University of East Anglia

PHA – 6020Y

Patient centred medicine from bench to bedside

Nausea and Vomiting

Workshop

ANSWERS

Learning Outcomes

Learning outcomes

By the end of this workshop, when considering patients with nausea and vomiting, you will be able to:

- Outline the advice pharmacists can provide for N&V in pregnancy.
    - Describe key cautions, contraindications, side effects, interactions and counselling of pharmacological treatments.
- Describe appropriate management of drug and disease/procedure induced N&V
    - Describe key cautions, contraindications, side effects, interactions and counselling of pharmacological treatments.
- Select appropriate travel sickness products based on patient's needs.
- Describe appropriate OTC N&V treatment of migraines and gastroenteritis.

Method

- Please access your lecture notes, BNF, SPCs, CKS and other reliable/appropriate literature to answer the following questions.

Additional resources for advice on pregnancy:
Management of N&V of pregnancy and hyperemesis (Green-top guidelines No. 69)
https://www.rcog.org.uk/guidance/browse-all-guidance/green-top-guidelines/the-management-of-nausea-and-vomiting-of-pregnancy-and-hyperemesis-gravidarum-green-top-guideline-no-69/

CKS – Nausea/vomiting in pregnancy
https://cks.nice.org.uk/topics/nausea-vomiting-in-pregnancy/

NHS website
https://www.nhs.uk/pregnancy/related-conditions/common-symptoms/vomiting-and-morning-sickness/#:~:text=Nausea%20and%20vomiting%20in%20pregnancy,day%2Dto%2Dday%20life.

Task 1 - Nausea and vomiting in pregnancy

Mrs SP, a 25-year-old female, 8^{+3} gestation, enters the patient enters the community pharmacy that you are working in and asks for some advice on the morning sickness she is experiencing. She tells you that she started feeling sick about week 4 and feels sick most of the day. Luckily, she has only been sick a few times.

She has no relevant PMHx, DHx and NKDA.

1) What advice would you give Mrs SP?

- It usually begins between 4–7th weeks, peaks between 9–16th weeks, and resolves by 16–20 weeks of pregnancy. Onset of symptoms after 11 weeks of gestation usually suggests an alternative cause of symptoms unrelated to pregnancy.
- IT IS NOT - Hyperemesis gravidarum describes the most severe end of the spectrum of symptoms, and is a diagnosis of exclusion characterized by:
    - Prolonged, persistent and severe nausea and vomiting unrelated to other causes.
    - Weight loss (usually at least 5% of pre-pregnancy body weight).
    - Dehydration and electrolyte imbalance.
- Risk factors – multiple pregnancy, first pregnancy, Hx of HG, FH, obesity.
- Possible maternal complications if there are severe symptoms include weight loss, electrolyte imbalance, acute kidney injury, nutritional and vitamin deficiencies, gastro-oesophageal reflux disease, venous thromboembolism, and impact on psychosocial functioning.
- Possible fetal complications if there is hyperemesis gravidarum include preterm delivery, low birthweight, and small-for-gestational age.

Assess the impact – duration, severity, oral intake, hydration, urine output, sleep, co-morbidities (i.e. DM = DKA risk).

Reassure it usually resolves by 16-20 weeks.

Self help:
Rest as needed, and try to avoid sensory stimuli that may trigger symptoms, such as odours, heat, and noise.
Try eating plain biscuits or crackers in the morning.
Try eating bland, small, frequent protein-rich meals which are high in carbohydrate and low in fat.
Cold meals may be more easily tolerated if nausea is smell-related.
Drinking little and often, rather than large amounts. Ginger (can be taken in fresh, tea, capsule, or syrup form).
Acupressure (such as over the P6 point on the ventral aspect of the wrist using a wrist band or finger pressure).
Avoid contributing medication.
Advise on dyspepsia (if contributing) – small frequent meals (3 hours), not late, avoid irritants (caffeine, fruit juice, carbonated drinks), food diary. Raise the head of the bed. Potentially alginate product.
Fresh air.

2) In what situations would you need to refer the patient to the GP?

