

Tame the flame: Understanding and managing heartburn

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Introduction

Heartburn is a common condition described as burning discomfort/pain felt in the stomach, passing upwards behind the breastbone (retrosternal). Heartburn can cause chest pain that may sometimes radiate to the neck, throat or jaw. However, unlike the word suggests, it does not involve the heart. The pharmacist's assistant is ideally positioned to offer over-the-counter (OTC) treatment options to provide relief to patients with this bothersome disorder. In addition, by thoroughly questioning patients, the pharmacist's assistant can identify those patients with a potentially more serious underlying condition who should be referred to the doctor.

Understanding the digestive system

The human body is a complex system, with the gastrointestinal tract (GIT) being one of the largest interfaces between the outside world and the inside of the body. The GIT is a large, muscular tube that extends from the mouth to the anus, where digestion occurs through the movement of muscles and with the release of hormones and enzymes. The GIT consists of the:

- oesophagus, which is the tube that carries food from the mouth to the stomach.
- stomach, which prepares ingested food for digestion and absorption by producing gastric acid (stomach acid), i.e. a key step in the digestive process
- small intestine, where absorption of nutrients occurs
- colon, where undigested food is processed to form stools which are passed out through the anus

A valve or ring-like muscle called the lower oesophageal sphincter (LOS) is found at the joint of the oesophagus and stomach, and controls the passage of food and liquid between the oesophagus and the stomach. As food approaches the closed valve, the muscle (LOS) relaxes and allows for food to pass through into the stomach. A normal functioning LOS prevents digested food, stomach acid and digestive enzymes from moving back up into the oesophagus. When the LOS is unable to function effectively, stomach contents, in particular gastric acid, is passed back up the oesophagus. This causes irritation to the oesophagus, and in turn, heartburn. Heartburn usually lasts for a few minutes, but may persist for several hours in some cases.

Symptoms of heartburn

In most cases, heartburn occurs in patients aged 55 years and older. However, it is not unusual for young adults to experience heartburn. Pregnant women also frequently experience heartburn. Children are not normally expected to suffer from heartburn. Therefore, children who have symptoms of heartburn should be referred to their doctor.

Symptoms of heartburn include, but are not limited to:

- A burning sensation or pain in the chest
- Pain that worsens when bending over or lying down
- Difficulty in swallowing
- Stomach pain
- A burning sensation in the throat
- Some patients may experience regurgitation, which occurs when the contents of the stomach reach the mouth during reflux, leaving an acidic or sour taste in the mouth

Causes of heartburn

Although it is understood that heartburn is a result of stomach acid flowing back up into the oesophagus, the following factors may trigger heartburn or worsen the symptoms:

Table I. Factors that trigger or worsen symptoms of heartburn

Trigger factors	
Dietary factors	Foods such as tomato-based products, onions, vinegar, black pepper, spicy and fatty foods Beverages such as coffee, alcohol, orange juice, fizzy drinks
Lifestyle factors	Overeating or eating large meals Cigarette smoking Excessive alcohol consumption Lying down on a full stomach Being overweight or an increase in weight Wearing tight clothing
Other	Pregnancy <ul style="list-style-type: none"> It is common for pregnant women to experience heartburn, which is due to an increase in intra-abdominal pressure and the LOS not working effectively. It is also thought that hormonal influences, particularly progesterone, are important in affecting the function of the LOS. Heartburn often begins in mid-to-late pregnancy, but may occur at any stage. Medication <ul style="list-style-type: none"> It should be established if the patient is taking any other medication as some medication can cause or worsen symptoms of heartburn. For example, caffeine is often found in analgesic formulations and in stimulant products and can trigger heartburn. Hiatus hernia <ul style="list-style-type: none"> This is a condition where part of the stomach pushes up into the lower chest through a weakness in the diaphragm (the large flat muscle that separates the lungs from the stomach and helps us to breathe).

Management of heartburn

Lifestyle interventions

Patients should be made aware of the significant benefit that lifestyle changes have in improving heartburn and related symptoms.

Table II. Lifestyle interventions for managing heartburn

Dietary interventions
<ul style="list-style-type: none"> Identify and avoid food and drinks that trigger symptoms. Avoid late meals: Lying down with a full stomach may increase the risk of heartburn and related symptoms. Ensure meals are consumed at least three hours before bedtime. Avoid overeating, rather opt for several small meals throughout the day.
Weight management
<ul style="list-style-type: none"> Even a small increase in weight can trigger heartburn. Furthermore, weight gain increases the risk of complications. Tight-fitting clothing can increase discomfort and may also increase pressure in the abdomen, forcing stomach contents into the oesophagus.
Cigarette smoking and alcohol consumption
<ul style="list-style-type: none"> Quitting smoking and reducing the amount of alcohol consumed can reduce the occurrence of heartburn.
Sleeping position
<ul style="list-style-type: none"> Elevating the head of the bed can reduce the incidence of heartburn.

