Nausea and vomiting are common during the first trimester of pregnancy. However, for some women symptoms can be severe. Intravenous fluids and antiemetics may be required to manage severe cases.

Management of severe nausea and vomiting in pregnant women

Although it has many different definitions, hyperemesis gravidarum (HG) essentially constitutes severe nausea and vomiting in pregnancy (NViP) that leads to dehydration or ketonuria that is severe enough to warrant admission to hospital (see Box 1). It typically starts during the first trimester (between five and 10 weeks into the pregnancy) and resolves by about week 20.

It is a diagnosis of exclusion so differential diagnoses must be explored and excluded before a formal diagnosis of HG can be made. Possible differential diagnoses include:

- Gestational trophoblastic disease
- Hyperthyroidism
- Urinary tract infection
- Migraine
- Diseases affecting the ear, nose or throat (e.g., labyrinthitis)
- Gastrointestinal disease (e.g., peptic ulcer)
- Psychological disorders

The cause may also be iatrogenic (e.g., due to iron administration).

HG can be life-threatening to both mother and fetus, albeit rarely, due to electrolyte or pH imbalances, Wernicke's encephalopathy or thrombosis.

Up to 80% of pregnant women suffer from nausea and vomiting; only 0.3–1.5% suffer with HG — of these, 10% continue to have problems throughout pregnancy.

Recent studies, although somewhat conflicting, suggest that women are more likely to suffer with HG if they are:

- Giving birth for the first time (primiparous)
- From a lower socioeconomic background
- Young
- Non-smokers
- Obese or underweight

The causes of HG are complex and likely to be multifactorial. It is well recognised that, during pregnancy, there is an increase in fluid secretions from the upper gastrointestinal tract. It is also likely that the incidence of Helicobacter pylori is higher among HG sufferers.

Furthermore, because human chorionic gonadotrophin is of similar structure to thyroid-stimulating hormone, the normal physiology of thyroid function may be altered — resulting in transient hyperthyroidism. Other psychological and social factors have also been found to be relevant.

Management

Severe cases of HG should be managed in hospital. However, there is a lack of published evidence on where to manage patients with NViP or the effect the location might have on their outcome.

Nonetheless, it has been widely proposed...
that day-case or outpatient settings are likely to be appropriate.

In general, patients with NViP fall into three groups according to the severity of their symptoms. These are:

- Mild with no signs of dehydration — suitable for management in primary care
- Moderate with some signs of mild dehydration — requiring day-case treatment with intravenous therapy
- Severe — needing hospital admission and further assessment for HG

Scoring systems exist for recording vomiting symptoms, but not for guiding the best location of management. A hyperemesis intervention system score is currently being evaluated at Portsmouth Hospitals NHS Trust. The system considers a patient’s hydration and clinical state and acts as a triage system to determine the most appropriate location of initial treatment — primary care, hospital day-case or hospital admission.

Effective management requires a multidisciplinary approach that considers individual circumstances and severity of symptoms. Management should include both pharmacological and non-pharmacological interventions, influenced by the care setting and the availability of treatment options.

**Pharmacological management**

**Fluids** Intravenous fluid and electrolyte replacement form the mainstay of treatment for patients treated in hospital. In severe cases, parenteral nutrition may be indicated. Non-glucose containing fluids (e.g., sodium chloride 0.9%, Hartmann’s) are the fluids of choice — to reduce the risk of precipitating Wernicke’s encephalopathy.

Oral rehydration therapy may be appropriate in primary care to help prevent an admission. Women treated in this way should be monitored closely and advised to seek help if symptoms persist.

**Antiemetics** The decision to use antiemetics should only be considered once the woman has been advised of the associated risks and benefits. Where indicated, antiemetics should be introduced in a stepwise approach and continued only as long as required (see Box 2).

**Vitamins** Women suffering with nausea and vomiting for prolonged periods may benefit from thiamine supplements (orally or, in severe cases, intravenously) to reduce...

### FOR DISCUSSION

- There has recently been a Medicines and Healthcare products Regulatory Agency alert on the neurological toxicity of metoclopramide. What impact might this have when prescribing for this patient group?
- When prescribing medicines in pregnancy, what factors should be considered?
- Other than oral, what routes of administration for antiemetics can be used in primary care for women who are vomiting?