Unable to keep anything down/fluids.
Risk/is dehydrated/low BP.
Co-morbidity that increases risks i.e. diabetes, epilepsy
Persistent high volume and/or suspicious colour of vomit

Unable to do daily tasks.- especially if patient has other children, care of the other children and the foetus could be at risk
Concomitant drugs that increase risks when vomiting/unable to keep essential medication down.
Potentially patients that have struggled to conceive and the patient is incredibly anxious about losing the baby
Prescription medication to help with morning sickness being ineffective.

2 Weeks later Mrs SP comes back to the pharmacy with a prescription.

3) Which antiemetics would you expect to see prescribed by the GP?
   For each suggestion, provide detail of important cautions/contraindications, side effects, interactions and counselling.

*Green-top guideline RCOG No 69
**CKS – only drug licensed for N&V in pregnancy

*__CYCLIZINE__ – first line – Antihistamine (H1) block the histamine receptors of the vestibular system (that's why they work for travel sickness), but also in the vomiting centre (NTS-nucleus of the solitary tract). There is also antimuscarinic action (leading to s/e). Increase in oesophageal sphincter tone.

Various indications – motion, narcotc analgaesia/GA in PONV, radiotherapy, vestibular disorders.

Dose - Po 50mg TDS (RCOG) (can be given IV, PR and by subcutaneous/intravenous infusion)

Antiemetic effect in 2 hours and lasts approximately 4-6 hours.

Cautions – (due to anticholinergic effect) – may ppt glaucoma, caution in urinary retention, GI obstruction, HTN, epilepsy (as convulsions reported) and prostatic hypertrophy. Severe HF and recent MI – may reduce CO (inc.HR). Hepatic impairment/failure – increased risk of encephalopathy.

Side effects - Children and elderly (increased risk of cognitive impairment and mortality) are more susceptible.

(peripheral) dry mouth, nose, eyes and throat, blurred vision, tachycardia, constipation and urinary retention; (central) drowsy, dizzy, incoordination, EPSE – mechanism unclear (dystonia, dyskinesia), tremor, convulsions, dizziness, decreased consciousness, confusion, agitation. There have been reports of euphoric or hallucinatory effects – potential for abuse. N&V. Arrhythmias. Hypotension, hypertension. Photosensitive skin reactions reported – protect skin from the sun.

Interactions - with alcohol – increases toxicity of alcohol (do not use in acute alcohol use). Interaction with other CNS depressants – additive effects (hypnotics, anaesthetics, antipsychotics, TCA, opioid analgesia). Enhanced additive side effects with other anticholinergic drugs.

Driving and machinery – can cause drowsiness and impaired function, if affected do not drive or operate machinery.

*__PROMETHAZINE__ (Phenergan) – first line – Antihistamine (H1) block the histamine receptors of the vestibular system (that's why they work for travel sickness), but also in the vomiting centre. Also, antimuscarinic and antidopaminergic activity.

Indications – nausea, vomiting vertigo labyrinthine disorders, motion sickness. Not licensed for under 2-year-olds due to the risk of respiratory depression, and children under 6 yrs should not be given cough and cold remedies with it in MHRA warning 2009).

Dose - Adult – RCOG recommends 12.5-25mg every 4- 8 hours for morning sickness. Different doses for motion sickness).

PO, IV.

Cautions - (due to anticholinergic effect) – may ppt glaucoma, caution in urinary retention, GI obstruction, HTN, epilepsy (as convulsions reported) and prostatic hypertrophy.

Contraindications - in CNS any depression.

Side effects, interaction and warning – as above.

*__PROCHLORPERAZINE__ – first line – Phenothiazine – first generation antipsychotic mainly blocks D2 dopamine antagonist, H1, muscarinic and noradrenergic receptor antagonism.

