Persistent Nausea or Vomiting

The possible diagnoses for a patient presenting with persistent nausea and/or vomiting are many and varied but can often be considered under five main headings:

- Pregnancy.
- Visceral disease.
- Toxic substance effects/metabolic conditions.
- Central nervous system disease.
- Psychiatric illness.

**Assessment of the patient**

Assessment of the patient with persistent nausea and vomiting should fall into two categories:

- Assessment of the physical state of the patient, which has occurred as a consequence of the nausea/vomiting.
  - Look for evidence of:
    - Poor nutritional state
    - Dehydration
    - Electrolyte imbalance

- Assessment of the patient with regard to the potential underlying cause.

**Pregnancy**

- Nausea and vomiting of pregnancy affects nearly 75% of pregnant women.[1]
- About 1% of women develop hyperemesis gravidarum, which may result in adverse outcomes for the mother and fetus.
- Also consider the following:
  - Morning sickness.
  - Urinary tract infection.
  - Reflux oesophagitis.
  - Mechanical pressure from the gravid uterus.
Common causes of persistent nausea and vomiting

<table>
<thead>
<tr>
<th>Underlying cause</th>
<th>Examples</th>
<th>Mechanisms leading to nausea and vomiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritation or stretching of the meninges.</td>
<td>Raised intracranial pressure caused by intracranial tumour.</td>
<td>Not known, may involve meningeal mechanoreceptors.</td>
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<tr>
<td>Pelvic or abdominal tumour.</td>
<td>Mesenteric metastases.</td>
<td>Stretching of mechanoreceptors.</td>
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<td>Pelvic or abdominal tumour.</td>
<td>Metastases of liver.</td>
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<td>Ureteric obstruction.</td>
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<td>Pelvic or abdominal tumour.</td>
<td>Retropitoneal cancer.</td>
<td>Stretching of mechanoreceptors.</td>
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<tr>
<td>Bowel obstruction secondary to malignancy.</td>
<td>Mechanical - intrinsic or extrinsic by tumour.</td>
<td>Stretching of mechanoreceptors.</td>
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<td>Bowel obstruction secondary to malignancy.</td>
<td>Functional - disorders of intestinal motility secondary to malignant involvement of nerves, bowel muscle or blood supply.</td>
<td>Stretching of mechanoreceptors.</td>
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<td>Gastric stasis.</td>
<td>Drugs (anticholinergics, opioids).</td>
<td>Gastric mechanoreceptors.</td>
</tr>
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<td>Gastric stasis.</td>
<td>Mechanical obstruction to gastric emptying: tumour, gastritis, peptic ulcer, hepatomegaly.</td>
<td>Gastric mechanoreceptors.</td>
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<td>Gastric stasis.</td>
<td>Autonomic failure - eg, in advanced diabetes.</td>
<td>Gastric mechanoreceptors.</td>
</tr>
<tr>
<td>Chemical/metabolic.</td>
<td>Drugs - anti-epileptics, opioids, antibiotics, cytotoxics, digoxin.</td>
<td>Chemoreceptors in the trigger zone.</td>
</tr>
<tr>
<td>Chemical/metabolic.</td>
<td>Metabolic - hypercalcaemia: consider if drowsiness, confusion, thirst occur, particularly if of sudden onset.</td>
<td>Chemoreceptors in the trigger zone.</td>
</tr>
<tr>
<td>Chemical/metabolic.</td>
<td>Toxins - eg, tumour necrosis, bacterial toxins.</td>
<td>Chemoreceptors in the trigger zone.</td>
</tr>
<tr>
<td>Anxiety-induced.</td>
<td>Concern about diagnosis, treatment, symptomatology, social issues, anticipatory emesis with cytotoxics.</td>
<td>Multiple receptors in the cerebral cortex.</td>
</tr>
<tr>
<td>Movement-related.</td>
<td>Abdominal tumours.</td>
<td>Multiple receptors in the cerebral cortex.</td>
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<tr>
<td>Movement-related.</td>
<td>Opioids.</td>
<td>Multiple receptors in the cerebral cortex.</td>
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<tr>
<td>Movement-related.</td>
<td>Disease affecting vestibular system.</td>
<td>Multiple receptors in the cerebral cortex.</td>
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**Visceral disease**
- Reflux oesophagitis or gastro-oesophageal reflux disease (GORD).
- Obstruction - eg, due to malignancy or chronic constipation.
- Cholecystitis.
- Hepatitis.
- Urinary tract infection.
- Gastroparesis - delayed gastric emptying.

