

Module 1928

Travel sickness: symptoms and management

From this pharmacy CPD module on travel sickness you will learn about:

- Causes and symptoms of travel sickness
- Who is most likely to be affected and impact on quality of life
- Commonly used medicines and other strategies for management
- Advice to give patients

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Travel sickness, or motion sickness, is a syndrome involving a group of symptoms. The symptoms occur in response to real or perceived motion, with the primary symptom being nausea.

What causes travel sickness?

Travel sickness occurs for one of two reasons:

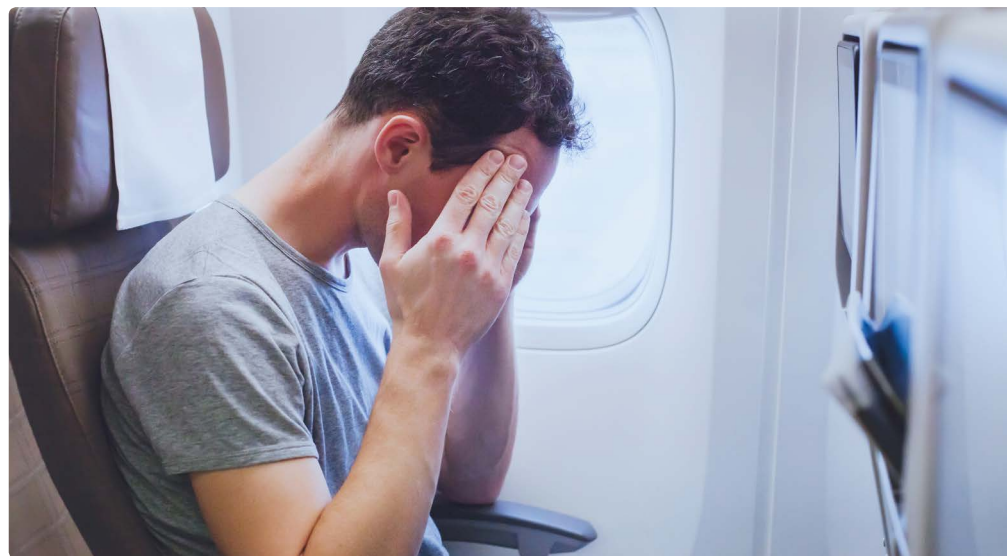
- the brain is receiving contradictory signals from its motion sensors (ie eyes and inner ear)
- there is overstimulation of the inner ear (which is responsible for balance).

Our brain receives multiple inputs from sensory signals (vestibular, visual and somatosensory), which it uses to estimate the speed of movement and spatial orientation of the head.¹

When a person moves and the command to move is generated by the brain, this command is also used to help estimate motion. In these situations, the messages the brain receives from the sensory signals and the command to move all align and the brain is able to generate a clear picture of motion and orientation.¹

In situations where the command-to-move signal is not present – while travelling on a boat or

in a car, for example – the brain relies upon inputs from the sensory signals to estimate motion. In these cases, the signals may not align and may contradict each other. It is this contradiction that is thought to be the reason for the development of the symptoms of travel sickness.¹



The symptoms of travel sickness can include nausea, sweating, headache and increased saliva production

An example of this is sea travel. When a person is on a boat they may be seated looking at an object that is not moving; a wall, for example. However, the boat is rocking up and down. The brain will therefore be receiving signals from the vestibular system that the head is moving up and down, but the visual signals do not align with this movement,^{1,2} leading to symptoms of travel sickness.

Travel sickness can also be induced in some people by anxiety, strong smells, watching a movie, or playing a video game.^{2,3} These situations are the opposite of the previous example: the visual input indicates movement, but the vestibular system does not, resulting in contradictory messages to the brain, leading to symptoms of travel sickness.

Symptoms

The characteristic symptom of travel sickness is nausea, which usually presents subtly, sometimes described as an increased awareness of the stomach.¹ In some people the nausea may progress to vomiting, which can become severe.¹

Other symptoms include sweating, headache,

increased saliva production, a sensation of weakness, feeling cold and a pale appearance.³ Hyperventilation may also present, which can lead to trouble breathing, as well as paraesthesia, slowed gastric emptying and postural hypotension.¹

Who is most likely to be affected and when?