Indications – N&V in migraine, labyrinthine disorders, prevention and treatment of N&V

PO, IM, buccal, PR (not equivalent)

Dose - Po 5-10mg 6-8 hourly (RCOG)

Contraindications - CNS depression

Cautions – conditions predisposing to seizures, cardiac failure, CVD (may predispose to arrhythmias), DM (may raise blood glucose), epilepsy (can lower seizure threshold), myasthenia gravis (due to anticholinergic effect), PD (antagonism), susceptibility to closed angle glaucoma, prostatic hypertrophy, stroke risk, elderly, hepatic impairment (extensively metabolised in the liver), renal impairment (increased cerebral sensitivity).

Side effects - Nervous system s/e are most commonly reported – dystonia, dyskinesia, Parkinsonism's, tardive dyskinesia, insomnia, agitation, convulsions.

Antimuscarinic s/e (interactions with drugs that potentiate this). Drowsiness (esp. when first used). Photosensitisation of the skin. Haematological (leucopenia, neutropenia). Hypotension. Hyperprolactinaemia – potentially leading to galactorrhoea, gynaecomastia, amenorrhoea and impotence. Hypotension.

Cardiac disorders including, potentiation of the QT interval leading to serious arrhythmias (interactions with drugs that potentiate this).

Additional care where patients have mental health issues requiring treatment – specialist advice would be sought. Additional care when considering interactions.

Interactions - CNS depressant effects of alcohol, sedatives etc intensified. Levodopa = antagonism.

Driving and machinery – can cause drowsiness and impaired function, if affected do not drive or operate machinery.

Administration of buccal (administration instructions).

*__CHLORPROMAZINE__ – first line – Phenothiazine - first generation antipsychotic mainly blocks D2 dopamine antagonist, H1, muscarinic and alpha-adrenergic receptor antagonism.

Indication – N&V in palliative care.

Dose - Po 10-25mg every 4-6 hours (RCOG)

Po, IM, PR (not equivalent)

Similar cautions and CI to above for prochlorperazine.

Contact sensitisation – avoid handling.

Interactions – Potentiation of effects with drugs with similar pharmacology.

Chlorpromazine is generally characterised by pronounced sedative effects and moderate antimuscarinic and extrapyramidal effects; whereas, prochlorperazine has fewer sedative and antimuscarinic effects and more pronounced extrapyramidal effects.

**DOXYLAMINE/PYRIDOXINE (Xonvea) – First-line – H1 receptor receptor blocker and vitamin B6 (water soluble vitamin).

The only drug licensed for N&V in pregnancy.

***DOMPERIDONE** – Second line - Dopamine antagonist. Works on the chemoreceptor trigger zone but does not cross the BBB. Increases GI transit due to peripheral receptor antagonism (prokinetic).

Dose - Po 10mg up to TDS (every 8 hours) (RCOG) max1 week

Not for children and those weighing less than 35 Kg (not as effective and alternative should be considered – not shown to be any more effective in controlling N&V than ORT)

Contraindications - cardiac disease (i.e. CCF as this increases the risk of ventricular arrhythmias), where cardiac conductance is/could be impaired, bradycardia (increases the risk of arrythmias), GI haemorrhage, GI obstruction (where stimulation harmful), receiving other medicines known to increase QT (amiodarone, citalopram, erythromycin, methadone) or have prolonged QT, potent cyp 3A4 inhibitors/caution with all CYP3A4 inhibitors (azoles, protease inhibitors and macrolides) (domperidone is a substrate for it and it is its main metabolic pathway), hepatic impairment (hepatically metabolised), prolactinoma (a prolactin-releasing pituitary tumour).

Caution - >60yrs increased risk of ventricular arrhythmias, severe renal impairment (dose and frequency reduction required), electrolyte abnormalities (correct before use as this could increase the risk of arrhythmias), drugs causing electrolyte abnormalities and bradycardia.

Side effects - c=dry mouth, uc=anxiety, breast abnormalities (galactorrhoea, pain, tenderness), diarrhoea, drowsiness, rash; frequency unknown=arrhythmias, QT prolongation, urinary retention, gynaecomastia, menstrual cycle disorders, seizure, hyperprolactinaemia. Movement disorder (EPSE) – rare as it doesn't cross the BBB

Identify signs of arrhythmia and get help – i.e. palpitations and syncope

2014 European safety review 2014– risk of serious adverse drug reactions including increased QT and sudden cardiac death. Implemented measures to balance risk:benefit.

