

Nausea and Vomiting

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Definition

Nausea is defined as a sensation of sickness with an urge to vomit. Vomiting is defined as the sudden and forceful expulsion of the stomach contents. Both are common problems in patients with advanced cancer and approximately 42% of patients will suffer nausea and 32% will vomit.

The mechanism of nausea & vomiting

The action of vomiting is controlled by the emetic centre situated in the fourth ventricle of the brain. This centre receives vomiting stimuli from many areas including the chemoreceptor trigger zone (CTZ), gastrointestinal tract and the vestibular apparatus. In both the CTZ and the emetic centre there are high concentrations of dopamine receptors with some cholinergic and H1 receptors. The mechanisms involved in the vomiting reflex can be selectively blocked, by prescribing the drug that is the most appropriate, depending on the cause.

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Classification of drugs

Drug	Class	Action
Metoclopramide	Prokinetic	Increases peristalsis in the upper gut
Cyclizine	Antihistamine	Acts on histamine and cholinergic receptors in the vomiting centre
Haloperidol	Butyrophenones	Blocks dopamine receptors at CTZ
Levomepromazine	Phenothiazines	Blocks dopamine & serotonin receptors at CTZ. Broad spectrum. Blocks 5HT3 receptors
Ondansetron	5-HT3 receptor	Reduces gastrointestinal secretions and motility
Hyoscine Butylbromide	Anticholinergic	Antispasmodic & antisecretory
Dexamethasone	Corticosteroid	Helps to reduce inflammation and oedema. It also has anti-emetic effects centrally and peripherally

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Assessment

For many patients nausea and/or vomiting causes great distress and anxiety. Persistent nausea can be intolerable and in some situations be much more distressing than the action of vomiting.

Aims:

- To determine the most appropriate treatment.
- Eliminate nausea and vomiting. However, this may not always be possible e.g. bowel obstruction where the aim may be to reduce the volume and/or frequency of vomiting.

Consider:

- Frequency and severity of nausea/vomiting.
- Impact on quality of life.
- Reversible causes
- Physical examination
- Any antiemetics already tried
- Likely diagnosis
- Appropriate treatment drug or non-drug

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Common anti-emetic doses and routes of administration

Drug	Suggested dose & route	Comments/side effects
Metoclopramide OR	10mg-20mg q.d.s. p.o. 30-90mg/ 24hr via syringe driver	For gastric stasis, reflux & opioid induced nausea. Do not use in bowel obstruction 1st Line
Domperidone	10-20mg q.d.s. p.o. 30-60 mg t.d.s. P.R.	For gastric stasis. Less sedating than metoclopramide 1st Line
Haloperidol	1.5mg nocte p.o. 2.5- 5mg/ 24hr via syringe driver	Anti-emetic of choice for opioid induced nausea & in renal failure 1st Line
Cyclizine	50mg t.d.s p.o or s/c 100 – 150mg/24hr via syringe driver	For use in raised intracranial pressure and bowel obstruction. May cause drowsiness, dry mouth. Do not use with Metoclopramide 1st Line
Levomepromazine	6.25mg – 12.5 mg p.o. nocte or b.d. 6.25 mg s/c stat 6.25-12.5mg/24 hr via syringe driver	Broad spectrum, highly effective at low doses. Sedating at high doses. DRUG OF CHOICE FOR LAST FEW DAYS OF LIFE – Please refer to Integrated Care Pathway guidelines 2nd Line
Ondansetron	8mg b.d. p.o. 16mg daily p.r. 16mg/24hrs via s/c syringe driver	Chemotherapy/radiotherapy induced nausea. Adjuvant in cerebral irritation
Dexamethasone	4mg -16mg p.o. s/c once daily or via syringe driver	For increased intra-cranial pressure, liver metastases. Adjuvant antiemetic - add to existing antiemetic regime.

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Management of nausea & vomiting

To manage nausea and vomiting effectively anti-emetics must be prescribed in a logical manner depending on the cause. Different anti-emetic regimens may be used depending on the cause.

Key points:

- Treat reversible causes e.g.
 - **Drug induced** - review medication.
 - **Constipation** – rule out obstruction, review and/or prescribe laxatives.
 - **Anxiety** – reassurance, explanation, consider anxiolytic e.g. lorazepam.
 - **Raised intracranial e.g. brain metastases** – consider corticosteroid e.g. dexamethasone.
 - **Ascites** - aspiration of ascites will require admission to hospital.
 - **Gastric irritation** – administer P.P.P. Review NSAID.
 - **Infection** - e.g. UTI, URTI, treat with antibiotics as appropriate .
 - **Hypercalcaemia** - management will require admission to hospital for rehydration and appropriate use of bisphosphonates
 - **Oral/Oesophageal candidosis** - Antifungal e.g. Nystatin
 - **Urinary retention** - treat underlying cause, catheterisation.
 - **Cough** - treat underlying cause, cough suppressant .
- Give antiemetics regularly rather than a p.r.n basis.
- For mild nausea/vomiting give medication orally.
- For moderate nausea consider buccal, rectal or s/c medication.
- Negotiate realistic goals.
- Choose a first line antiemetic i.e. haloperidol, cyclizine or metoclopramide appropriate to possible cause.
- Add in or switch to a second-line antiemetic if nausea and vomiting improves but persists after 24-48 ours
- Over a third of patients will require a combination of anti-emetics acting on different sites e.g. haloperidol/cyclizine.
- If nausea/vomiting persist then other antiemetics should be discontinued and replaced with a broad spectrum antiemetic e.g. levomepromazine.
- If vomiting prevents the absorption of the drug or if the patient is severely & persistentl nauseated consider continuous subcutaneous administration of anti-emetic via [syringe driver](#). Once good symptom control has been achieved for approximately **72 hours** then consider replacing subcutaneous drugs with oral.
- Monitor response
- Review regularly
- Antiemetic therapy may need to be continued.

For further advice & information please contact specialist palliative care team

Bowel obstruction

If patient has advanced disease and hospital admission is not appropriate anti-emetics may need to be administered via a syringe driver. There are several options available. Useful guidance available at www.prodigy.nhs.uk/guidance/palliative

*** Seek specialist palliative care advice ***

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Non-drug management

- Avoidance of food smells. Using a microwave to re-heat food reduces exposure to cooking smells.
- If the patient usually cooks arrange an alternative e.g. meal delivery, other family member to prepare meals.
- Avoid big meals.
- Encourage patients to undertake diversional activities e.g. reading, watching TV.



- Relaxation can also be effective.
- Acupressure bands (not available on prescription but can be purchased over the counter) can work well for some patients and can be a good alternative to drugs.
- Ginger cordial (shop or home made by infusing ginger root in warm water)
- Acupuncture.
- Reflexology.
- Aromatherapy
- Massage.
- Aversion or behavioural therapy may be useful in anticipatory nausea & vomiting.



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References & further reading

- Central Manchester & Manchester Children's University Hospitals NHS Trust (2004). Pain & Symptom control Guidelines for Adults .
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