

NEUROLOGY

- Headache
- Insomnia
- Nausea and Vomiting



Course Name: Over-the-Counter drugs

Course Code: 0521416

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HEADACHE

Table 4.2
The International Headache Society classification of headache

Primary headaches	1. Migraine, including: 1.1 Migraine without aura 1.2 Migraine with aura 2. Tension-type headache, including: 2.1 Infrequent episodic tension-type headache 2.2 Frequent episodic tension-type headache 2.3 Chronic tension-type headache	3. Cluster headache and other trigeminal autonomic cephalalgias, including: 3.1 Cluster headache 4. Other primary headaches
Secondary headaches	5. Headache attributed to head and/or neck trauma, including: 5.2 Chronic post-traumatic headache 6. Headache attributed to cranial or cervical vascular disorder, including: 6.2.2 Headache attributed to subarachnoid haemorrhage 6.4.1 Headache attributed to giant cell arteritis 7. Headache attributed to non-vascular intracranial disorder, including: 7.1.1 Headache attributed to idiopathic intracranial hypertension 7.4 Headache attributed to intracranial neoplasm 8. Headache attributed to a substance or its withdrawal, including: 8.1.3 Carbon monoxide-induced headache 8.1.4 Alcohol-induced headache	8.2 Medication-overuse headache 8.2.1 Ergotamine-overuse headache 8.2.2 Triptan-overuse headache 8.2.3 Analgesic-overuse headache 9. Headache attributed to infection, including: 9.1 Headache attributed to intracranial infection 10. Headache attributed to disorder of homeostasis 11. Headache or facial pain, attributed to disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cranial structures including: 11.2.1 Cervicogenic headache 11.3.1 Headache attributed to acute glaucoma 12. Headache attributed to psychiatric disorder
Neuralgias and other headaches	13. Cranial neuralgias, central and primary facial pain and other headaches including: 13.1 Trigeminal neuralgia	14. Other headache, cranial neuralgia, central or primary facial pain



Frontal



Tension or migraine



Orbital



Cluster, glaucoma, sinusitis



Occipital



Subarachnoid haemorrhage,
tension



Temporal



Migraine, temporal arteritis

Fig. 4.1 Location of pain in headache.

TENSION-TYPE HEADACHE

- Tension-type headaches can be classed as either **episodic** or **chronic**.
- Episodic tension-type headache can be further subdivided into **infrequent** and **frequent** forms.
- Most patients will present to the pharmacist with the **infrequent episodic** form.
- Headaches last from 30 minutes to up to 7 days in duration.
- Pain is **bifrontal** or **bioccipital, generalised** and **non-throbbing**.
- Pain is mild to moderate and not aggravated by movement, worse under pressure or stress.
- Nausea and vomiting are not associated with tension-type headache
- It has a limited impact on the individual.
- Patients who have **frequent** episodic tension-type headaches suffer more frequent headaches that **last longer** and over time these can develop into **chronic tension-type headache**.

MIGRAINE

- Migraines are rare over the age of 50 and anyone in this age group presenting **for the first time** with migraine-like symptoms should be **referred** to the GP to eliminate secondary causes of headache.
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AETIOLOGY

- The nervous system of a person with migraine is hypersensitive. It overreacts to stimuli causing a wave of brain activity that leads to a headache and other symptoms.
 - The trigeminal nerve is involved in attacks for almost all people with migraine. The trigeminal nerve is a network of wiring that attaches to special sensors, that are located in our facial skin, mucous membranes, muscles, tendons and teeth.
-

There are several types of migraines. The most common migraine categories are:

- Migraine with aura (classic migraine).
- Migraine without aura (common migraine).

MIGRAINE PHASES

PHASE ONE:

- Premonitory phase, occur hours or possibly days before the headache.
- The patient might complain of a **change in mood** or notice a **change in behavior**. Feelings of **poor concentration** and **food cravings** have been reported.

PHASE TWO:

- **THE AURA**, which are fully reversible, develop over 5 to 20 min and can last for up to 1 h → Within 60 min of the aura ending, headache occurs.
- It can either be **visual** or **neurological**.
 1. **Visual auras** such as blind spots, zig-zag lines or flashing.
 2. **Neurological auras** (pins and needles) typically start in the hand, migrating up the arm before jumping to the face and lips.

→ Headache with aura (classic migraine)

MIGRAINE PHASES (Continued)

PHASE THREE:

- Headache with or without aura
 - Pain is **unilateral, throbbing and moderate to severe**.
 - Physical activity and movement tends to intensify the pain.
 - **Nausea affects almost all patients (vomiting).**
 - Photophobia and phonophobia often mean patients will seek out a dark quiet room to relieve their symptoms.
 - The patient might also suffer from fatigue, find concentrating difficult and be irritable.
-

PHASE FOUR:

- As the headache subsides the patient can feel **lethargic and tired** before recovery, which might take several hours and is termed the resolution phase.

