Hyperemesis and Nausea and Vomiting in Pregnancy

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Brief Summary of Document:	Care of patients with hyperemesis and nausea and vomiting in pregnancy
Scope	Maternity and gynaecology patients 'The term "woman/women" in the context of this document is used as a biologically based term and is not intended to exclude trans and non-binary people who do not identify as women.'

To be read in conjunction with:	Gynaecology/Midwifery care in Pregnancy, Thromboprophylaxis Guideline

Owning committee/group	HDUHB Obstetric Guideline, Audit and Research Group

Reviews and updates		
Version no:	Summary of Amendments:	Date Approved:
1	Guideline Update	14/09/2017
2	Reviewed 2020	236/05/2020

Glossary of terms

Term	Definition
Nausea and vomiting in pregnancy (NVP)	The symptoms of nausea and/or vomiting during early pregnancy where there are no other causes
Hyperemesis gravidarum (HG)	An extreme form of NVP that is potentially life threatening and associated with persistent vomiting, weight loss in pregnancy that is greater than 5% of the pre-pregnancy weight and a large amount of ketones in the urine
hCG	Human chorionic gonadotrophin

Keywords	Hyperemesis, nausea, vomiting, pregnancy

Contents

1. Introduction

NVP in pregnancy is common, affecting around 80% of all pregnant women. Symptoms usually resolve by 12 weeks gestation in 60% of women and by 16 weeks gestation in 90% of women. NVP beyond 20 weeks gestation is rare and affects only up to 3% of women. Mild cases of NVP in pregnancy are usually managed by the General Practitioner (GP).

HG is defined above, it has an incidence of 0.3-3.6% and frequently requires hospitalisation for rehydration and electrolyte rebalance.

Aetiological theories for NVP and HG range from the fetoprotective and genetic to the biochemical, immunological and biosocial.

They can both be linked with:

- Multiple pregnancy (higher hCG level)
- History of NVP in pregnancy of mother or sister
- NVP in a previous pregnancy (15.2-81%)
- Hydatidiform mole (higher hCG level)

2. Diagnosis

NVP – should only be diagnosed when onset is in the first trimester of pregnancy and other causes of nausea and vomiting have been excluded. It starts by four to seven weeks of gestation, peaks in the ninth week and resolves by the 20th week.

HG – is diagnosed when there is protracted NVP with the triad of more than 5% prepregnancy weight loss, dehydration and electrolyte imbalance.

The severity of NVP is quantified by the Pregnancy-Unique Quantification of Emesis (PUQE) score. This will determine whether NVP is mild, moderate or severe and will also help to track progress with treatment.

Pregnancy-Unique Quantification of Emesis (PUQE) index

Total score is the sum of replies to each of the three questions. PUQE-24 score: Mild ≤ 6; Moderate = 7-12; Severe = 13-15

In the last 24 hours, for how long have you felt nauseated or sick to you stomach?	Not at all (1)	One hours or less (2)	2-3 hours (3)	4-6 hours (4)	More than 6 hours (5)
In the last 24 hours have you vomited or thrown up?	Seven or more times (5)	5-6 times (4)	3-4 times (3)	1-2 times (2)	I did not throw up (1)

In the last 24 hours how many times have you had retching or dry heaves without bringing anything up?	No times (1)	1-2 times (2)	3-4 times (3)	5-6 times (4)	Seven or more times (5)

PUQE-24 score: Mild = < 6; Moderate = 7-12; Severe = 13-15

How many hours have you slept out of 24 hours?		Why?
On a scale of 0-10, how would you rate you wellbeing? *0 = worst possible, 10 = the best you felt before pregnancy*		
Can you tell me what causes you to feel that way?		

3. Clinical assessment and baseline investigations

History

- Previous NVP/HG
- Quantify severity using PUQE score: nausea, vomiting, hypersalivation, spitting, loss of weight, inability to tolerate food and fluids, effect on quality of life
- History to exclude other causes
  - abdominal pain
  - urinary symptoms
  - infection
  - drug history
  - chronic Helicobacter pylori infection

Examination

- Temperature
- Pulse
- Blood pressure
- Oxygen saturation
- Respiratory rate
- Abdominal examination
- Weight
- Signs of dehydration
- Signs of muscle wasting
- Other examination as guided by history

Investigation

- MSU
- Urea and electrolytes
- Full blood count
- Blood glucose monitoring
- Ultrasound
- In refractory cases or history of previous admission check:
    - TFT to exclude thyroid disease
    - LFT to exclude liver disease such as hepatitis/gallstones
    - Calcium and phosphate
    - Amylase to exclude pancreatitis
    - ABG to exclude metabolic disturbances