Lowest effective dose for the shortest time (greater doses increase the risk of arrhythmias) – max

1 week.

Absorption is delayed if taken after eating, therefore best to take on an empty stomach.

Interactions – anything prolonging QT, cyp 3A4 inh (macrolides, azoles), drugs causing electrolyte abnormalities.

*__METOCLOPRAMIDE__ – Second line – Dopamine antagonist in the CTZ (some direct action on the gut to act as a prokinetic). This can cross the BBB to cause the movement disorders described in it's side effects. Also inhibits serotonin in the CTZ.

Indications – N&V+ migraine, delayed CINV, RINV, PONV prophylaxis

Dose – 5- 10mg every 8 hours (RCOG)

Po, IM, IV

MHRA/CHM 2013 – risk of neurological adverse effects (Acute dystonic reactions - EPSE, tardive dyskinesia etc.) – restricted dose and duration. Prescribe short term (up to 5 days), 10mg up to TDS (at least 6 hours apart) (max daily dose is 500 mcg/kg), iv bolus over at least 3 minutes, oral liquid should be measured using an appropriate oral syringe.

Metoclopramide can induce acute dystonic reactions involving facial and skeletal muscle spasms and oculogyric crises. These dystonic effects are more common in the young (especially girls and young women) and the very old; they usually occur shortly after starting treatment with metoclopramide and subside within 24 hours of stopping it. Usually with higher doses/prolonged use. Treatment must be stopped if signs appear.

Contraindications - 3-4 days post GI surgery, GI haemorrhage, obstruction, perforation – stimulated GI motility in these patients is a risk. Epilepsy (can cause seizures). Parkinson's disease.

Cautions - asthma (can cause bronchospasm), bradycardia and conductance disorders (increased risk of arrhythmias), children and elderly (increased risk of neurological adverse effects), Parkinson's disease (causes movement disorders), uncorrected electrolyte imbalance (increased risk of arrhythmias), young adults (increased risk of neurological adverse effects), renal impairment & hepatic impairment (risk of accumulation).

Side effects - c = asthenia, depression, drowsiness, diarrhoea, hypotension, menstrual cycle abnormalities, parkinsonism, EPSE; uc=arrhythmia, hallucinations, bradycardia, hyperprolactinaemia, decreased level of consciousness, r=confusion, seizure, nk= AV block, cardiac arrest, QT prolongation

Renal and hepatic dose adjustments required.

Interactions - Levodopa (plus other medicines used for Parkinson's disease) and metoclopramide – antagonism. Alcohol potentiates sedative effect. Central nervous system depressants – morphine, anxiolytics, sedative H1 antihistamine, sedative antidepressants – sedative effect potentiated. Anticholinergics and agents acting to slow GIT will antagonise the prokinetic effect. Additive effect to other drugs causing EPSE's. Strong CYP2D6 inhibitors (fluoxetine, paroxetine) monitor as this is the main route of metabolism.

Ability to operate machines/drive may be impaired

*__ONDANSETRON__ – Second line – 5HT3 antagonist acting in the GIT (vagal afferents) and CNS (CTZ).

Indications - Moderate and severely emetogenic chemotherapy and radiotherapy, PONV

Dose – PO (RCOG) 4-8mg every 6-8 hours for up to 5 days

Po, IV (doses not equivalent)

MHRA/CHM 2020 – small increased risk of cleft palate when used in the first 12 weeks.

MHRA guidance from August 2012, highlights a dose-dependent risk of QT prolongation, cardiac arrhythmias, including Torsade de Pointes with ondansetron. Ondansetron should be avoided in patients with congenital long QT syndrome.

Caution - if administering ondansetron to patients with risk factors for QT interval prolongation or cardiac arrhythmias. These include: electrolyte abnormalities, use of other medicines that prolong QT interval or may lead to electrolyte abnormalities, congestive heart failure, bradyarrythmias and medicines which lower the heart rate. This is dose dependent.

