

Module 1816

Nausea and vomiting

From this module you will learn:

- Common causes of nausea and vomiting
- Treatments which can help alleviate symptoms
- When a referral is necessary

November

Clinical:

Ulcerative colitis 3 December*

Crohn's disease 10 December*

Nausea and vomiting 17 December*

*Online-only for Update Plus subscribers

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Nausea, and subsequent vomiting, is a common condition. Its exact prevalence is hard to determine, as many people self-treat or wait for it to pass.

Although nausea and vomiting in adults is not usually serious and tends to be self-limiting, there are several conditions for which this can be a symptom, some of which may be serious.

Therefore, it is important for pharmacists to understand and recognise if there is an underlying cause to the patient's nausea and any associated symptoms, so that the appropriate advice and treatment can be offered and, if necessary, a referral to the GP or hospital given.

Common causes of nausea

Gastroenteritis

A common cause of nausea and vomiting is gastroenteritis – an infection of the gut caused by bacteria or a virus. Bacterial causes are usually due to food poisoning (see Prevention). Symptoms typically begin within one to two days of eating contaminated food and are associated with diarrhoea, stomach cramps and loss of appetite.

Viral causes of gastroenteritis include norovirus, also known as the winter vomiting bug, which can affect people of all ages. Norovirus causes sudden nausea, along with projectile vomiting and watery diarrhoea. It can be easily spread through particles of vomit or faeces getting into the mouth, via inhaling droplets of vomit or faeces from an infected person, touching contaminated surfaces or eating contaminated food.

Meningitis

Persistent nausea and vomiting, especially in young children, may be a sign of meningitis. If the patient displays a dislike of bright lights, loss of appetite, unusual drowsiness, a stiff neck, and a non-blanching rash, then urgent referral is warranted.

Other symptoms of meningitis in babies include an unusual high-pitched cry, refusal to feed, and floppy limbs when held.

Appendicitis

This swelling of the appendix causes severe abdominal pain that starts off centrally and



Vomiting is always unpleasant, but does not always require treatment through medication

then moves to the lower right side of the torso, where the appendix sits. It can cause nausea, vomiting, loss of appetite and is often associated with a fever and a flushed face.

The pain suddenly becoming worse and spreading across the abdomen is a sign the appendix has burst. A patient suffering from the above symptoms and severe abdominal pain must be immediately referred to hospital for emergency surgery.

Vertigo

Vertigo is the sensation that the environment surrounding you is spinning around. This can cause patients to vomit. The most likely cause is a middle ear infection, known as labyrinthitis, so refer a patient presenting with vertigo to their GP.

Travel sickness

Also known as motion sickness, this usually occurs when someone travels by air, sea, or road.

Alongside the symptoms of nausea and vomiting, those suffering from motion sickness can break into a cold sweat, feel dizzy or light-headed, and appear pale.

Motion sickness is thought to be due to a conflict between your eyes seeing a stable surrounding environment and your inner ears, which detect balance, telling you the environment is moving (up and down in the case of classic seasickness).

Migraine

With a migraine, patients experience nausea and vomiting alongside an intense throbbing headache – often on one side. Migraines can last from a few hours to days at a time. They can be caused by several triggers.

Other tell-tale signs are sensitivity to light or sound, impairment of vision and visual hallucinations. Migraines can occur with or without an “aura” – prodromal symptoms that occur before the migraine, for example, seeing flashing lights.

Pregnancy and morning sickness

Around 80% of pregnant women experience episodes of nausea and vomiting during their first trimester. “Morning sickness” is a misleading name, as the nausea and vomiting can occur at any time during the day. It is not harmful to the baby.

Pregnant women can experience severe and persistent nausea and vomiting up to 50 times a day – known as *hyperemesis gravidarum*. This disorder requires specialist treatment – often in hospital. Other symptoms that occur with this condition, and so warrant a referral, include not being able to keep any food or drink down, dehydration, low blood pressure and weight loss.

Urinary tract infections are common in pregnant women, and are linked with nausea and vomiting. If the patient also complains of pain or burning when urinating, they

should be immediately referred to their GP, as the condition may have progressed to a kidney infection, which would require antibiotic therapy.

Medication-induced nausea

Chemotherapy is well-known for causing nausea and vomiting. It is a common side effect, as chemotherapeutic agents are non-specific and often target other cells.