MIGRAINE PHASES

PHASES OF MIGRAINE

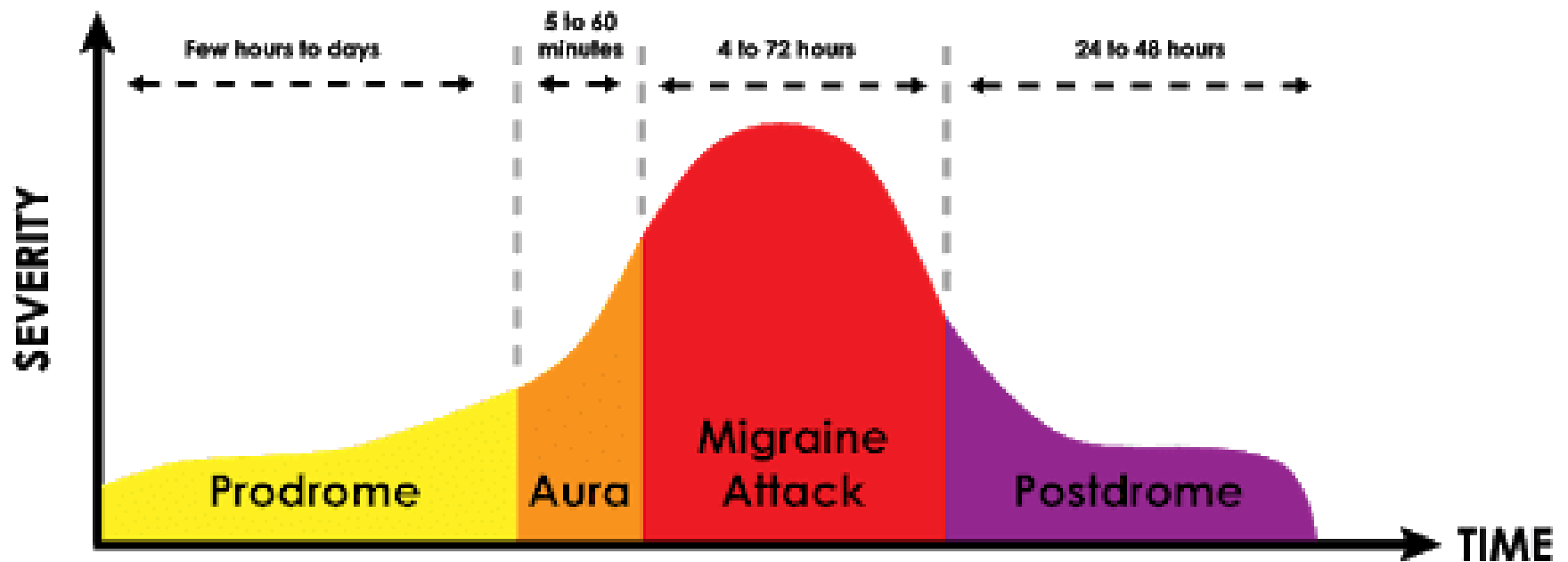


Table 4.4

Triggers and strategies to reduce migraine attacks

Trigger	Strategy
Stress	Maintain regular sleep pattern Take regular exercise Modify work environment Relaxation techniques, e.g. yoga
Diet Any food can be a potential trigger but food implicated includes: Cheese Citrus fruit Chocolate	Maintain a food diary. If an attack occurs within 6 h of food ingestion and is reproducible it is likely that it is a trigger for migraine Eat regularly and do not skip meals Note: Detecting triggers is complicated because they appear to be cumulative, jointly contributing to a 'threshold' above which attacks are initiated.

Other Likely Causes Of Headache

Eye strain

- People that perform prolonged close work, can suffer from frontal aching headache.

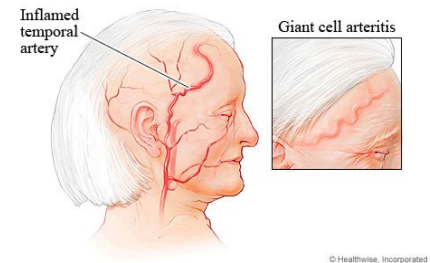
Sinusitis

- The pain tends to be relatively localised, usually orbital, unilateral and dull.