Side effects - c=constipation, headache, warmth/flushing; uc=arrhythmias, hypotension, movement disorders, seizure, r=QT prolongation

Dose adjust in hepatic impairment

Interactions - Many enzymes are responsible for metabolism therefore if one is reduced then the others can compensate. Potent inducers will clear it quicker, i.e. phenytoin, carbamazepine and rifampicin. Other serotoninergic drugs

*Doses as per the RCOG. For other indications please refer to the BNF or product literature (SPC).

Task 2 - Antiemetics use in Parkinson's disease

1) Mr BS, a 63 year old gentleman phones his specialist nurse to discuss a new adverse effect that he is experiencing after an increase in the strength of his medication. He reports a constant feeling of nausea and has been sick once.

DHx: Co-beneldopa 100/25 tablets – 1 TDS (was 50/12.5 QDS)
Co-beneldopa CR 100/25 capsule – 1 ON

The doctor wants to prescribe an antiemetic for Mr BS to use before he can be seen in clinic in a couple of days time.
Which antiemetic would you recommend and why?
Why would other antiemetics be considered inappropriate?

Parkinsons disease is a progressive neurodegenerative condition resulting from the death of dopaminergic cells of the substantia nigra in the brain. This leads to symptoms such as motor symptoms (hypokinesia, bradykinesia, rigidity, rest tremor and postural instability) and non-motor symptoms (dementia, depression, sleep disturbance, bladder and bowel dysfunction, speech, and language changes, swallowing problems and weight loss).

Domperidone – It acts on and blocks peripheral dopamine receptors of the chemoreceptor trigger zone in the area postrema (surface of brain stem but outside the physiological BBB). This is where dopamine agonists, such as levodopa, exerts it effect to cause vomiting. It also acts as a prokinetic.

Other potentially appropriate agents include:
Cyclizine – as above
Ondansetron – as above

Antiemetic that should not be used in Parkinson's disease:
Metoclopramide, prochlorperazine, chlorpromazine – D2 agonists - highly likely to worsen Parkinson's disease – as they are dopamine antagonists crossing the BBB.

2) Provide detail of important cautions/contraindications, side effects, interactions and counselling of the medication recommended.

Domperidone – As above
Cyclizine – As above
Ondansetron – As above

Task 3 – Antiemetics during cancer chemotherapy

Chemotherapy induced nausea and vomiting (CINV) is an important area of patient management for patients undergoing cancer treatment. CINV is classified into 5 categories:

Acute – N&V occurring within 24 hours of chemotherapy administration.
Delayed – N&V occurring at least 24 hours after administration of chemotherapy and often peaking between 48 to 72 hours.
Breakthrough – N&V occurring within 5 days post chemotherapy despite optimal antiemetic use (requires rescue antiemetics).
Refractory – N&V occurring in subsequent chemotherapy cycles despite maximum antiemetic.
Anticipatory – N&V triggered by sensory stimuli associated with chemotherapy.

1) What treatment **strategies** (not treatments) can be used in their management? As a HCP, what factors influence your decisions about management of CINV?

Assess the patient for risks – age <50, female, history of motion sickness or motion sickness, emesis with prior treatment. Alcohol (>5 drinks/week) / smoking lowers the risk of CINV.

Assess the regime - Antineoplastic regime (depends on dose, concomitant drugs, route, drug, frequency) being used – high risk of cinv (>90%) – cisplatin, cyclophosphamide, carmustine; moderate (30-90% of patients) – carboplatin, doxorubicin, oxaliplatin. There are also drugs with low and minimal emetic effects.

Prophylactic strategies – PREVENTION is easier than treatment.

Dose given before, after and into the future. Breakthrough and rescue therapies are also provided.
The likelihood and timings of drug/regime N&V will also have come from the clinical trials. The protocols will contain details of the types of antiemetics to use when.

The greater the risk the more drugs are used in combination.

2) For the THREE main types of antiemetic used for the prophylaxis of acute and delayed CINV? Describe why they are effective for CINV (consider their MOA).

For each suggestion, provide detail of important cautions/contraindications, side effects, interactions and counselling.

