Nausea and Vomiting in Pregnancy (NVP) and Hyperemesis Gravidarum (HG) Guideline

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1. Introduction

NVP affects up to 80% of pregnant women and HG occurs in around 0.3-3.6%. No definitive aetiology has been accepted for NVP/HG. The most established theory is linked to rising levels of beta human chorionic hormone (hCG), as conditions with higher hCG levels such as trophoblastic disease and multiple pregnancy have been associated with increased severity of NVP.

Definitions:

NVP is the symptom of nausea and/or vomiting during early pregnancy where there are no other causes.

HG is the severe form of NVP with more than 5% weight loss, dehydration and electrolyte imbalance.

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.

Differential diagnoses to consider, based on the history/examination/investigations:

1) Infection +/- sepsis: Common sources include urinary tract infection, pneumonia, gastroenteritis, cholecystitis. While NVP and HG can have overlapping signs (e.g. low BP, raised HR), signs such as high/low temperature or high respiratory rate, as well as other symptoms in addition to the N&V (such as diarrhoea, cough, abdominal pain, dysuria/urinary frequency/haematuria, back pain, rashes) should prompt consideration of other diagnoses.
2) Peptic ulcer disease: It is important to establish any previous history of PUD including previous treatment for H.pylori. Check whether the patient was previously taking a PPI which they may have stopped after becoming pregnant. Establish any other symptoms; heartburn, epigastric pain, acid reflux, belching.
3) Pancreatitis: Again, previous episodes are important to enquire about. Establish if there are any risk factors e.g. alcohol excess or known gallstones. Pancreatitis usually causes severe abdominal pain, and there may be additional symptoms e.g. dark urine, pale stools or jaundice if the cause is gallstones.
4) Hepatitis: There are multiple aetiologies of hepatitis including infective and non-infective causes. Liver disease can have a very varied presentation, but RUQ pain, jaundice and malaise are common. Key points from the history should include recent travel, any unwell close contacts and any history of intravenous drug use.

5) Metabolic conditions: The symptoms of diabetic ketoacidosis can overlap with NVP/HG; establish any history of diabetes and do a BM. Thyroid disease can present with N&V; other symptoms/signs such as goitre may be present. Other metabolic causes such hyperparathyroidism/hypercalcaemia and Addison's disease should also be considered if there are associated symptoms/signs.
6) Neurological conditions: Consider if there are additional symptoms and signs e.g. headache, visual changes, limb or facial weakness, vertigo, tinnitus, hearing loss, neck stiffness. Causes include migraine, meningitis, stroke, severe hypertension, labyrinthitis, Ménière's disease.
7) Drug induced: A thorough drug history including over the counter medications and recreational use is essential.

3. Clinical Assessment and Baseline Investigations

History:

- NVP/HG in previous pregnancies
- Symptoms in addition to nausea and vomiting; fevers, rigors, rash, abdominal or back pain, urinary symptoms, diarrhoea, vaginal discharge or bleeding, heartburn/reflux, jaundice, neurological symptoms. Please see the differential diagnosis section in section 2 for further details
- Drug history e.g. iron tablets, antibiotics, over the counter medications, recreational drugs. Any anti-emetics already tried is important
- The Pregnancy-Unique Quantification of Emesis (PUQE) index below should be used to establish the severity of NVP.

PUQE score

In the last 24 hours, for how long have you felt nauseated or sick to your stomach?	Not at all (1)	1 hour or less (2)	2-3 hours (3)	4-6 hours (4)	More than 6 hours (5)	/5
In the last 24 hours have you vomited?	Not at all (1)	1-2 times (2)	3-4 times (3)	5-6 times (4)	7 or more times (5)	/5
In the last 24 hours how many times have you had retching or dry heaves?	None 91)	1-2 times (2)	3-4 times (3)	5-6 times (4)	7 or more times (5)	/5
Total score (mild ≤ 6, moderate 7-12, severe 13-15)						/15

Examination:

- Temperature, respiratory rate, heart rate, oxygen saturations, blood pressure
- Weight
- Fluid status – assess the mucous membranes and skin for evidence of dehydration
- Abdominal examination – significant tenderness could suggest other diagnoses

Investigations:

- Urine dipstick and MSU
- Urea and electrolytes (U&E), full blood count (FBC), blood glucose (BM)
- In treatment resistant cases or if there has been a previous admission: thyroid function tests (TFTs), liver function tests (LFTs), amylase, bone profile
- If the patient has not yet had an ultrasound scan (USS) this should be organised (to confirm viability and exclude multiple pregnancy)

4. Management

Management is guided by the PUQE-24 score but clinical judgement should be used in all cases.