Treatment of these side effects follows an antiemetic (anti-sickness medication) ladder - and depends on severity and whether it is an acute or delayed reaction to the treatment. Antiemetic drugs include dexamethasone, granisetron or ondansetron, nabilone, and aprepitant.

Opioids commonly cause nausea and vomiting by slowing down gastric motility and gastric emptying. This is a common complaint in palliative care patients and is often treated with a prokinetic drug, such as metoclopramide, to speed up gastric emptying.

Babies and children

Newborns less than one month old should always be referred when suffering from persistent vomiting, because there may be an underlying congenital disorder and at this age they are susceptible to dehydration.

Infants aged between one month to one year old should be referred if they experience 24 hours of persistent vomiting, as they have a high risk of dehydration. It is important to advise mothers not to confuse effortless regurgitation of food with forceful expulsion.

Children aged 1-12 years will usually be suffering from gastroenteritis - which is self-limiting - if they show these symptoms. Unless they develop alarming symptoms - such as dehydration - they can be treated at home with plenty of rest, fluids and paracetamol (via suppository, if the patient cannot hold down tablets) for fever or pains.

Long-term consequences

The main consequence of persistent nausea and vomiting is **dehydration**. Signs of severe dehydration include confusion, sunken eyes, passing little urine, drowsiness and dry skin. Patients with these symptoms should be immediately referred to their GP.

You can also see if a patient is dehydrated by looking at their skin elasticity (tugor), which decreases in those who are dehydrated. Ask the patient to pinch the skin on the back of their hand. If they are hydrated it will rapidly return to its original position. If they are dehydrated then the skin will not return to its normal position.

Treatment of nausea

Prescription-only medicines

The choice of antiemetic depends on the cause of nausea and vomiting. Sometimes



Antiemetics may not always be necessary, as treating the underlying cause of vomiting can stop it

treating the underlying cause can resolve these symptoms. For example, correcting hyperglycaemia in diabetic ketoacidosis will resolve the associated nausea and vomiting.

Antiemetics - These should only be prescribed when the cause is known, as otherwise they may delay diagnosis.

Antihistamines (eg promethazine, cyclizine or cinnarizine) and **antimuscarinics** (hyoscine hydrobromide) - are often used to treat motion sickness. They differ in their duration of action, tendency to cause drowsiness and antimuscarinic side effects. For example, promethazine is the most sedating while hyoscine has the most antimuscarinic side-effects, such as dry mouth and constipation.

Phenothiazine antipsychotics (eg prochlorperazine, perphenazine and chlorpromazine) - These dopamine receptor antagonists are useful in preventing and treating nausea and vomiting associated with chemotherapy. However, severe dystonic reactions - abnormal face, body and eye movements - may occur.

Metoclopramide - This dopamine receptor antagonist is similar to the phenothiazine antipsychotics, but it helps to speed up gastric emptying. It is only licensed for use with patients over 18 years for short-term use of up to five days, because of the risk of extrapyramidal side-effects, such as acute dystonic reactions. However, its use is restricted to migraine, post-operative, radiotherapy, or delayed chemotherapy induced nausea and vomiting.

Domperidone - This is licensed for the relief of nausea and vomiting. It was recently reclassified from pharmacy (P) to prescription-only medicine (POM) because of the risk of cardiovascular conditions, such as arrhythmia. Unlike metoclopramide and phenothiazine antipsychotics, it is less likely to cause extrapyramidal effects.

It is ideal for treating nausea and vomiting in patients with Parkinson's disease.

OTC antiemetics

Prochlorperazine (Buccastem M) - This antipsychotic agent can be used as an antiemetic. It is available as a P medicine, but is only licensed for nausea and vomiting in adults aged 18 years and over who have previously diagnosed migraines.

It is available as a buccal tablet that dissolves in the mouth without swallowing. The tablet is placed under the top lip between the gum and cheeks. This route has advantages over taking the medicine orally, because the rich blood supply in the mouth allows for greater absorption and a faster therapeutic effect. It also avoids the gastrointestinal (GI) system altogether, which means a patient suffering from persistent vomiting can still benefit from the treatment.

Hyoscine and antihistamines - These are used to prevent and relieve travel sickness. The difference between dispensed and over-the-counter (OTC) travel sickness products is their duration of action. The selection of the most appropriate product will depend on how long the journey is going to be.

Hyoscine is available as the popular OTC brand Kwells (for children aged over four years) and its effects last about four hours. For longer journeys, hyoscine is available as Scopoderm transdermal patches (for those aged over 10 years) which last for 72 hours.