It is a complex process, involving peripheral and central mechanisms to cause N&V. Believed to involve neurotransmitters (serotonin, substance P, dopamine) and receptors (5HT3 and NK-1) as well as acetylcholine, histamine….

5HT are released from enterochromaffin cells in the GIT mucosa as a response to chemotherapy/radiotherapy. These bind 5HT3 receptors located at the end of the vagal afferent nerves. These travel to the nucleus of the solitary tract (NTS)/VC.

Chemoreceptors in the area prostrema, located outside the BBB can be directly activated by chemotherapy and released 5HT. = acute

Substance p, present in the peripheral and central nervous system is also released in response to chemotherapy, This binds to neurokinin 1 receptors on the NTS and CTZ. Predominantly important in delayed CINV. It also acts in the GIT so may have a role in acute N&V.

There are national guidelines available European and American societies and networks and specialist centres will have their own adaptations of these.

Dexamethasone – The exact mechanism of how this works is unknown. Potential due to management of the inflammatory mediators (eicosanoids) produced after chemo or radiotherapy. Generally taken for short periods of time.
5HT3 receptor antagonist – Ondansetron, polonosetron (second generation – longer half life), granisetron Work at receptors in the periphery and centrally preventing activation of the CTZ. Action is important in acute CINV and to a lesser extent in delayed CINV.
Neurokinin-1 antagonists – aprepitant (125, 80, 80), fosaprepitant (injectable pro-drug) Highly selective and centrally acting. Used in combination for acute with dex and 5HT. Substance p is considered to be the neurotransmitter involved in delayed CINV, therefore also used for delayed. S/E diarrhoea, fatigue and nausea. Aprepitant is metabolised by and a moderate inhibitor of cyp 3A4. Also other effects on other CYP enzymes. It can cause an increase in plasma dexamethasone levels (reduction of dex required).

Task 4 – Antiemetics (Medicine and Surgery)

On the ward, Mr JL, a 75 year old gentleman, returned from surgery yesterday lunchtime. He has had a THA (total hip arthroplasty). The NIC (nurse in charge) catches you as you get to the ward to get some cyclizine ordered for this patient as he is feeling nauseous and was sick about 30 minutes ago.

You review his chart (DHX and MR completed by pharmacy technician):

Prescribed medication		Potential indication
Digoxin 500mcg BD (3 doses given)	New	AF – is this the best choice?
Apixaban 2.5mg BD	New	AF

Paracetamol 1g QDS	DHx	Pain
Ibuprofen 400mg TDS	New	Pain
Trelegy Ellipta I puff OD	DHx	COPD
Salbutamol 100mcg QDS PRN	DHx	COPD
Cyclizine 50mg TDS PRN	New	N&V
Morphine PCA 3mg (5-minute lock out)	New	Pain

1) What could be the potential cause(s) of the N&V?

Surgery,
NBM,
anaesthesia,
dehydration,
blood loss,
electrolyte imbalance
Opiate analgesia/post operative pain relief
Renal impairment
Digoxin toxicity
Digoxin
Apixaban
NSAID

2) What additional checks would you like to make and why?

Renal function
Fluid balance/hydration status
COPD control – requirement for digoxin over beta blocker/calcium channel blocker
Digoxin level – 0.5-2ng/L, level 6-8 hours post dose
Electrolytes – Potassium
Pain score – can treatment be stepped down?

3) What advice would you give to the house officer?

Determine the underlying cause of the problem and treat that.

Level and hold the digoxin. Restart at a lower dose once in range and patient feeling better/or consider selective beta blocker or rate limiting calcium channel blocker rather than digoxin (need to consider COPD control).

Manage all underlying issues as highlighted from above investigations.

Task 5 - Antiemetics in the community pharmacy

For each of the 4 following situations, please provide details of the most appropriate medication to treat travel sickness based on the specific scenario:

1) A family going on a 3-hour journey. Their 2 and a half year old suffers with sickness on journeys longer than 20 minutes.

