat as it is swallowed or that it does not seem to pass

directly into the stomach is an indication for immediate referral. It may be due to obstruction of the esophagus, for example, by a tumor, or can result from severe esophagitis with inflammation and narrowing.

Regurgitation

Regurgitation can be associated with difficulty in swallowing. It occurs when recently eaten food sticks in the esophagus and is regurgitated without passing into the stomach. This is due to a mechanical blockage in the esophagus. This can be caused by a cancer as well as by less serious conditions such as an esophageal stricture. A stricture is caused by long-standing acid reflux with esophagitis. The continual inflammation of the esophagus causes scarring. Scars contract and can therefore cause narrowing of the esophagus. Medical examination and further investigations are necessary to determine the cause of regurgitation.

Pregnancy

Pregnant women are more likely to suffer from GERD. The symptoms are caused by an increase in intra-abdominal pressure and incompetence of the lower esophageal sphincter. It is thought that hormonal influences, particularly progesterone, are important in the lowering of sphincter pressure. The problem may sometimes be associated with stress.

Medications

A large number of medicines are commonly associated with heartburn and people may notice symptoms shortly after starting these treatments. The main agents are calcium channel blockers, anticholinergics, *theophylline* and nitrates.

The reason for this is that these types of drugs cause relaxation of the lower end of the esophagus. This normally acts as a sphincter, allowing food into the stomach, but stopping the acid contents of the stomach going up into the esophagus when the stomach contracts.

The lining of the stomach is resistant to the irritant effects of acid, whereas the lining of the esophagus is easily irritated by acid.

Caffeine in coffee, tea or soft drinks such as cola, and in some analgesics and cold remedies, also relaxes the lower esophageal sphincter and is also commonly implicated in heartburn.

NSAIDs will make the inflammation in esophagitis worse. *Aspirin* or oral corticosteroids (e.g. *prednisolone*) can also aggravate esophagitis.

Treatment timescale

If symptoms have not responded to treatment after 1 week, the patient should see a doctor.

Management

A. Non-pharmacological advices:

- 1-Eat small and frequent meals (to avoid distending the stomach).
- 2-The evening meal is best taken several hours before going to bed (do not lie down for about 3 hours after eating).
- 3-Use extra pillow to elevate the head of the bed. [using GERD pillow since the use of traditional pillows may worsen symptoms because they cause the individual to bend at the waist, which contributes to an increase in intragastric pressure].
- 4-Do not wears tight fitting clothing. (Tight, constricting clothing, especially waistbands and belts, can be an aggravating factor and should be avoided).
- 5-Avoid smoking, alcohol, caffeine and foods that exacerbate symptoms of GERD.

B. Pharmacological treatment:

Antacids

Antacids can be effective in controlling the symptoms of heartburn and reflux. They have proven efficacy in neutralizing stomach acid. Sodium and potassium salts are the most highly soluble, which makes them have a quicker onset, but are shorter acting. Magnesium and aluminum salts are less soluble, so have a slower onset, but greater duration of action. Calcium salts have the advantage of being quick acting yet have a prolonged action. It is therefore commonplace for manufacturers to combine two or more antacid ingredients together to ensure a quick onset (generally sodium salts, e.g., sodium bicarbonate) and prolonged action (aluminum, magnesium or calcium salts).

The second benefits of combining two or more antacid is to minimize any side effects that might be experienced from the product. For example, magnesium salts tend to cause diarrhea and aluminum salts constipation; however, if both are combined in the same product, then neither side effect is noticed.

Antacids can affect the absorption of a number of medications via chelation and adsorption. Commonly affected medicines include tetracyclines, quinolones, imidazoles, phenytoin, penicillamine and bisphosphonates. In addition, the absorption of enteric-

coated preparations can be affected due to antacids increasing the stomach pH. The majority of these interactions are easily overcome by leaving a minimum gap of 1 hour between the respective doses of each medicine.

Antacids preferably taken after food by about 1 hour (because gastric emptying is slowed by food thus antacids remain in the stomach for prolonged time and acts for about 3 hours).

Antacid suspensions are more effective than tablets (of the same type and quantity) (because the acid neutralizing capacity and speed of onset is greater than tablet).

Patient should be instructed to chew the tablets thoroughly followed by a full glass of water to ensure maximum therapeutic effect.

Preparations that are high in sodium should be avoided by those who are pregnant and anyone on a sodium-restricted diet (e.g. those with heart failure or kidney or liver problems).

Alginates

Alginates form a sponge like matrix that sits on the surface of the stomach contents and prevents reflux. Some alginate-based products contain *sodium bicarbonate*, which, in addition to its antacid action, causes the release of carbon dioxide in the stomach, enabling the raft to float on top of the stomach contents. If a preparation low in sodium is required, the pharmacist can recommend one containing *potassium bicarbonate* instead. Alginate products with low sodium content are useful for the treatment of heartburn in patients on a restricted sodium diet.

They are best given after each main meal and before bedtime, although they can be taken on a when-needed basis. They can be given during pregnancy and breastfeeding and to most patient groups. They are reported not to have any side effects or interactions with other medicines.

H2 receptors antagonists (H2RA)

H2RA (e.g. *ranitidine*, *cimetidine*) can be used for the short-term treatment (Max 2weeks) of dyspepsia, hyperacidity and heartburn in adults and children over 16. The treatment limit is intended to ensure that patients do not continuously self-medicate for long periods.

H2RAs have both a longer duration of action (up to 8–9 h) and a longer onset of action than antacids. They work by blocking the action of histamine at the histamine H2 receptors of the parietal cells in the stomach. This decrease the production of stomach acid.

Where food is known to precipitate symptoms, they should be taken an hour before food. H₂ antagonists are also effective for prophylaxis of nocturnal heartburn. Headache, dizziness, diarrhea and skin rashes have been reported as adverse effects, but they are not common. The OTC H₂ antagonists are not licensed for sale to pregnant or breastfeeding women

Proton pump inhibitors

Esomeprazole, omeprazole, pantoprazole and rabeprazole can be used for the relief of heartburn symptoms associated with reflux in adults in patient over 18 years old. PPIs are generally accepted as being among the most effective medicines for the relief of heartburn. It may take 1 to 4 days to start being fully effective. During this period a patient with ongoing symptoms may need to take a concomitant antacid.

PPIs work by suppressing gastric acid secretion in the stomach. They inhibit the final stage of gastric hydrochloric acid production by blocking the hydrogen–potassium ATPase enzyme in the parietal cells of the stomach wall (also known as the proton pump). A single treatment can last up to 24 h, or more.

Patients taking a PPI should be advised not to take H₂ antagonists at the same time. The tablets should be swallowed whole with plenty of liquid prior to a meal. It is important that the tablets are not crushed or chewed. Treatment with OTC PPIs should be limited to Maximum 4 weeks.

PPIs should not be taken during pregnancy or while breastfeeding. Drowsiness has been reported but rarely.