Cluster headache

- Men over the age of 30, headache occurs at the same time each day with **abrupt onset** and lasts between 10 minutes and 3 hours, Very intense **unilateral orbital boring pain**, Conjunctival redness, lacrimation, nasal congestion, nausea is usually absent

Other Likely Causes Of Headache – continued (1)



Temporal arteritis

- The temporal arteries that run vertically up the side of the head, just in front of the ear, can become inflamed (tender to touch and might be visibly thickened).
- **Unilateral pain** is experienced, and the person generally feels unwell with **fever, myalgia and general malaise**, Scalp tenderness is also possible.
- Commonly seen in the elderly, especially women.
- Urgent referral is needed and prompt treatment with [oral corticosteroids](#) is required as the retinal artery can become compromised, leading to blindness.

Other Likely Causes Of Headache – continued (2)

Trigeminal neuralgia

- Pain of either the maxillary or mandibular division of the nerve leading to pain experienced in the cheek, jaws, lips or gums.
- Pain is short lived, usually lasting only a couple of minutes but is severe and is almost always **unilateral**.

Depression

- Can be tension-type headaches, loss of interest or pleasure in activities, fatigue, inability to concentrate, loss of appetite, weight loss

Medication-overuse headache

- Pain receptors (nociceptors) instead of being 'switched off' when analgesics are taken are in fact **'switched on'**.

Other Likely Causes Of Headache – continued (3)

Glaucoma

- **Frontal/orbital** headache with pain in the eye.
- Eye appears red and is painful.
- Vision is blurred and the cornea can look cloudy.
- The patient might notice haloes around the vision.

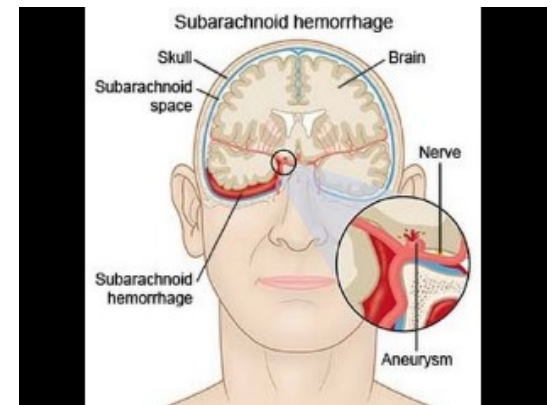
Meningitis

- Headache associated with fever, an obviously ill patient, **neck stiffness**, a positive **Kernig's sign** (pain behind both knees when extended) and latterly a **purpuric rash**,
- *Child that **has difficulty in placing their chin on their chest.***

Other Likely Causes Of Headache – continued (4)

Subarachnoid haemorrhage

- The patient will experience very **intense** and severe pain, located in the **occipital** region.
- **Nausea and vomiting are often present** and a decreased lack of consciousness is prominent.
- Patients often describe the headache as the worse headache they have ever had.



Other Likely Causes Of Headache – continued (5)

Conditions causing raised intracranial pressure

- **Space-occupying lesions** (brain tumour, haematoma and abscess) cause severe chronic pain to intermittent moderate pain.
- Pain can be **localised or diffuse** and tends to be more **severe in the morning** with a gradual improvement over the next few hours.
- **Nausea and vomiting are common.**
- **Drowsiness, confusion, lack of concentration, difficulty with speech and paraesthesia** also occur
- Any patient with a recent history (lasting 2 to 3 months) of head trauma, headache of long-standing duration or insidious worsening of symptoms, must be referred urgently

TRIGGER POINTS indicative of referral: Headache

Symptoms/signs	Possible danger/reason for referral
Headache in children under 12 who have a stiff neck or skin rash	Meningitis?
Headache occurs after recent (1 to 3 months) trauma injury	Haematoma?
Nausea and/or vomiting in the absence of migraine symptoms	All can suggest sinister pathology and require further investigation
Neurological symptoms, if migraine excluded, especially change in consciousness	
New or severe headache in patients over 50	
Progressive worsening of headache symptoms over time	
Very sudden and/or severe onset of headache	
Headache unresponsive to analgesics	Simple analgesia is effective, therefore if they have not worked the patients' symptoms require further investigation
Headache that has lasted for more than 2 weeks	Most acute (or uncomplicated) cases will last less than 2 weeks. Further investigation required