Not joy-rides as 3 years and up
Not Kids Kwells – 4yrs +
Not Sturgeron (cinnarizine) – 5yrs +

Not Scopoderm patch – 10yrs +
Not Promethazine teoclate tablets (Avomine) – 5yrs+

Promethazine HCl ok in liquid form, 5mg night before travel and morning if needed - ALERT – be cautious when selling Promethazine Hydrochloride OTC (Phenergen) as risk of abuse. Parents using it to sedate children inappropriately! Many pharmacists will refuse to sell it in general because of this.

- Main piece of advice to tell parents is that it will make the child feel very drowsy. There are of course other side effects – please read info leaflet carefully.
- Also, that it is long acting and therefore they should stick to the dosage instructions even if they feel it isn't working.
- It will make your skin more photosensitive so use protective sun creams and be careful when going outside.
- There is a list of conditions that are listed as contraindicated or cautioned – most especially asthma and epilepsy. Important to be aware of.

Advice in terms of administration of travel sickness medication for children
- Think about the formulation – majority of formulations licensed for children will be chewable tablets, sublingual, or liquid form. Some involve tablet form but they need to be cut in half – consider talking to the parents about tablet cutters to help give an appropriate dose.

More general advice for travel sickness with children
- Non-pharmaceutical measures should be used first, before pharmaceutical measures if possible.
- Remove/reduce things that make them feel sick – reading books, playing on phones/playstations etc during the journey. Think about using ginger biscuits, having the car well ventilated, making regular stops.
- Also travel sickness bands for children is another alternative.

2) Patient HP, a 25 year old comes in for advice before going on a cruise for a week around the Mediterranean. They do not want to take tablets more than once a day.

Hyoscine patch (Scopoderm®)
- Apply patch 5-6hours before going on your journey
- Must be applied to clean, dry, hairless skin behind the ear
- Wash hands thoroughly after applying the patch
- Do not touch the patch once it has been applied to the skin – if you do wash hand immediately. (if any was to get into the eyes it may affect your vision temporarily)
- When you remove the patch, wash your hands AND the skin it was applied to thoroughly.
- As each patch lasts 3 days, if you need to change the patch after 3 days use the area behind the other ear for the 2nd patch.
- Use only one patch at a time
- Drowsiness may persist up to 24hours after removing the patch

Promethazine Teoclate (Avomine) – for the prevention of travel sickness take one tablet at night, starting the evening before you travel. (Different instructions if you are treating travel sickness –

- Dosage for treating travel sickness – 25mg taken at onset of motion sickness, then 25mg for 2 further doses.
- Dose should be taken in the EVENING, starting on the evening of onset. (because of the drowsiness)

Promethazine Hydrochloride (Phenergan) prevention of motion sickness

- 20-25mg dose to be taken at bedtime on night before travel, and repeat following morning if necessary

NOTE – the 2 different types of promethazine have slightly different licencing's and indications. Important to be clear and distinguish between them both

3) Patient LN, a 19 year old comes into your pharmacy stating that they have forgot to pack their travel tablets, they are going on a coach trip soon and want something to work quickly.

Joyrides or Kwells as hyoscine products which work within 30 minutes

- For joyrides – chew tablet before swallowing 20mins before travelling. FYI
- Kwells 'kids' and adults– can be sucked, chewed or swallowed 30mins before travelling

4) Patient BP comes in wanting advice on which travel sickness tablets to buy for a journey they are planning. They are travelling to Calais and catching the ferry between Dover and Calais, however the patient is prone to getting sea sick. What is the most appropriate to recommend and what advice must you give the patient?

Most appropriate would be Kwells/Joy-rides as the patient could drive to the Port, then take the tablet 30mins before getting on the Ferry, allowing the tablets to be effective. The hyoscine butylbromide acts quicker than other travel sickness tablets and is shorter acting (~6hours)

Things to consider – though Hyoscine butylbromide is less sedating than cinnarizine or promethazine, it can still make you sleepy. Therefore, you must counsel the patient about not driving after taking the tablet as it could affect their driving skills. This may not be wanted by the patient as they have to continue their journey on from Calais etc. If this is the case non-pharmacological methods should be used.