Travel sickness can occur in almost anyone, if the conditions are severe enough.¹ People differ greatly in their susceptibility, and some people are more at risk of developing the condition. It is most common in women and children, with peak incidence reported in children at about nine years of age.¹ Children under two are usually resistant; visual signals are not used to determine orientation at this age and they are usually laying on their back.⁴

Other factors thought to play a role in the risk of developing travel sickness include genetics, migraine, pregnancy and hormonal contraceptives (hormones are thought to play a role), labyrinthitis (disorder affecting the inner ear) and expectations – if a person has suffered from travel sickness in the past and they expect to suffer from it again, then they are more likely to experience it.^{1,2,3} The type of motion and the position of the body is also thought to play a role.¹

Symptoms tend to recede gradually when a person no longer experiences the cause, or the motion stops. Some people may adapt to the motion over time and will eventually find they gradually start to feel better.²

Impact on quality of life

Travel sickness may be debilitating for some people; patients report it as distressing and that it interferes with their ability to function.¹ It can restrict all aspects of life, including career choice, leisure and social activities. Severe sufferers will need to take it into account when planning their mode of transport to and from work and daily activities, as well as their holiday options.

Management options for travel sickness

It is preferable, and more effective, to prevent travel sickness rather than to treat it – acute treatments usually fail.¹ Treatment options for travel sickness include environmental modifications, medicines, and complementary and alternative therapies.

Many of the medicines used to treat travel sickness cause drowsiness and other side effects. This should be taken into consideration when you advise a patient about which treatment is most suitable for them.

Environmental modifications can be implemented by all people who may suffer from travel sickness and can be used in combination with other measures. They are relatively easy to implement and will not cause side effects. These include:

- looking at the horizon, or a stationary object
- avoiding reading or looking at screens
- carefully choosing a seat where motion is likely to be minimal (in line with the wing of a plane, for example) and a seat facing forward in a reclined position
- sleeping
- driving a car rather than being a passenger.¹

Other measures include:

- opening a window or air vent for fresh air
- avoid drinking alcohol, which can upset the stomach
- eating small amounts of low fat, bland foods
- avoiding strong-smelling food, and not smoking.²

Treatment options

There are many factors to consider when determining which drug to recommend for a patient to prevent travel sickness. Be sure to take into account the duration of the trip and whether the person has experienced travel sickness in the past, and if so at what level of severity. This will help you to weigh up the likelihood of the person experiencing travel sickness against the possible side effects of the medication.

Medication is generally not recommended for



Hyoscine can be bought over the counter and is the most commonly used travel sickness medication

patients who have not experienced travel sickness before, due to the risk of potential side effects.¹ Antihistamines and hyoscine hydrobromide are the most commonly used, and are the most studied treatment options.¹

Antihistamines are generally favoured in the treatment of travel sickness, due to their relatively quick onset of action, lower cost and the fact that most are easily available without a prescription. First-generation antihistamines work by blocking H1 receptors (H1-H3 receptors are found in the vestibular system) and the effects of acetylcholine. Acetylcholine is a vestibular neurotransmitter (it is thought that histamine is another).

Second-generation antihistamines only have antihistaminergic effects, not anticholinergic effects. They don't penetrate the blood-brain barrier and are therefore not effective in the treatment of travel sickness.⁸

Hyoscine, or scopolamine, is an antimuscarinic (anticholinergic) and is most widely used. It is one of the most effective medicines used to treat travel sickness and can be purchased without a prescription.^{1,3} It acts on acetylcholine.

When should travel sickness treatments be taken?

Travel sickness medicine is best taken before a journey. It may be taken once a person is feeling

sick, but the medicine may not be absorbed as effectively due to gastrointestinal stasis. In these situations, it is better to use a tablet that can be put against the gum, or apply a patch. Some prescription options for the treatment of travel sickness include prochlorperazine, metoclopramide, domperidone and ondansetron.