Transdermal patches avoid the oral route and are useful for those who may vomit and therefore lose the benefit from oral tablets. The drug is released slower than when taken orally - this helps to reduce side effects such as a dry mouth or constipation. You should remind patients that patches must be applied the evening before the journey.

The antihistamines cinnarizine and promethazine can be used for journeys that last between six and eight hours. However, they commonly cause drowsiness and people should be advised not to drive or operate heavy machinery when taking these drugs.

Oral rehydration solutions

These are used when an individual is, or is at risk of becoming, dehydrated. They contain salts and sugar in small quantities when mixed with potable water. If a patient is persistently vomiting and so is struggling to keep the solution down, you should advise them to drink it slowly. This may mean that they take a small sip every few minutes.

Prevention

As pharmacists, you can provide advice to patients seeking alternative remedies or those who cannot, or prefer not to, take OTC medication. The most important advice to give is to ensure that patients remain hydrated.

With food poisoning, the patient should be reassured that it is self-limiting and should run its course. Anti-diarrhoeals, such as loperamide, are not recommended as its better to let the bacteria flush out the system.

Preventing dehydration by drinking plenty of fluids, supplemented with oral rehydration therapy, is most crucial.

You can also advise patients to:

- wash their hands regularly - especially after using the bathroom and before preparing food
- avoid eating raw or undercooked food
- correctly store food at the right temperature



Patients with persistent vomiting should always wash their hands after using the bathroom

- avoid keeping cooked food unrefrigerated for a long time and avoid cross-contamination
- avoid sharing towels, utensils or plates.

There is not much you can do for pregnant women suffering from morning sickness. However, there is some evidence that ginger supplements help reduce nausea and vomiting. Wearing acupressure bands on the wrist may also help.

Travel sickness symptoms can be improved by using techniques such as the patient fixing

the eyes on the horizon or a stable object, relaxing by listening to music, and opening windows to get a good supply of fresh air.

Vertigo can be eased by getting up slowly out of bed, avoiding bending down, and moving the head slowly during daily activities.

Migraine triggers include stress, lack of sleep, certain foods or drinks, and periods. Every individual has his or her own triggers. You should advise patients to recognise these and avoid them if possible.

Take the 5-minute test

1. Infants aged between one month to one year old should be referred after 24 hours of persistent vomiting, due to risk of dehydration.
True or false?
2. Domperidone is more likely to cause extrapyramidal effects than metoclopramide and phenothiazine.
True or false?
3. Side effects of hyoscine include dry mouth and constipation.
True or false?
4. Symptoms of bacterial gastroenteritis typically begin within one to two hours of eating contaminated food.
True or false?
5. Cinnarizine and promethazine are useful for treating travel sickness on short journeys, as their effects last four hours.
True or false?
6. 50% of pregnant women endure nausea and vomiting in their first trimester.
True or false?
7. Severe, persistent vomiting during pregnancy is *hyperemesis gravidarum*.
True or false?
8. Opioid-induced nausea and vomiting in palliative care patients is often treated with promethazine.
True or false?
9. Signs of severe dehydration include confusion, sunken eyes, passing little urine, drowsiness and dry skin.
True or false?
10. Metoclopramide is licensed in patients over 18 years for persistent vomiting in gastroenteritis.
True or false?

Nausea and vomiting CPD

Reflect How do the symptoms of bacterial and viral gastroenteritis differ? What condition causes severe and persistent nausea and vomiting in pregnant women? Which drugs are used to treat chemotherapy induced nausea and vomiting?

Plan This article contains information about some causes of nausea and vomiting, including gastroenteritis, meningitis, appendicitis, vertigo, travel sickness, migraine, morning sickness and medication-induced sickness. Prescription-only and over-the-counter

treatments are discussed, as well as advice you can give to patients about preventing nausea and vomiting.

Act Find out more about the causes and treatment of gastroenteritis from the Patient website at tinyurl.com/vomiting1

Read more about meningitis on the Meningitis Now website at tinyurl.com/vomiting12

Revise your knowledge of appendicitis on the NHS Choices website at tinyurl.com/vomiting13

Read more about migraine on the Migraine Trust website at tinyurl.com/vomiting14

Find out more about hyperemesis gravidarum from the NHS Choices website at tinyurl.com/vomiting15

Evaluate Are you now confident in your knowledge of the causes of nausea and vomiting and their accompanying symptoms? Could you give advice about treatments and do you know when to refer?