Table 4.3

Specific questions to ask the patient: Headache

Question	Relevance
Onset of headache	In early childhood or as young adult, primary headache is most likely. After 50 years of age the likelihood of a secondary cause is much greater Headache that follows head trauma might indicate post-concussive headache or intracranial pathology
Frequency and timing	Headache associated with the menstrual cycle or certain times, e.g. weekend or holidays, suggests migraine Headaches that occur in clusters at the same time of day/night suggest cluster headache Headaches that occur on most days with the same pattern suggests tension-type headache
Location of pain (see Fig. 4.1)	Cluster headache is nearly always unilateral in frontal, ocular or temporal areas Migraine headache is unilateral in 70% of patients but can change from side to side from attack to attack Tension-type headache is often bilateral, either in frontal or occipital areas, and described as a tight band Very localised pain suggests an organic cause
Severity of Pain	Pain is a subjective personal experience and there are therefore no objective measures. Using a numeric pain intensity scale should allow you to assess the level of pain the person is experiencing: 0 represents no pain and 10 the worst pain possible Dull and band-like suggests tension-type headache Severe to intense ache or throbbing suggests haemorrhage or aneurysm Piercing, boring, searing eye pain suggests cluster headache Moderate to severe throbbing pain that often starts as dull ache suggests migraine
Triggers	Pain that worsens on exertion, coughing and bending suggests a tumour Food (in 10% of sufferers), menstruation and relaxation after stress are indicative of migraine Lying down makes cluster headache worse
Attack duration	Typically migraine attacks last between a few hours and 3 days Tension-type headaches last between a few hours and several days, e.g. a week or more Cluster headache will only normally last 2 to 3 hours
Associated symptoms	Headache and fever at same time imply an infectious cause Nausea suggests migraine or more sinister pathology, e.g. subarachnoid haemorrhage and space occupying lesions Scalp tenderness is associated with temporal arteritis

Treatment of Migraine

- Simple analgesia (paracetamol, aspirin and ibuprofen) have shown clinical benefit in relieving migraine attacks.
- Restrict codeine-containing products for the **short term (3 days)** treatment of acute, moderate pain which is not relieved by paracetamol, ibuprofen or aspirin alone.
- Simple analgesia should be tried as first-line options for the relief of pain in migraine and tension-type headache.

Treatments

Medication	Ingredients	Mechanism of Action
Migraleve Pink tablets	Paracetamol- Codeine combination (500/8) plus buclizine 6.25 mg	Buclizine = antihistamine
Migraleve Yellow tablets	Paracetamol - Codeine combination (500/8)	Analgesic
Midrid Capsules	Isometheptene mucate 65 mg and paracetamol 325 mg	Sympathomimetic
Buccastem M buccal tablets	Prochlorperazine maleate 3 mg → Administered via the buccal mucosa	Antiemetic/ Antidopaminergic
Imigran Recovery tablets	Sumatriptan 50 mg → Stop the release of inflammatory neurotransmitters at the trigeminal nerve synapses and reduce pain signal transmission → No more than 100 mg can be taken during any 24 hour period	5HT-1 agonists and stimulate 5HT1B and 5HT1D receptors.



Table 4.5
Practical prescribing: Summary of medicines for migraine

Name of medicine	Use in children	Likely side effects	Drug interactions of note	Patients in which care exercised	Pregnancy & breastfeeding
Migraleve	>10 years	Dry mouth, sedation and constipation	Increased sedation with alcohol, opioid analgesics, anxiolytics, hypnotics and antidepressants	Glaucoma, prostate enlargement	Pregnancy – Avoid in 3rd trimester Breastfeeding – OK but infant drowsiness reported
Midrid	>12 years	Dizziness, rash	Avoid concomitant use with MAOIs and moclobemide due to risk of hypertensive crisis. Avoid in patients taking beta-blockers and TCAs	Control of hypertension and diabetes may be affected, but a short treatment course is unlikely to be clinically important	Avoid
Buccastem M	>18 years	Drowsiness	Increased sedation with alcohol, opioid analgesics, anxiolytics, hypnotics and antidepressants	Patients with Parkinson's disease, epilepsy and glaucoma	Manufacturers advise avoidance but it has been used safely in both pregnancy and breastfeeding
Imigran Recovery	>18 years	Dizziness, drowsiness, tingling feeling warm, flushed or weak and sensation of heaviness in any part of the body, pressure in the throat, neck, chest and arms or legs, shortness of breath	MAOIs, ergotamine S.E. Constriction of the cranial blood vessels	Avoid in people with a previous MI, IHD, TIA, peripheral vascular disease, cardiac arrhythmias, hypertension; history of seizures; Hepatic and renal impairment; Atypical migraines	Avoid, but data does suggest it can be used safely. Only use if absolutely necessary.

Patients Ineligible For OTC Use Are:

1. A previous myocardial infraction, ischaemic heart disease, peripheral vascular disease, cardiac arrhythmias and history of transient ischaemic attack and stroke
2. known hypertension
3. history of seizures
4. hepatic and renal impairment
5. atypical migraines
6. concomitant administration of MAOIs and ergotamine, or other 5-HT₁ receptor agonists.