Metoclopramide and domperidone work by helping to increase the speed at which the stomach empties, thereby helping to reduce the feeling of nausea. Ondansetron is not usually used for travel sickness alone, but may be a suitable treatment option for those also undergoing chemotherapy, or who are pregnant and also suffering from morning sickness.³

Pregnant women are at increased susceptibility and often request treatment to prevent travel sickness. Most manufacturers of antihistamines used for travel sickness advise against their use; however, there is no evidence of teratogenicity.⁹ Hyoscine is not recommended during pregnancy; its safety in pregnancy has not been established.¹⁰ Pregnant women should be advised to use non-drug travel sickness measures, such as acupressure wristbands or ginger.

It is important to note that drugs commonly used for travel sickness have central nervous system depressant effects, so can cause drowsiness. Therefore they should not be used in

combination with alcohol or other centrally acting depressant drugs, such as sleep aids or sedatives.

Their anticholinergic effects tend to be responsible for most of the side effects, so they should not to be used in people:

- with glaucoma
- with urinary retention
- at increased risk of anticholinergic side effects, such as the elderly.

They should not be used in combination with other drugs that have anticholinergic effects, such as amantadine or tricyclic antidepressants, as this will increase the risk of side effects.

Commonly used drugs

Hyoscine hydrobromide tablets¹⁰

- Adults and those aged 10 and over: 150-300mcg, then 150-300mcg every six hours if required; a maximum of 900mcg per day.
- For those aged four to nine: 75-150mcg, then 75-150mcg every six hours if required; a maximum of 450mcg per day.

Side effects can include dry mouth, drowsiness and blurred vision. It is available over the counter (OTC) as both tablet and soluble form – suitable for children.³ Products may vary, so you should see individual monographs for details.

Hyoscine 1.5mg transdermal patch¹¹

- Adults and those aged 10 and over: one patch applied to clean, dry, intact, hairless skin behind the ear.

The patch should be applied between five and six hours before a journey, or the night before if the trip is first thing in the morning. The effect will last up to 72 hours and side effects can include skin irritation, dry mouth, drowsiness and blurred vision.

The patch may be removed at the end of the journey. If it is needed for longer than 72 hours, another patch may be applied. If the patch becomes detached, you can it replace with a new one. You should alert patients that they should not apply pressure after it is in place – it may cause the active ingredient to leak from the patch.

Cinnarizine 15mg tablets¹³

- Adults and those aged over 12 years should take 30mg initially, then 15mg every eight hours during the journey, if necessary (the initial dose should be taken two hours before travel).
- Patients aged between five and 12 years should take 15mg initially, then 7.5mg every eight hours during the journey, if necessary (the initial dose should be taken two hours before travel).

Possible side effects may include nausea, dyspepsia and somnolence (a strong desire to sleep). Tablets may be sucked, chewed or swallowed whole. This product is available OTC.

Cyclizine 50mg tablets¹⁴

- Adults and those aged over 12 years should take 50mg. This may be repeated up to three times a day.
- Patients aged between six and 12 years should take 25mg. This may be repeated up to three times a day.

Cyclizine should be taken between one and two hours before travel. Side effects may include dry mouth, drowsiness, loss of appetite and blurred vision.

Promethazine teoclate 25mg tablets⁹

- Adults and those aged 10 years and over should take 25mg once daily.
 - Patients aged between five and nine should take 12.5mg once daily.
 - For prevention, take the night before, or one to two hours before travel.
 - For treatment, take at onset of sickness and then take one dose daily for two days if required.
- It is best to taken promethazine just before

bed. Side effects include drowsiness, dry mouth, blurred vision and dizziness. This medicine can be used for prevention and treatment, and has a longer duration of effect compared with promethazine hydrochloride.

Alternative therapies

Since most drugs used for travel sickness can cause drowsiness, people will often ask for a non-drowsy option. Some alternative measures include acupuncture, ginger, homoeopathy and controlled breathing, although evidence for the effectiveness of these measures is limited.⁷

Wristbands are available that contain a small, plastic stud that applies pressure to the P6 acupressure point. This point is located on the inside of the wrist, approximately three finger widths up from the wrist crease, and has been shown to relieve nausea and vomiting.⁵ They are worn on both wrists and can be applied prophylactically, or after symptoms have started.

