

NAUSEA AND VOMITING in pregnancy

Nausea and vomiting in early pregnancy is very common

Nausea and vomiting in early pregnancy is so common that it can be considered a normal part of pregnancy. It is colloquially referred to as “morning sickness” although this is a misnomer because symptoms will often persist throughout the day. Up to 85% of women experience nausea in early pregnancy with approximately half of women vomiting as well. Symptoms usually begin between the fourth and seventh week after the last menstrual period and resolve in many women by the twelfth week and in most women by the twentieth week of pregnancy.¹ A smaller number of pregnant women (approximately 0.3–1%), have a more severe form of nausea and vomiting – hyperemesis gravidarum, which is characterised by persistent vomiting, weight loss of more than 5%, ketouria, electrolyte abnormalities (hypokalaemia) and dehydration.²

While persistent nausea and vomiting in early pregnancy can be particularly debilitating for some women, it is not usually associated with any adverse pregnancy outcomes and in fact has been associated with lower rates of miscarriage.² Hyperemesis gravidarum is on rare occasions associated with maternal complications such as Wernicke’s encephalopathy due to thiamine deficiency and foetal growth restriction.³

Evaluation of nausea and vomiting in pregnancy

Nausea and vomiting in pregnancy is usually a self-limiting condition, however, hyperemesis gravidarum should be distinguished from other conditions that may cause persistent vomiting, such as hepatitis, pancreatitis, pyelonephritis, peptic ulcer disease, thyroid disease and adrenocortical insufficiency. Investigations may include:⁴

- Midstream urine microscopy to exclude a urinary tract infection
- Ultrasound to exclude trophoblastic disease or multiple pregnancy
- TSH if there is suspicion of thyrotoxicosis
- Electrolytes and liver function tests

Nausea and vomiting that begins at or after 12 weeks gestation is unlikely to be caused by pregnancy so other causes should be investigated.³

Rehydration may be required

Women who present with mild to moderate dehydration can be managed with oral fluids. Women who are severely dehydrated will require referral to hospital for IV fluids and antiemetics, and in extreme cases nasogastric or parenteral

Key concepts

- Nausea and vomiting are very common symptoms of early pregnancy and usually resolve by 12–20 weeks gestation
- In most cases these symptoms can be managed with simple diet and lifestyle advice and reassurance that it will not have an adverse effect on pregnancy
- Women with more severe symptoms may require treatment with medicines and, in severe cases, referral to hospital for intravenous fluids and antiemetics

Aetiology and risk factors for nausea and vomiting in pregnancy

The causes of nausea and vomiting in pregnancy are unknown, however, it is thought to be associated with rising levels of human chorionic gonadotropin (hCG). This is based on the observation that the incidence of hyperemesis is highest at the time where hCG production reaches its peak and that conditions associated with higher hCG levels (e.g twin and molar pregnancies) are also associated with higher rates of hyperemesis gravidarum. Oestrogen is another suggested cause with the presence of a female foetus reported to increase the likelihood of severe nausea and vomiting during pregnancy.⁴ One study found that women who were primiparous (first pregnancy), younger or were non-smokers were more likely to have nausea and vomiting in pregnancy.⁵ Another study found that 63% of multiparous women who had nausea and vomiting had also experienced it in a previous pregnancy.⁶ Chronic *H. pylori* infection has also been associated, in some studies, with nausea and vomiting in pregnancy.³

There is some evidence that hyperemesis gravidarum is more common in Pacific women. One study in Wellington found that the incidence of hyperemesis gravidarum was significantly increased among Pacific women (particularly Samoan women) and was associated with thyroid function test abnormalities.⁷ Another study found that Pacific women were twice as likely to be hospitalised with hyperemesis gravidarum compared to other New Zealand women. The authors suggested that the higher prevalence of *H. pylori* in Pacific peoples could be a plausible explanation for the higher rates of hyperemesis gravidarum although they said psychosocial factors or thyroid function abnormalities could also be potential causes.⁸

nutrition.⁹ Alternatively, IV fluids and antiemetics may be given at the general practice clinic, if appropriate facilities are available.

Normal saline (0.9%; 150 mmol/L) or Hartmann's solution (sodium lactate) are appropriate choices for IV rehydration of pregnant women who are severely dehydrated. Dextrose containing fluids and hypertonic saline are inappropriate because they can precipitate severe neurological complications such as Wernicke's encephalopathy and central pontine myelinolysis.^{3,10}

Initial management in the majority of cases involves dietary and lifestyle advice

While there is limited evidence from clinical trials about the effectiveness of dietary and lifestyle interventions, the following recommendations may be useful and should be trialled first:

Dietary advice⁴

- Drink small amounts often – dehydration can exacerbate nausea so it is important for pregnant women to maintain hydration by drinking adequate fluids
- Trial different kinds of fluids - sometimes fluids such as flat lemonade or diluted fruit juice are managed better than water
- Avoid fatty or spicy food – this may exacerbate symptoms
- Avoid having an empty stomach – eat a light snack every one to two hours between meals
- Avoid very large meals -- small amounts of food more often are usually better tolerated
- Early morning nausea may be helped by eating a dry biscuit or cracker before getting out of bed
- Salty food such as potato chips or salted crackers may help, especially before meals

Lifestyle advice⁴

- Eat well when feeling the best or whenever feeling hungry
- If the smell of hot food worsens nausea, try cold food instead, avoid cooking if possible or cook in well ventilated areas so that odours do not accumulate; ask for help from family and friends with cooking
- Lie down when nauseated
- Avoid stress
- Take pregnancy vitamins (including folic acid) at a good time of the day (when feeling well)
- Keep physical activity gentle, getting too hot may exacerbate nausea