What would you advise if they needed to drive and were also car sick?
(1) they stop driving until they feel better as none of the medication recommend driving whilst on it. Or (2) they could use travel sickness bands. Or (3) they get someone else to drive and take some travel sickness medication and don't drive until this has worn off.

General advice and non-pharmacological things to use to prevent travel sickness:

General advice:

- Focus on objects in the distance like the horizon
- Do not look at moving objects – e.g. passing cars
- Make sure the vehicle is well ventilated – windows open
- Don't read or play games or electronic devices during the journey
- Don't eat large heavy meals just before a journey
- Try and sleep on the journey
- Take regular breaks during the journey

Other advice

- Travel sickness bands – meant to work like acupuncture (Nei-Kuan P6 acupressure point). Different types available and children versions too (e.g. Sea-bands)

- Ginger biscuits
- Peppermint tea

Other things to consider when selling travel sickness tablets:

- What other medication are they on or conditions? This may seem obvious, but it is important to know what conditions as well as medication may interact with these products. Many of the travel sickness products are contraindicated in patients with glaucoma and prostatic enlargement. In addition, often products state that patients with CNS disorders (e.g. seizures) should consult a doctor before taking.
- How long is the journey? Important to know how long the different tablets work for to be able to recommend the most appropriate one and how long they take to work:

Drug	How long does it take to work	Duration of effect
Hyoscine butylbromide tablets	~20-30mins	6hours
Cinnarizine 15mg tablets	2 hours	8 hours
Promethazine Hydrochloride	Taken the night before travelling	6-8hours

- How alert do they want to be during the journey? If they are going site seeing and they are going to be on a coach all day – yes they need a long acting travel sickness pill but they don't want to be drowsy over the whole day and miss everything. Therefore, this is why it is important to take on board the patient's preferences and to inform the patient of how sedating some travel sickness tablets are.
- Will they be driving within 12-24hours of taking the travel sickness tablet? Some travel sickness tablets take longer to wear off and patient should not drive for certain periods of time after taking travel sickness tablets.

5) Patient JK, a 24 year old comes into your pharmacy complaining of nausea associated with a migraine and wants something to help them feel better. What would you recommend?

Migraleve Pink tablets – contain paracetamol, codeine and buclizine (anti-emetic). Must ascertain that they have been diagnosed with migraines by GP.

Alternatively – Buccastem M tablets – prochlorperazine buccal tablet licensed OTC for nausea and vomiting in previously diagnosed with migraines (18yrs +)

- Administration – between upper lip and gum. Good blood supply in the mouth and therefore acts quickly. (Also bypasses liver therefore no 1st pass metabolism)
- Only 8 in a pack (shows it should be used for very short term use).

- **migraitan or Imigran (sumatriptan)** as a migraine alternative however this is for use at onset of symptoms mostly. A special questionnaire must be used to determine if it is safe for the patient to use. As you know its main action is to stop the migraine rather than stop N&V.
- link to the questionnaire is here - https://www.bristol-labsconsumercare.co.uk/wp-content/uploads/Migraitan-Questionnaire-13-08-18.pdf
- Guidance - https://www.bristol-labsconsumercare.co.uk/wp-content/uploads/Migraitan-Questionnaire-Guidance-13-08-18.pdf
- Generally if the symptoms are very severe/new onset/not responding to treatment we would be referring the patient to the GP as there is very little more we can offer OTC. Using travel sickness medication will not help (due to how they work) as well as being out of license.

(motilium OTC or domperidone – that was removed from P meds a while ago now and it is POM.)

6) Patient WD comes into your pharmacy complaining of N&V. Upon questioning you determine that it appears they may have consumed a 'dodgy' kebab. The patient does not have any relevant medical or drug history and no allergies. The patient asks whether they can have some travel sickness medicine to help.
   a) What is your response? Explain the underlying reason for this response.
   b) What advise should you give?

a) These preparations are unlicensed for this indication so could not be sold for this.
b) Eat when you feel ready. Dry bland food. Maintain fluid intake. Could have oral rehydration. Rest.