Ginger is an easily accessible and cheap alternative to help with travel sickness. It can be taken as a biscuit, in a sweet, or as a drink. Prophylactic treatment with 1-2g of ginger has been shown to be of benefit. It is not known how ginger works, but

it may have an effect on gastric motility, or have a central effect on serotonin receptors.¹

Homoeopathic medicines, such as 'Nux-vom', may help some people for the relief of travel sickness.³

Controlled breathing has been found to be about half as effective as standard doses of drugs used for travel sickness, the benefit being it is easily implemented and free from side effects.⁶ Controlled breathing is thought to work via an inhibitory pathway between breathing and vomiting. The pathway usually stops a person



Some people may wish to use homeopathic remedies for travel sickness, however, evidence for these is limited



A cool flannel on the forehead is one way to help to relieve symptoms of travel sickness

from breathing when vomiting. Conversely, if controlled breathing is maintained and consistent, nausea and vomiting can be suppressed.⁷

Advising someone who is sick

When speaking to patients about preventative measures for travel sickness, be sure to give them advice about what to do if they do become sick. A cool flannel on the forehead may help, as well as fresh air, and rinsing the mouth out with water after being sick to help remove the taste.

Sometimes after being sick the person may actually start to feel better. Advise them it is best not to drink anything immediately after

vomiting, as it can just come back up. Small sips of cold water, or another non-alcoholic, non-fizzy, beverage may help. Advise them they can continue taking the preventative measures they were using before they became sick.³

Further sources of advice and support

For further information, you can direct patients to the patient.info website, which has a printable factsheet in an easy-to-understand format: it can be found under 'motion sickness'. There is also an interesting Ted talk, for those who prefer to watch a short information clip on travel sickness. It can be found at tinyurl.com/TEDmotionsickness.

Travel sickness CPD planned learning

What are you planning to learn?

I want to learn more about travel sickness, including its causes and symptoms, who is most likely to be affected and its impact on quality of life. I also want to improve my knowledge of commonly used medicines and other strategies for the management of travel sickness and advice that pharmacists can give to patients.

This learning will help me to improve my knowledge of how travel sickness can be managed and to be able to confidently provide advice to patients and carers.

How are you planning to learn it?

I plan to read the C+D Update article *Travel sickness: symptoms and management* at www.chemistanddruggist.co.uk/update-plus.

I plan to read more about travel sickness on the Patient website at tinyurl.com/travelsickness1.

I plan to improve my knowledge of the over-the-counter medicines available for the treatment of travel sickness from the C+D *Guide to OTC Medicines and Diagnostics*.

Add any other sources of learning here

I plan to complete the five-minute test at www.chemistanddruggist.co.uk/update-plus to test my knowledge and confirm what I have learned.

Give an example of how this learning has benefited the people using your services

A patient came into the pharmacy to ask for advice about travel sickness remedies for herself and her daughter. They had taken hyoscine before, but found the side effect of dry mouth unpleasant, and she was now six months pregnant. I was able to recommend wristbands for her and suggest that her daughter try cinnarizine. I also discussed why travel sickness occurs, measures they could take to reduce the symptoms on long journeys and signposted the mother to some online information.

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Take the 5-minute test online

1. Travel sickness can be caused by the brain receiving contradictory signals from its motion sensors or by overstimulation of the inner ear.
True or false
2. Other symptoms of travel sickness besides nausea include sweating, headache, increased saliva production and feeling cold.
True or false
3. Infants aged under three years are the age group most likely to suffer from travel sickness.
True or false
4. Looking at the horizon or a stationary object and avoiding reading while travelling can help reduce travel sickness symptoms.
True or false
5. Cinnarizine has an anticholinergic action and is the most widely used travel sickness treatment.
True or false
6. Cyclizine is the preferred treatment for travel sickness in pregnant women.
True or false
7. Side effects of hyoscine can include dry mouth, drowsiness and blurred vision.
True or false
8. The effects of the hyoscine transdermal patch last for up to 72 hours.
True or false
9. The adult dose of promethazine teoclate is 30mg initially, then 15mg every eight hours during the journey if necessary.
True or false
10. Promethazine hydrochloride has a longer duration of effect compared with promethazine teoclate.
True or false

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