- PUQE-24 scores of 3-12 with no complications (dehydration, electrolyte imbalance, weight loss >5%): community management is appropriate. Anti-emetics should be prescribed and the patient provided with written information (Dietary information leaflet, Nausea and Vomiting in Pregnancy Patient Information leaflet, Pregnancy Sickness Support Hyperemesis leaflet)

- PUQE score of ≥13 with no complications and not refractory to anti-emetics: ambulatory day assessment management until clinical improvement (patient can return following day for further IVI if required)

- Any PUQE score with complications e.g. inability to tolerate oral anti-emetics, co-morbidity, or unsuccessful ambulatory day assessment management: in-patient management

- If not tolerating oral anti-emetics parenteral medication may be more effective.

- Electrolyte results should be used to help guide fluid management.
  Referral to secondary care: primary care providers should be guided by the PUQE score criteria outlined above. Refractory symptoms despite a trial of two or more different anti-emetics, clinical concern or complications (see above) should prompt consideration of discussion with or referral to secondary care.

Prescribing:

A combination of different classes of anti-emetics should be tried in women who do not respond to a single agent.

1st Line antiemetics	**Prochlorperazine** 5-10mg tds PO, or 3-6mg bd buccal 12.5mg IM bd **Cyclizine** 50mg tds PO **Promethazine** 12.5 – 25mg tds PO or IM
2nd line antiemetics	**Metoclopramide** 5-10mg tds MAX 5 days (extrapyramidal side effects) **Ondansatron** 4-8mg tds PO or buccal (if unable to tolerate PO) *Caution if under 12 weeks as slight increase in cleft palate risk*
3rd line antiemetics	**Corticosteroids** hydrocortisone 100mg bd IV. Once stable change to Prednisolone PO 40-50mg od then reduce by 5mg per week to lowest dose to control symptoms.
Thiamine	100mg od PO
Omeprazole	20mg od PO

Day Assessment Management on the Antenatal Day Assessment Unit (ADAU):

- Should include a VTE risk assessment +/- LMWH prescription

- Fast re-hydration with 1L of Hartmann's over 2 hours then 1L of NaCl 0.9% with 20mmol of KCl over 2 hours

- Prescription for thiamine and anti-emetics (considering what has been tried)

- Organisation of USS if the patient has not yet had one during this pregnancy

- If patient is clinically improved with no complications, the patient can be discharged home with anti-emetic TTO + PPI, plus the written information as listed for community management above

Important points to note:

- The ADAU can only admit women for the above protocol between 08:30 and 14:00. It also only has capacity to manage one patient with NVP at a time. Therefore if patients present outside these hours, on weekends or bank holidays, or there is already a patient being treated on the unit, patients should be directed to triage/antenatal assessment unit on ward 19.

- Patients requesting or awaiting a planned termination of pregnancy (TOP) can be offered management of NVP on ward 1 (gynae ward) if they would prefer this to ADAU or Ward 19.

In patient management on ward 1 or 19:

- Patients should have a VTE risk assessment and be prescribed LMWH unless contraindicated
- Daily U&Es should be monitored while receiving IV fluids
- USS should be arranged if the patient has not yet had one during this pregnancy
- Consider steroids if symptoms refractory to other anti-emetics.
- Women with severe symptoms or symptoms extending into late second trimester or beyond should be referred to ANC for serial growth scans

Alternative therapies

Women may wish to try ginger (if mild) and/or acupuncture/acupressure. There is some evidence to support the use of acupressure and women can be reassured that neither of these are harmful in pregnancy.