INSOMNIA

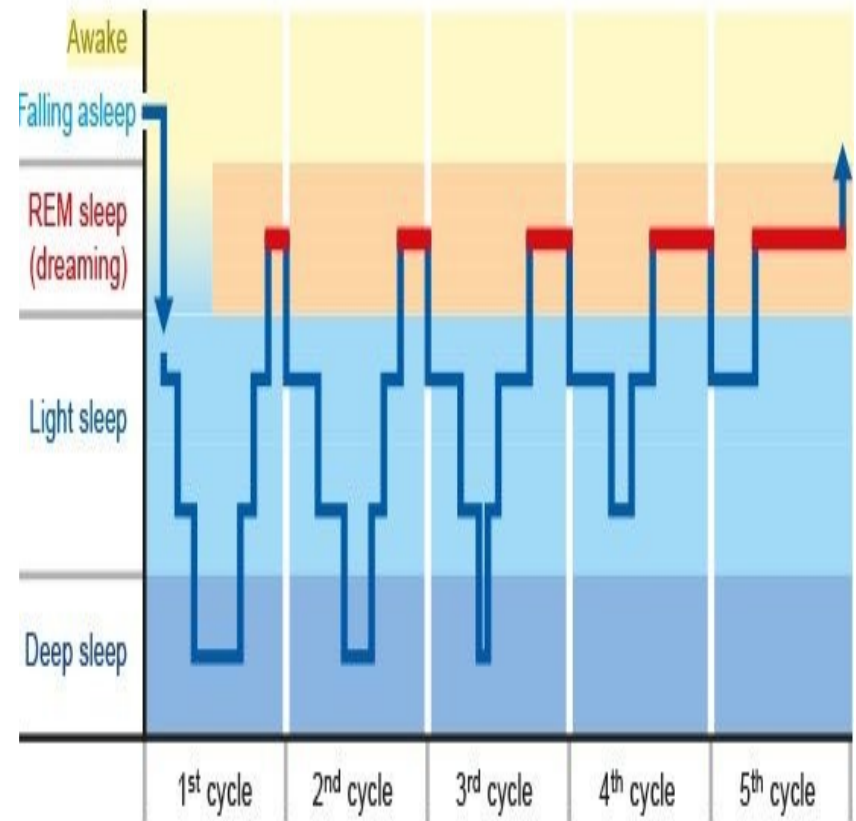
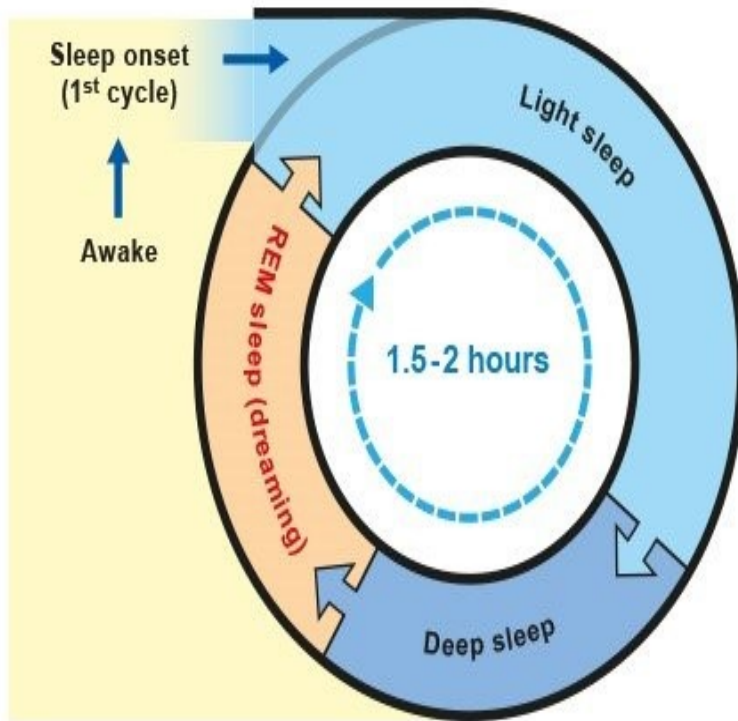
- The length of sleep people need varies but typically people aged between 20 and 45 require 7 to 8 hours per day,
- Sleep requirements also decrease with increasing age and people over 70 commonly have 6 hours sleep per day.
- Insomnia is classified by its duration; **transient** (a few days), **short-term** (up to 3 weeks) or **chronic** (greater than 3 weeks).
- It is twice as common in women than men.
- Chronic insomnia is more common in the elderly.
- Sleep is essential to allow the body to repair and restore brain and body tissues
- **The aetiology** of insomnia is a disturbances of arousal and/or sleep promoting systems in the brain. Insomnia may be caused by any factor, which **increases** activity in arousal systems or **decreases** activity in sleep systems.