It is important that these two groups of women are identified correctly.
The majority of women with nausea and vomiting in pregnancy are usually able to manage by avoiding particular foods and eating at times when symptoms are less severe.
Nausea and vomiting in pregnancy, although termed 'morning sickness' is episodic and can occur at any time of day.
Women can present with nausea with or without vomiting, fatigue, anorexia or weight loss.
With HG the nausea and vomiting are so severe that it can cause dehydration, weight loss (with muscle wasting), electrolyte and metabolic disturbances and nutritional deficiency necessitating admission. In addition to the nausea and vomiting there may be excessive secretion of saliva (ptyalism) and spitting.

4. Initial management of NVP and HG

4.1 Uncomplicated NVP

Mild (uncomplicated) NVP does not require admission to hospital and is managed and supervised by the GP.
Women may benefit from reassurance and support.
Dietary modifications: avoid known nauseating foods. Frequent small high carbohydrate meals.
Avoid fatty and spicy foods. Drink small amounts of fluid regularly between meals.
Anti-emetics should be considered if there is persistent NVP despite conservative measures and may avoid the need of hospital admission.
Alternative treatments: Ginger, acupuncture, P6 acupressure, holistic therapies.

4.2 **Ambulatory day care management** should be used for suitable patients when community primary care measures have failed and where the PUQE score is <13.

4.3 Inpatient management should be considered in the following circumstances:

- Continued nausea and vomiting and inability to keep down oral anti-emetics
- Continued nausea and vomiting associated with ketonuria and/or weight loss (greater that 5% of body weight), despite oral anti-emetics
- Confirmed or suspected co-morbidity (such as urinary tract infection and inability to tolerate oral antibiotics).

5. Therapy

Please read the following advice prior to prescribing antiemetics:

- Women should be asked about previous adverse reactions to antiemetic therapies. Drug-induced extrapyramidal symptoms and oculogyric crises can occur with the use of phenothiazines and metoclopramide.
  If this occurs, there should be prompt cessation of the medications.
- Clinicians should use antiemetics with which they are familiar and should use drugs from different classes if the first drug is not effective.
- Combinations of different drugs should be used in women who do not respond to a single antiemetic.
- Use of Ondansetron in the first trimester can increase the risk of oral clefts and cardiac anomalies and therefore should be avoided.

5.1 Anti-emetics

- **First line anti-emetics:**These are **antihistamines** (H1 receptor agonists)(Promethiazine, Cyclizine and Cinnarizine) and **phenothiazines** (Prochlorperazine, Chlorpromazine and Perphenazine).

- **Second line treatments:**These are **dopamine agonists** (Metoclopramide and Domperidone).
  Metoclopramide: When using Metoclopramide patients may develop extrapyramidal disorder and tardive dyskinesia. Therefore when using this drug the maximum dose is 30mg in 24 hours, for a maximum of five days.

  Ondansetron: This is used as a second line treatment in resistant cases. Studies conducted on Ondansetron give mixed results. Larger retrospective studies showed there are no increased risks of stillbirth, major birth defects, preterm labour or small for gestational age. However, some case control studies show a small risk of cleft palate. Data from the Swedish Medical and Birth Register demonstrated a small increased risk of cardiovascular defects and cardiac septal defects. **For this reason Ondansetron should be limited to patients who are not responding to other medications**.

5.2 Corticosteroids

Corticosteroids should be reserved for cases where standard therapies have failed.

Recommended anti-emetic therapies and dosages

Note. Metoclopramide and Cyclizine cannot be given together

First line	• Cyclizine 50mg PO, IM or IV 8 hourly • Prochloperazine 5-10mg 6-8 hourly PO or 12.5mg 8 hourly IM, IV • Promethazine 12.5-25mg 4-6 hourly PO, IV, IM • Chlorpromazine 25mg 4-6 hourly PO, IV, IM
Second line	• Metoclopramide 10mg 8 hourly (tds) PO, IV, IM (maximum 5 days duration) • Domperidone 10mg 8 hourly PO • Ondansetron 4-8mg 6-8 hourly PO or 8mg over 15 minutes 12 hourly IV
Third line	• Corticosteroids: Hydrocortisone 100mg twice daily IV and once clinical improvement occurs convert to Prednisolone 40-50mg daily PO with the dose gradually tapered until the lowest maintenance dose that controls symptoms is reached

5.3 Rehydration regimes for ambulatory day care and inpatient management:

Dehydration occurs when fluid losses exceed fluid intake and is often associated with electrolyte abnormalities, fatigue, dizziness and weakness.