**Toxic substance effects/metabolic conditions**
- Drugs, eg cytotoxic agents, erythromycin, digoxin toxicity, theophylline.
- Alcohol.
- Hypercalcaemia.
- Uraemia.
- Diabetic ketoacidosis.

**Central nervous system disease**
- Cyclical vomiting syndrome - this is characterised by recurrent, discrete episodes of vomiting in an otherwise healthy person, usually a child. It can also be associated with episodes of abdominal pain and there is often a family history of migraines.
- Vestibular labyrinthitis and Ménière's disease.
- Raised intracranial pressure - eg, due to a space-occupying lesion, intracranial bleed.

**Psychiatric disease**


- Bulimia nervosa.
- Functional.
- Psychogenic.

Investigations

Full history
It is important to pay particular attention to duration, severity, aggravating and relieving factors, associated features, drug and occupational history, social history, last menstrual period, previous medical history and recent trauma.

Full examination
In particular, assess hydration and nutritional state, examine the abdomen, sclera and optic discs and check for nystagmus.

The following tests may be appropriate:

- Urine dipstick - for protein, blood, glucose, pH, bilirubin, urobilinogen.
- Serum urea.
- Serum calcium.
- LFTs.
- FBC.
- Pregnancy test.
- Abdominal X-ray.
- Abdominal ultrasound.
- Endoscopy.
- Abdominal CT/MRI scan.
- CT or MRI of the brain if there is suspicion of raised intracranial pressure.

Management

General measures
- Patients with persistent nausea and/or vomiting should be given appropriate dietary advice and advice on fluid intake.
- Patients with severe dehydration may require treatment with intravenous fluids.
- Psychiatric or psychology referral may be appropriate for those thought to have an underlying psychiatric/psychological cause.
- Pregnant women should be given emotional support, advice concerning diet and adequate nutritional intake and be advised to avoid large-volume meals and tight clothing. See the separate Nausea and Vomiting in Pregnancy article for more information.
- There is some evidence for the use of acupuncture for the symptomatic relief of nausea and vomiting and this may be an option for some patients. It can be particularly efficacious for the prevention of postoperative nausea and vomiting.

Pharmacological
- Once the cause of vomiting has been established, symptomatic relief may be given (if appropriate) in the form of antiemetic therapy.
- Many classes of drugs exhibit antiemetic properties - eg, antihistamines, phenothiazines (such as prochlorperazine) and antipsychotic drugs (such as haloperidol).
- Metoclopramide acts directly on the gastrointestinal tract. However, there is a risk of potentially serious neurological adverse effects with this drug, such as extrapyramidal disorders and tardive dyskinesia.
- In view of these potential adverse effects, the following restrictions to indications, dose and duration of use of metoclopramide have been made:
  - In adults over 18 years, metoclopramide should only be used for prevention of postoperative nausea and vomiting, radiotherapy-induced nausea and vomiting, delayed (but not acute) chemotherapy-induced nausea and vomiting, and symptomatic treatment of nausea and vomiting, including that associated with acute migraine (where it may also be used to improve absorption of oral analgesics).
  - It should only be prescribed for short-term use (up to five days).
  - Oral liquid formulations should be given via an appropriately designed, graduated oral syringe to ensure dose accuracy.

- Medications including cyclizine and metoclopramide have been shown to be safe and effective treatments in pregnancy.
- Domperidone acts at the chemoreceptor trigger zone and is especially useful for nausea and vomiting associated with chemotherapy.
- Prokinetic agents such as domperidone can also be beneficial in the management of those with gastroparesis.
- Gastro-electrical stimulation is an option for treating chronic, intractable nausea and vomiting secondary to gastroparesis.
- Granisetron and ondansetron are specific 5HT3 antagonists and, as such, are particularly useful for postoperative nausea and vomiting and that associated with cytotoxic therapy. They can also be beneficial in children.
- Dexamethasone and nabilone (a synthetic cannabinoid) may be useful for patients on cytotoxic drugs, with nausea that is resistant to other therapy.

Surgical
Surgery may be required to treat some underlying causes of nausea and vomiting - eg, raised intracranial pressure and some forms of obstruction.

Complications

Recurrent vomiting may result in:

- Dehydration
- Electrolyte disturbance
- Oesophagitis/gastritis
- Mallory-Weiss syndrome

Further reading & references

4. Medicines and Healthcare products Regulatory Agency (MHRA)
7. Gastroelectrical stimulation for gastroparesis; NICE Interventional Procedure Guidance, May 2014

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<th>Author: Dr Louise Newson</th>
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