STAGES OF SLEEP CYCLE

Sleep Stages	Type of Sleep	Other Names	Normal Length
Stage 1	NREM	N1	1-7 minutes
Stage 2	NREM	N2	10-25 minutes
Stage 3	NREM	N3, slow-wave sleep (SWS), delta sleep, deep sleep	20-40 minutes
Stage 4	REM	REM Sleep	10-60 minutes

<https://www.sleepfoundation.org/stages-of-sleep>

STAGES OF SLEEP CYCLE



<https://www.informedhealth.org/what-is-normal-sleep.html>

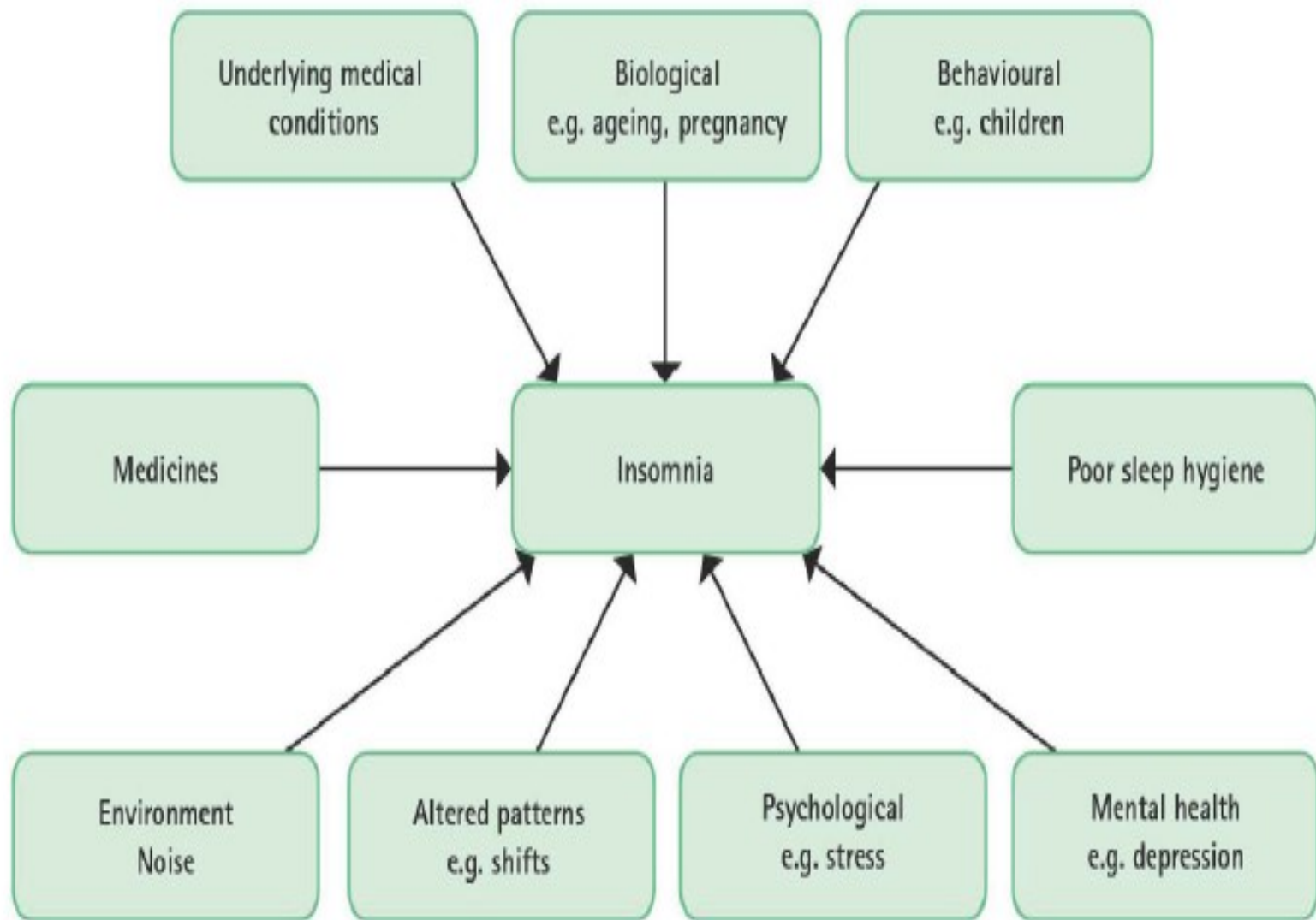


Fig. 4.3 Causes of insomnia.