### Box 2: Antiemetics used for nausea and vomiting in pregnancy

<table>
<thead>
<tr>
<th>PLACE IN TREATMENT</th>
<th>MEDICINE/CLASS OF MEDICINE</th>
<th>AVAILABLE ROUTES OF ADMINISTRATION</th>
<th>LEGAL CLASSIFICATION</th>
<th>RISKS VERSUS BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First line</strong></td>
<td>Antihistamines:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cyclizine</td>
<td>Oral (PO), intramuscular (IM),</td>
<td>Prescription only</td>
<td>Older drugs, widely used during pregnancy. Many years of clinical experience do not indicate increased risk of congenital malformations. Can be sedating, which can impact on activities of daily living</td>
</tr>
<tr>
<td></td>
<td>Promethazine</td>
<td>intravenous (IV), rectal (PR;</td>
<td>Pharmacy only</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>suppositories available from</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>specials manufacturer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PO</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Second line</strong></td>
<td>Metoclopramide</td>
<td>PD, IM, IV</td>
<td>POM</td>
<td>Fewer data available but considered safe to use in pregnancy. Risk of extrapyramidal side effects. New guidance from the European Medicines Agency on its duration of use may impact on its suitability for hyperemesis gravidarum</td>
</tr>
<tr>
<td><strong>Second line</strong></td>
<td>Prochlorperazine</td>
<td>PO, buccal, IM, IV</td>
<td>POM</td>
<td>Fewer data available but considered safe to use in pregnancy</td>
</tr>
<tr>
<td><strong>Third line</strong></td>
<td>Ondansetron</td>
<td>PD (normal and soluble tablets),</td>
<td>POM</td>
<td>Can be effective in controlling symptoms but limited safety data available to support use in pregnancy. One study showed increased risk of cleft palate. Other data suggest no overall risk of congenital malformations but this is limited to a small number of exposures. Use when other treatments have been unsuccessful or are contraindicated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IM, PR*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Third line</strong></td>
<td>Domperidone</td>
<td>PO, PR (suppositories available</td>
<td>POM</td>
<td>Less safety information for use in pregnancy. May be difficult to obtain suppositories from specials manufacturers in primary care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>from specials manufacturer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fourth line</strong></td>
<td>Corticosteroids:</td>
<td></td>
<td></td>
<td>Reserved for use in severe hyperemesis gravidarum when all other treatments have failed</td>
</tr>
<tr>
<td></td>
<td>Prednisolone</td>
<td>PO</td>
<td>POM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrocortisone</td>
<td>IV</td>
<td>POM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Methylprednisolone</td>
<td>IV</td>
<td>POM</td>
<td></td>
</tr>
</tbody>
</table>

* High-dose suppositories are licensed for use with emetogenic chemotherapy, but there is limited information on their use in pregnancy
the risk of Wernicke’s encephalopathy. Folic acid (3mg daily) should also be considered — particularly during the first trimester.

**Non-pharmacological treatment**

**Dietary and lifestyle advice** Since robust clinical evidence is lacking, advice surrounding diet and lifestyle is based primarily on anecdotal evidence. Nonetheless, many women find that simple changes to their diet and lifestyle can help to ease symptoms.

Women should be advised to drink and eat “little and often” — avoiding three larger meals per day in favour of smaller snacks that are rich in carbohydrate and protein. Spicy foods that are high in fat or very acidic are best avoided. For some women, cold food may be tolerated better than hot food. Women should be encouraged to rest because fatigue may exacerbate symptoms.

**Emotional support** Women with HG can feel isolated and anxious. It is important that they feel supported by healthcare professionals and that their condition is understood. Depression in early pregnancy has been shown to aggravate HG. Studies investigating the effects of increased interaction with midwives, and other healthcare professionals, suggest that offering advice, reassurance and listening to their concerns may give women the confidence to manage their symptoms at home.

**Acupressure** Small studies have shown that acupressure on the P6 acupoint (on the inside of the wrist) may benefit some HG sufferers. This technique is recommended by the National Institute for Health and Care Excellence.

**Ginger** Ginger is believed to reduce the symptoms of HG. Although the exact mechanism is unknown, studies suggest it may increase gastrointestinal motility or act directly on the chemoreceptor trigger zone. Furthermore, according to the UK Teratology Information Service, it has not been shown to have teratogenic effects. Women can opt for ginger supplements or may prefer to try ginger biscuits or ginger ale.

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**References**


**Answers**

1. Which of the following statements is true?
   - a) Hyperemesis gravidarum (HG) is common
   - b) Severe HG is best managed in primary care
   - c) Wernicke’s encephalopathy is a rare but potentially fatal complication of HG
   - d) HG occurs more commonly beyond 20 weeks
   - e) The causes of HG are well understood

2. A woman is considered to be less likely to suffer from HG if she is:
   - a) Giving birth for the first time
   - b) Younger
   - c) A smoker
   - d) Underweight
   - e) From a lower socioeconomic status

3. Which of the following antiemetics is recommended first line to treat nausea and vomiting in pregnancy (NViP)?
   - a) Metoclopramide
   - b) Ondansetron
   - c) Prochlorperazine
   - d) Domperidone

4. Which of the following fluids would you recommend to treat dehydration secondary to severe NViP?
   - a) Sodium chloride 0.9%
   - b) Glucose 5%
   - c) Sodium chloride 0.45%, glucose 5%
   - d) Glucose 10%
   - e) Sodium chloride 0.18%, glucose 4%

5. Which piece of dietary advice for women with NViP is false?
   - a) Eat small, regular meals
   - b) Eat a diet rich in carbohydrate and protein
   - c) Avoid spicy foods
   - d) Eat food high in fat
   - e) Avoid acidic foods

Nicola Hill is pharmacy team leader and Rebecca Hardcastle is gynaecology research fellow, both at Portsmouth Hospitals NHS Trust. Frances Garraghan is lead pharmacist for women’s health at Central Manchester University Hospitals NHS Foundation Trust. Ms Hill and Ms Garraghan are members of the women’s health pharmacy group (recognised by the United Kingdom Clinical Pharmacy Association). E: nicola.hill@porthosp.nhs.uk