5. Multi-Disciplinary Team approach

Other healthcare professionals should be involved in the care of women with severe HVP/HG, including midwives, nurses, dieticians, pharmacists, endocrinologists, gastroenterologists, mental health professionals, as appropriate.

6. References

1. RCOG (2016) The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum (Green-top Guideline No. 69) which can be found in full at https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg69/

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

Appendix 1 – NVP/HG Assessment and Management Pathway

NVP/ HG Assessment and Management Pathway

For full details please refer to the Nausea and Vomiting in Pregnancy and Hyperemesis Gravidarum Guideline on Wisdom. Please note that onset of symptoms MUST be in the first trimester.

Women who are able to tolerate fluids are expected to try first line anti-emetics through primary care, except women with pre-existing diabetes who may need management of their BMs in addition to NVP/HG.

PATIENT STICKER

Date _____

Time _____

Gestation _____

Scan Y / N

In the last 24 hours, for how long have you felt nauseated or sick to your stomach?	Not at all (1)	1 hour or less (2)	2-3 hours (3)	4-6 hours (4)	More than 6 hours (5)	/5
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In the last 24 hours how many times have you had retching or dry heaves?	None 91)	1-2 times (2)	3-4 times (3)	5-6 times (4)	7 or more times (5)	/5
Total score (mild ≤ 6, moderate 7-12, severe 13-15)						/15

Booking weight _____ Current weight _____

Percentage weight loss _____ (Booking wt – Current wt / booking wt x 100)

Temperature _____ Pulse _____ Bp _____

Respiratory Rate _____ Sats _____ BM _____

Urinalysis _____

Any history of abdominal pain, diarrhoea, rash, neck stiffness with headache? Y / N

If Yes then refer for Doctor clerking and assessment

Any Co-morbidites? Y / N

_____

If patient has pre-existing diabetes then for Doctor clerking and assessment

Number of previous attendances with NVP this pregnancy _____

Anti-emetics tried already

- Prochlorperazine
- Cyclizine
- Promethazine
- Metoclopramide
- Ondansatron
- Steroids
- Other _____
- Combination _____

Any known drug allergies? Y / N _____

Dry mucous membranes or reduced skin turgor? Y / N

Need for IV hydration? Y / N Hartmans 1L over 2 hours

NaCl 0.9% with 20mmolKCl 1L over 2 hours

Antiemetic

- Prochlorperazine 12.5mg IM
- Cyclizine 50mg IM or IV
- Metoclopramide 5mg IM or IV
- Ondansatron 8mg IV (over 15 mins)

Investigations sent

- MSU
- FBC
- UE
- USS request (only if not had a scan this pregnancy)

VTE score _____ (Complete assessment on VTE chart)

If clinically improving and able to tolerate fluids then suitable for midwifery discharge.

Date and time of discharge _____

TTO given for (tick all that apply)

All women should have omeprazole, and women unable to tolerate diet should have thiamine, in addition to anti-emetics

- Thiamine 100mg od
- Omeprazole 20mg od
- Prochlorperazine 5-10mg tds PO or 3-6mg tds buccal
- Cyclizine 50mg tds
- Metoclopramide 5-10mg tds PO 5 days MAX
- Ondansatron 4-8mg tds
- LMWH
- Other _____

Advice given

- Dietary information leaflet
- Nausea and Vomiting in pregnancy patient information leaflet
- Pregnancy Sickness Support Hyperemesis leaflet
- Contact numbers if deteriorates

Midwife Name (Print) _____

Signature _____

Maternity Services

Checklist for Clinical Guidelines being submitted for Approval

Title of Guideline:	Nausea and Vomiting in Pregnancy (NVP) and Hyperemesis Gravidarum (HG) Guideline
Name(s) of Author:	Louise-Emma Shaw
Chair of Group or Committee approving submission:	Antenatal Forum
Brief outline giving reasons for document being submitted for ratification	
Details of persons included in consultation process:	Louise-Emma Shaw
Name of Pharmacist (mandatory if drugs involved):	
Issue / Version No:	3
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Please indicate key words you wish to be linked to document	Hyperemesis gravidarum, vomiting in pregnancy, pregnancy sickness, nausea
File Name: Used to locate where file is stores on hard drive	