ARRIVING AT A DIFFERENTIAL DIAGNOSIS

- Take a detailed sleep history.
- Asking symptom-specific questions
- **Transient insomnia** is often caused by a change of routine, for example, time zone changes or a change to shift patterns, excessive noise, sleeping in a new environment (e.g. hotel) or extremes of temperature.
- **Short-term insomnia** is usually related to acute stress such as sitting exams, bereavement, loss of job, forthcoming marriage or house move.
- **Patients will complain of difficulty in falling asleep, staying asleep or lack refreshment by sleep.**
- **Sometimes patients will experience daytime fatigue but not generally sleepiness.**
- This tiredness can lead to poor performance at work.

Conditions to eliminate

1. **Insomnia in children**

- Bedwetting is the most common sleep arousal disorder in children.
- If this is not the cause, then insomnia invariably stems from a behavioural problem such as fear of the dark, insecurity or nightmares.

2. **Medicine-induced insomnia**

- (next slide)

3. **Underlying medical conditions**

- GORD, pregnancy, pruritic skin conditions, Asthma, Parkinson's disease, painful conditions (osteoarthritis), hyperthyroidism (night sweats), menopausal symptoms (hot flushes), depression.



Table 4.7
Medication that may cause insomnia

Stimulants	Caffeine, theophylline, sympathomimetics amines (e.g. pseudoephedrine), MAOIs – especially in early treatment
Antiepileptics	Carbamazepine, phenytoin
Alcohol	Low to moderate amounts can promote sleep but when taken in excess or over a long period it can disturb sleep
Beta-blockers	Can cause nightmares, especially propranolol. Limit by swapping to a beta-blocker that does not readily cross the blood–brain barrier
SSRIs	Especially fluoxetine
Diuretics	Ensure doses not taken after midday to stop the need to urinate at night
Griseofulvin	



TRIGGER POINTS indicative of referral: Insomnia

Children under 12

Duration of more than 3 weeks

Insomnia for which no cause can be ascertained

Previously undiagnosed medical conditions

Symptoms suggestive of anxiety or depression



Table 4.6

Specific questions to ask the patient: Insomnia

Question	Relevance
Pattern of sleep	An emotional disturbance (predominantly anxiety) is commonly associated in patients who find it difficult to fall asleep; patients who fall asleep but wake early and cannot fall asleep again, or who are then restless, is sometimes associated with depression
Daily routine	Has there been any change to the work routine – changes to shift patterns, additional workload resulting in longer working hours and greater daytime fatigue Too much exercise or intellectual arousal prior to going to bed can make sleep more difficult
Underlying medical conditions	Medical conditions likely to cause insomnia are GORD, pregnancy, pruritic skin conditions, asthma, Parkinson's disease, painful conditions (osteoarthritis), hyperthyroidism (night sweats), menopausal symptoms (hot flushes) and depression.
Recent travel	Time zone changes will affect the person's normal sleep pattern and it can take a number of days to re-establish normality
Daytime sleeping	Elderly people might 'nap' through the day, which results in less sleep needed in the evening, making patients believe they have insomnia

Treatment of Insomnia

- Many cases of **transient and short-term** insomnia should be managed initially by **non-pharmacological** measures.
- If these fail to rectify the problem then short-term use of sedating antihistamines may be tried.
 1. **Sleep hygiene**
 2. Medication

Table 4.8

Key steps to good sleep hygiene

Maintain a routine, with a regular bedtime and wakening time

Food snacks, alcoholic and caffeine containing drinks should be avoided

Avoid sleeping in very warm rooms

Avoid stimulants and alcohol

Take daytime and not evening exercise

No daytime naps

No sleeping in to catch up on sleep

No strenuous mental activity at bed time (e.g. doing a crossword in bed)

Solve problems before retiring

Associate bed with sleep – try not to watch TV or listen to music

If unable to get to sleep, get up and do something and return to bed when sleepy

Medication

1. The sedating antihistamines

→ Diphenhydramine (DPH) and promethazine are the mainstay of ore pharmacological treatment.

2. Melatonin

→ Is advocated for sleep disturbance, particularly associated with **jet lag**.

→ The timing of the dose is critical. It has to be taken at bedtime after darkness has fallen on the first day of travel then again in the same way on the second, and any subsequent day, of travel.

- Once at the final destination it should be taken for the following few days at the same time.