Correct dehydration with up to 2 litres IV Ringer's lactate (Hartmann's solution) infused over three to five hours.

Supplement with appropriate electrolytes and vitamins.

In special circumstances the following regime needs to be considered (if so senior Obstetric input is indicated):

- Normal saline with additional potassium chloride in each bag with administration guided by daily monitoring of electrolytes is the most appropriate intravenous hydration
- Dextrose infusions are not appropriate unless the serum sodium levels are normal and thiamine has been administered.

Dextrose containing solutions can precipitate Wernicke's encephalopathy in thiamine-deficient states, hence each day IV dextrose is administered high (100mg) daily doses of parenteral thiamine is recommended.

5.4 Complementary therapies include:

- Ginger
- Acupressure
- Acupuncture

5.5 Nutritional support

In some cases of severe HG total parenteral nutrition becomes necessary. This has shown to have a rapid therapeutic effect however metabolic and infective complications are a risk.

5.6 Psychological support

Involvement of the mental health team in the woman's care may improve quality of life and the ability to cope with the pregnancy.

6. Monitoring and adverse effects

- Check urea and serum electrolyte levels daily in women requiring IV fluids
- Histamine H2 receptor antagonists or proton pump inhibitors may be used for women developing gastro-oesophageal reflux disease, oesophagitis or gastritis e.g. Ranitidine
- Thiamine supplementation (PO or IV) should be given to all women admitted with prolonged vomiting, especially before administration of dextrose or parenteral nutrition
- Women admitted with HG should be offered thromboprophylaxis with low molecular weight heparin unless there are specific contraindications such as active bleeding. Thromboprophylaxis can be discontinued on discharge
- Avoid giving iron preparation to women who had previous or have current NVP or HG

7. Multidisciplinary team approach

In women with severe NVP or HG consider referral to other professionals such as midwives, nurses, dieticians, pharmacists, endocrinologists, nutritionists and gastroenterologists and a mental health team, including psychiatrist.

When all other medical therapies have failed, enteral or parenteral treatment should be considered with a multidisciplinary approach.

All therapeutic measures should have been tried before offering termination of a wanted pregnancy.

8. Potentially serious complications of HG

- Wernicke's encephalopathy (rare) caused by thiamine deficiency
- Hyponatraemia (plasma sodium levels <120mmol/l) causes lethargy, seizures and respiratory arrest

- Other vitamin deficiencies which may occur in HG include cyanocobalamine (vitamin B12) and pyridoxine (vitamin B6), causing anaemia and peripheral neuropathy
- Mallory-Weiss tears of the oesophagus can be caused by prolonged vomiting leading to episodes of haematemesis
- Rarely, pancreatitis and renal failure.

9. Management overview

- Even if the diagnosis of NVP seems to be straight forward consider and rule out other causes, pregnancy related or not
- Offer reassurance and support
- Suggest dietary and lifestyle changes which may help alleviate symptoms
- If symptoms are persistent or severe treat with regular anti-emetics and consider admission if rehydration necessary

All pregnant women with a history of prolonged dehydration and/or bed rest should receive thromboprophylaxis (e.g. Clexane 40mg daily) and wear thrombo-embolic stockings (TEDS).

10. References

MHRA (2020) https://www.gov.uk/drug-safety-update/ondansetron-small-increased-risk-of-oral-clefts-following-use-in-the-first-12-weeks-of-pregnancy

RCOG (2016) GT Guideline No.69 The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum
Online: https://www.rcog.org.uk/globalassets/documents/guidelines/green-top-guidelines/gtg69-hyperemesis.pdf


Initial assessment
Exclude other causes
Record PUQE score
Assess for clinical complications
Offer advice and support
PUQE score 3-12 and no complications:
Anti-emetic in community
Lifestyle and dietary changes
PUQE score of 13 or above and no complications and not refractory to anti-emetic:
Ambulatory day care management until no ketonuria
Any PUQE score with complications or unsuccessful ambulatory day care management:
Inpatient management
Ambulatory day care management:
Fast IV hydration with normal saline and potassium (if no contraindications)
Anti-emetic
Thiamine
Inpatient management:
As for ambulatory day care management plus-
Thromboprophylaxis
Multi-disciplinary team approach
Consider steroids