Heartburn and gastro-oesophageal reflux disease

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Republished with permission: *SA Pharmacist's Assistant 2017;17(02):40-42* Prof Nurs Today 2018;22(3):6-9

Introduction

Heartburn (a form of indigestion or acid reflux) is a painful burning sensation in the chest or throat, which usually occurs after eating. People who experience heartburn at least two to three times a week may have gastro-oesophageal reflux disease, or GORD.[1,2]

What causes gastro-oesophageal reflux?

When we eat, food is carried from the mouth through the oesophagus.[1,3,4] The oesophagus is a tube-like structure made of tissue and muscle layers that expand and contract to propel food to the stomach through a series of wave-like movements called peristalsis. At the lower end of the oesophagus, where it joins the stomach, there is a circular ring of muscle that relaxes and opens when food reaches that point, called the lower oesophageal sphincter (LOS). The LOS allows food to enter the stomach and then closes to prevent the back-up of food and acid into the oesophagus.

Gastro-oesophageal reflux may occur if the muscle is weak or becomes relaxed because the stomach is too full, allowing liquids in the stomach to wash back into the oesophagus. This happens occasionally in all individuals. Most episodes occur shortly after meals, are brief, and do not cause symptoms. Acid reflux becomes GORD when it causes bothersome symptoms or injury to the oesophagus.[4]

Common triggers

Some people experience symptoms of acid reflux regardless of what they eat. Others find they only get acid reflux after eating certain foods or large meals. Contributing factors include[1,2,4-7]:

- Indulging in fatty or spicy foods
- Eating citrus fruits, tomato products and pepper
- Consuming large meals
- Drinking alcohol
- Chewing peppermints
- Drinking caffeinated drinks, carbonated beverages or citrus juices
- Snacking on chocolate
- Smoking

Other factors that may increase the risk of heartburn or GORD are:

- Being pregnant
- Being overweight or obese
- Taking certain medications which may lower LOS pressure, such as antihistamines

Symptoms

The most common symptom of GORD, heartburn,4,6 usually feels like a burning chest pain beginning behind the breastbone and moving upward to the neck and throat.[7] The pain typically worsens when lying down or bending over.[2]

Other symptoms may include[3,4]:

- Acid reflux or regurgitation of foods/fluids, causing an unpleasant, sour taste in the throat
- Bloating and belching
- Persistent sore throat

- Feeling or being sick
- Bad breath
- Pain when swallowing and/or difficulty swallowing
- Worsening dental disease

Management

Heartburn and GORD are treated according to disease severity.[4] The condition may be managed with self-help measures and over-the-counter (OTC) medicines. In more serious cases, prescribed treatment may be needed.[1,2,5]

Diet and lifestyle changes

Changes to diet and lifestyle may be helpful in mild cases of acid reflux.[4] These include[2,3-7]:

- Avoiding any foods or drinks which may trigger symptoms
- Eating smaller, more frequent meals instead of large meals – don't eat or drink alcohol within three or four hours before going to bed and avoid having the largest meal of the day in the evening
- Not lying down soon after a meal
- Maintaining a healthy weight

Table I. OTC medicines used to manage symptoms of GORD[5]

Antacids

Antacids are commonly used for short-term relief of acid reflux.[4] However, the stomach acid is only neutralised briefly after each dose, so they are not very effective.[2,4,5] Antacids are best taken about one hour after a meal because the rate of gastric emptying has then slowed and the antacid will therefore remain in the stomach for longer. Taken at this time, antacids may act for up to three hours compared with only 30 min – 1 hour if taken before meals. It is recommended to use an antacid in combination with an alginate to effectively control the symptoms of heartburn and reflux.[4]

***Sodium bicarbonate*[8]**

- *Is water-soluble, acts quickly, is an effective neutraliser of acid but has a short duration of action.*
- *Is often included in OTC formulations for its fast-acting effect.*
- *Should be avoided in patients if sodium intake should be restricted (e.g. in patients with congestive heart failure or high blood pressure).*

***Aluminium and magnesium salts (e.g. aluminium hydroxide, magnesium trisilicate)*[8]**

- *Magnesium salts are more potent acid neutralisers than aluminium but tend to cause diarrhoea.*
- *Aluminium-based antacids are effective but may cause constipation.*
- *Magnesium- and aluminium-based combination products are available and are less likely to cause diarrhoea or constipation.*

***Calcium carbonate*[8]**

- *Acts quickly, has a prolonged action and is a potent neutraliser of stomach acid.*
- *May cause acid rebound and, if taken over long periods at high doses, may cause hypercalcaemia and so should not be recommended for long-term use.*

Alginates

Alginates form a 'raft' that sits on the surface of the stomach contents and prevents reflux.[5,9] 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.[9]

H_2-receptor antagonists

H2RAs reduce gastric acid secretion by blocking the action of histamine at the H_2 receptors in the stomach.[4,5,8] The H2RAs have both a longer duration of action (up to 8–9 hours) and a longer onset of action than antacids.[9] Side-effects of H2RAs are uncommon, but may include headaches, diarrhoea, dizziness, a rash and tiredness.[5,9]

Cimetidine

- *Indicated for the short-term relief of heartburn, dyspepsia and hyperacidity*[8]
- *Maximum of 200 mg per dose and 800 mg per day for 14 days*[8]

Ranitidine

- *Indicated for the short-term relief of heartburn and hyperacidity*
- *Maximum of 75 mg per dose and 300 mg per day for 14 days*

Cimetidine and ranitidine are available in non-prescription and prescription strengths.[4]

Low-dose proton-pump inhibitors (PPIs)

As a class, PPIs are the most potent suppressors of gastric acid secretion and are generally accepted as being amongst the most effective medicines for the relief of heartburn.[8,9] It may, however, take a day or so for them to start being fully effective. During this period a patient with ongoing symptoms may need to take a concomitant antacid.[9] The possible side-effects of PPIs are usually mild. They include diarrhoea or constipation, headaches, feeling sick, abdominal pain, dizziness and a rash.[5]

Lansoprazole

- *Indicated for the short-term relief of heartburn and hyperacidity*[8]
- *Maximum dose: 15 mg per day for 14 days*[8]

Omeprazole

- *Indicated for the short-term relief of heartburn and hyperacidity*[8]
- *Maximum dose: 20 mg per day for 14 days*[8]

Pantoprazole

- *Indicated for the short-term relief of heartburn and hyperacidity*[8]
- *Maximum dose: 20 mg per day for 14 days*[8]

- Raising the head of the bed – placing a piece of wood or blocks underneath the top end of the bed may reduce symptoms at night
- Not wearing tight-fitting clothing – clothes that are tight around the abdomen may worsen symptoms
- Trying to relax – stress may make heartburn and GORD worse, so learning relaxation techniques may help
- Quitting smoking
- Chewing gum or using lozenges which may increase saliva production and help to clear stomach acid that has entered the oesophagus
- Participating in regular exercise

Treatment

Treatment aims at decreasing the amount of reflux or reducing damage to the lining of the oesophagus from the acid reflux.[7] Initial treatments for mild acid reflux include using non-prescription medications, such as antacids, alginates, histamine-2-receptor antagonists (H2RAs) and proton-pump inhibitors (PPIs).[4,8]

Table I includes OTC medicines available to prevent or treat the symptoms of heartburn and mild GORD.[5]

Conclusion

OTC treatments may be considered for people with mild symptoms of heartburn or acid reflux. Patients with moderate to severe symptoms of acid reflux or with mild acid reflux symptoms that have not responded to the lifestyle modifications and the medications described above usually require treatment with prescription medications and should be referred to a doctor.

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