Table 4.9

Practical prescribing: Summary of medicines for insomnia

Name of medicine	Use in children	Likely side effects	Drug interactions of note	Patients in which care exercised	Pregnancy & breastfeeding
Diphenhydramine	>16 years	Dry mouth, sedation, and grogginess next day	Increased sedation with alcohol, opioid analgesics, anxiolytics, hypnotics and antidepressants	Glaucoma, prostate enlargement	Some Manufacturers advise avoidance In breastfeeding occasional use OK but discontinue if baby becomes drowsy
Promethazine					

Complementary therapies

- These products are used by a substantial number of patients as a self-care measure.
- Herbal remedies containing hops, German chamomile, skullcap, wild lettuce, lavender, passiflora and valerian are available. *(Photos are in the same consequence as in the text)*



NAUSEA AND VOMITING

- **Nausea** is an unpleasant sensation, which may be a precursor to the forceful expulsion of gastric contents (vomiting).
- They are common symptoms of many disorders such as gastrointestinal conditions, infection, acute alcohol ingestion, anxiety, severe pain, and cardiovascular causes can also produce nausea and vomiting.

AETIOLOGY

- Nausea occurs because activity in the vomiting centre (in the medulla oblongata) increases.
- Information received from the receptor cells in the walls of the gastrointestinal tract reach a 'threshold value' that induces the vomiting reflex.
- Further input is received at the vomiting centre from an area known as the chemoreceptor trigger zone. This is highly sensitive to certain circulating chemicals, for example substances released by damaged tissues as a result of bacterial infection.

Clinical Features Associated With **Gastroenteritis**

- **Gastroenteritis** is characterised by acute onset, vomiting and/or diarrhoea and systemic illness (e.g. fever).
- Resolve in a few days and rarely last more than 10 days.
- In children under 5 years old over 60% of cases are viral in origin with the rotavirus and small round structured virus most commonly identified.
- Bacterial gastroenteritis presents with similar symptoms although fever is usually a more prominent feature.

CONDITIONS TO ELIMINATE

1. Gastritis

- **Alcohol** (nausea and early morning vomiting)
- **Medicine-induced** (cytotoxics, opiates, iron, antibiotics, NSAIDs, potassium supplements, selective serotonin reuptake inhibitors (SSRIs), nicotine gum (ingestion of nicotine rather than buccal absorption), theophylline and digoxin toxicity).

2. Nausea and vomiting in **neonates** (up to 1 month old)

- Congenital disorder, for example Hirschsprung's disease

3. Nausea and vomiting in **infants** (1 month to 1 year old)

- If **projectile** vomiting occurs in an infant under 3 months of age then pyloric stenosis should be considered.
- The most common causes of nausea and vomiting are feeding problems, gastrointestinal and urinary tract infection.
- Vomiting in infants needs to be differentiated from regurgitation.
- **Regurgitation** is an effortless back flow of small amounts of liquid and food between meals or at feed times;
- **Vomiting** is the forceful expulsion of gastric contents.

CONDITIONS TO ELIMINATE (continued)

4. Nausea and vomiting in **children** (1 year to 12 years old)

→ Gastroenteritis, fever or otitis media.

5. **Pregnancy**

→ Sickness tends to be worse in the first trimester and in the early morning.

6. **Middle ear diseases**

→ Any middle ear disturbance or imbalance may produce nausea and vomiting. Tinnitus, dizziness and vertigo are suggestive of Meniere's disease.

7. Nausea and vomiting associated with **headaches**

→ migraines and raised intracranial pressure



TRIGGER POINTS indicative of referral: Nausea and vomiting

Children who fail to respond to OTC treatment

Moderate to severe abdominal pain

Suspected pregnancy

Unexplained nausea and vomiting in any age group

Vomiting in children under 1 year old lasting longer
than 24 hours



Table 4.11

Practical prescribing: summary of medicines for nausea and vomiting

Name of medicine	Use in children	Likely side effects	Drug interactions of note	Patients in which care exercised	Pregnancy & breastfeeding
Domperidone	>16 years	None	None	None	Insufficient evidence in pregnancy – avoid Breastfeeding OK. May increase breast milk supply as it increases prolactin levels
Prochlorperazine	>18 years	Drowsiness	Increased sedation with alcohol, opioid analgesics, anxiolytics, hypnotics and antidepressants	Patients with Parkinson's disease, epilepsy and glaucoma	Manufacturers advise avoidance but it has been used safely in both pregnancy and breastfeeding

Domperidone (Motilium 10):

Side effects are rare but galactorrhoea, and less frequently gynaecomastia, breast enlargement or soreness, reduced libido, dystonia and rash.

Prochlorperazine

licensed for the relief of nausea and vomiting associated with migraine.