In addition to lifestyle interventions, there are medicines available for treating heartburn. This is especially important as, over time, continuous exposure of the oesophagus to stomach acid can cause damage and lead to complications.

What's behind the counter?

There are many OTC options available to relieve the symptoms of heartburn.

Antacids

Most patients are able to successfully control mild symptoms of heartburn with an antacid. Antacids neutralise acid in the stomach providing fast, short-term relief.

Alginates

Alginates form a "raft" that sits on the surface of the stomach contents preventing reflux (e.g. Gaviscon). 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.

Histamine-2 receptor antagonists (H_2 -receptor antagonists)

The H_2 -receptor antagonists reduce stomach acid secretion. They have a slower onset of action when compared to antacids, but provide longer relief. Cimetidine and ranitidine are H_2 -receptor antagonists available in South Africa for OTC use. For the best relief of symptoms, this form of treatment should be taken an hour before food.

Proton pump inhibitors (PPIs)

Proton pump inhibitors (PPIs) block acid by reducing the production of gastric acid, allowing time for damaged oesophageal tissue to heal. They work well for heartburn that is not resolved by antacids or H_2 -receptor antagonists, and are considered the most effective form of treatment. However, it may take a few days before PPIs become fully effective. Therefore, in the interim, patients may be advised to use an antacid as well for the first few days. PPIs have a slower onset of action than H_2 -receptor antagonists, but offer longer relief from symptoms. These medicines are most helpful for people who have heartburn often, i.e. more than two days of the week. OTC proton pump inhibitors include lansoprazole and pantoprazole. Patients should be advised not to take PPIs along with H_2 -receptor antagonists. The tablet should be swallowed whole before a meal. If the patient does not experience symptom relief within two weeks, patient should be referred to the doctor.

When to refer the patient to the doctor

- Persistent symptoms of heartburn despite treatment
- Heartburn that increases in severity

- Heartburn in children
- Difficulty in swallowing
- When the patient experiences regurgitation
- Pain that radiates to the arm

Conclusion

The pharmacist's assistant can play an important role in advising patients on lifestyle interventions that may improve heartburn and related symptoms. In addition, they are key to helping the patient to select the most appropriate medication. Most people can manage the discomfort of heartburn with lifestyle changes and OTC medications. However, if the patient experiences frequent heartburn that interferes with their daily routine, this may be a sign of something more serious and the patient should then be referred to the doctor for further help.

Bibliography

1. Blenkinsopp A, Paxton P, Blenkinsopp J. Authors. Heartburn. Symptoms in the pharmacy. A guide to the management of common illness. Seventh edition. c2014.
2. Patient information: Acid reflux (gastroesophageal reflux disease) in adults (The basics). c2018. [homepage on internet]. Available from: <http://www.uptodate.com>
3. MedlinePlus. Heartburn. Date last updated: December 2017 [homepage on internet]. Available from: <http://www.nlm.nih.gov/medlineplus/heartburn.html>
4. South African Medicines Formulary (SAMF). Twelfth edition. C2016. The division of clinical pharmacology, faculty of health sciences. University of CapeTown.
5. Monthly index of medical specialities (MIMS). Volume 58. Number 3. April 2018.
6. Heartburn or heart attack. C2016. [homepage on internet]. Available from: www.heart.org
7. Alberts B, Johnson A, Lewis J, et al. Molecular Biology of the Cell. 4th edition. Introduction to Pathogens. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK26917/>
8. Hawrelak JA. The causes of intestinal dysbiosis: A review. *Alternative Medicine Review*. 2004; 9(2).
9. National Library of Medicine - PubMed Health. Gastrointestinal Tract. Available from: <https://www.ncbi.nlm.nih.gov/pubmedhealth/PMHT0022855/>
10. The Digestive System. South African Gastroenterology Society. Available from: <https://www.sages.co.za/patients/digestivesys>
11. Ramsay PT, Carr A. Gastric Acid and Digestive Physiology. *Surg Clin N Am* 91 (2011) 977-982.
12. Hiatus Hernia. c2017. [homepage on internet]. Available from: <https://patient.info/health/acid-reflux-and-oesophagitis/hiatus-hernia>