Alternative therapies – ginger, pyridoxine and acupressure

Ginger has been shown in some studies to improve nausea and vomiting compared to placebo, however, there is conflicting data on the efficacy of ginger which may be the result of different preparations and potencies used in studies.³ The recommended dose of ginger is up to 1 g per day (in divided doses).¹¹ Products which contain ginger such as tea, biscuits or confectionary may also be trialled. Ginger may cause reflux and heartburn in some people.¹

Pyridoxine (vitamin B6) is used first-line in many countries for nausea and vomiting in early pregnancy, however, there are large individual differences in its onset and action.³ Studies have shown that pyridoxine improves mild to moderate nausea but does not significantly reduce vomiting.^{12,13} The recommended dose in pregnant women is 25–50 mg, up to three times per day.¹¹ Pyridoxine is available in 25 mg and 50 mg tablets, fully subsidised on the pharmaceutical schedule. Pyridoxine has been studied extensively as a combination product with doxylamine which was withdrawn from overseas markets, but has not proven to be associated with any teratogenic effects.¹²

Acupressure involves stimulation, either manually or with elasticised bands, of the P6 Neiguan point which is found on the inside of the forearm three fingerbreadths above the wrist. There is some evidence that P6 acupressure reduces symptoms of nausea and vomiting but some studies, which included sham acupressure, have found a strong placebo effect.²

Manage other conditions such as heartburn

Heartburn and reflux have been shown to exacerbate nausea and vomiting in pregnancy so managing these conditions, by making dietary changes or using medications, may help improve symptoms.¹² Treatment with a H2 antagonist or a proton pump inhibitor will also protect against the effects of persistent vomiting.¹⁰ Omeprazole and ranitidine are considered safe to use during pregnancy.¹⁴

Pharmacologic treatment may be appropriate for women continuing to experience intolerable nausea and vomiting

Approximately 10% of women continue to experience significant nausea and vomiting during pregnancy, despite following dietary and lifestyle advice. In these cases, medications may be trialled.¹ Antiemetics used in pregnancy include; metoclopramide, prochlorperazine, cyclizine, promethazine and ondansetron. These medicines are listed in Table 1 in a suggested order in which to try them, however, individual patient factors and adverse effect profiles may alter this. For example, a more sedating antiemetic may be of benefit to some women but may be inappropriate in others, such as those with small children. Any antiemetic should be used at the lowest effect dose for the shortest time it is required.

Metoclopramide is one of the most commonly prescribed medicines for nausea and vomiting.⁴ It has been found to be more effective than placebo in the treatment of hyperemesis gravidarum and has not been associated with any significant increase in risk of major congenital malformations or other adverse pregnancy outcomes.^{9,12} However, it is associated with drug-induced movement

disorders and female gender is a risk factor for the development of this adverse effect.¹²

Phenothiazines (e.g. prochlorperazine) reduce nausea and vomiting compared with placebo and studies have found no association with teratogenicity.² Phenothiazines are more likely to cause drowsiness than the other antiemetics.³ Extrapyramidal effects and oculogyric crises are reported with phenothiazines as well as metoclopramide.³


Antihistamines (e.g. cyclizine, promethazine) have been shown to significantly reduce nausea, however, they are associated with an increased risk of drowsiness. Studies have not found a significantly increased risk of teratogenicity with antihistamines.² Meclozine (“Sea-legs”) was previously thought to be associated with cleft palate, however, recent studies have not shown an increased risk of malformation.¹²

Ondansetron may be considered in women with hyperemesis gravidarum

Ondansetron is an effective antiemetic which has been used in non-pregnant patients to treat nausea and vomiting. However, while animal data looks reassuring, there is very limited data on its safety in pregnant women.¹² Common adverse effects include, fatigue, headaches and drowsiness. Constipation is also very common and can exacerbate symptoms of bloating and abdominal discomfort.¹⁰

Corticosteroids are usually limited to women with intractable nausea and vomiting

Corticosteroids may be considered for women with intractable nausea and vomiting, but this is usually initiated in secondary care.³ While the mechanism of action is not well understood, some women experience a very rapid resolution of their symptoms when treated with corticosteroids.¹⁰ Oral corticosteroids have been associated with cleft palate when administered to pregnant women before ten weeks gestation so they are best avoided until after this time if possible.¹

 **Best practice tip:** Antiemetics can be taken according to when the pregnant woman experiences the most symptoms. For example, many women benefit from having a dose of antiemetic 30 minutes before getting out of bed to prevent vomiting while having a shower or after having breakfast. Late afternoon symptoms associated with tiredness may be improved by a second dose around 1–2 pm.¹⁰

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Table 1: Antiemetics suitable for use in pregnancy (in order of preference)^{3, 4, 10}

Medication	Dose	Adverse effects
Metoclopramide	10 mg three times daily	Extrapyramidal symptoms Tardive dyskinesia especially if used for more than 12 weeks
Prochlorperazine	5 mg three times daily	Extrapyramidal symptoms Sedation
Cyclizine	50 mg three times daily	Sedation
Promethazine	25 mg at bedtime, increased to maximum 100 mg daily in divided doses	Extrapyramidal symptoms Sedation
Ondansetron (hyperemesis gravidarum)	4 – 8 mg two to three times daily	Constipation

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