Our Vision
To provide every patient with the care we want for those we love the most

NHS
Norfolk and Norwich University Hospitals
NHS Foundation Trust

Guidelines for the Management of Hyperemesis Gravidarum

A Clinical Guideline

For Use in:	Obstetrics and Gynaecology
By:	Clinical staff
For:	Management of Hyperemesis Gravidarum
Division responsible for document:	Women and Children's Services
Key words:	hyperemesis gravidarum; management, hyperemesis rehydration programme HARP
Name and job title of document author:	Claire Wells, Gynaecology Matron Kelly French, Lead Nurse Sonographer Michelle Drolet, Bryony Tomlinson, Specialty Training Registrar's
Name of document author's Line Manager:	Gautam Raje
Job title of author's Line Manager:	Chief of Service for Gynaecology
Supported by:	Saadia Naeem, Consultant Gynaecologist
Assessed and approved by the:	Gynaecology Guidelines Committee If approved by committee or Governance Lead Chair's Action; tick here ☐
Date of approval:	18/01/2022
Ratified by or reported as approved to (if applicable)**:**	Clinical Safety and Effectiveness Sub-board
To be reviewed before: This document remains current after this date but will be under review	18/01/2025
To be reviewed by:	Claire Wells, Kelly French
Reference and / or Trust Docs ID No:	789
Version No:	5
Compliance links: *(is there any NICE related to guidance)*	RCOG. The management of nausea and vomiting of pregnancy and hyperemesis gravidarum. Green-top guideline no. 69. June 2016. Accessed 18/11/2020 at https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg69/
If Yes - does the strategy/policy deviate from the recommendations of NICE? If so why?	No

Version and Document Control:

Version Number	Date of Update	Change Description	Author
4	02/06/2021	Amended following an incident Prochlorperazine section amended from IM/IV to IM only	Neeraja Kuruba
5	18/01/2022	Changes as per the new RCOG guideline, changes to key people	Claire Wells, Kelly French, Michelle Drolet, Bryony Tomlinson

This is a Controlled Document

Printed copies of this document may not be up to date. Please check the hospital intranet for the latest version and destroy all previous versions.

Background

Nausea and vomiting in pregnancy (NVP) affects up to 80% of pregnant women and is one of the most common indications for hospital admission among pregnant women. It typically starts between the 4-7th weeks of pregnancy, peaks around 9th week, and resolves by the 20th week in 90% of women. Rule out other causes if first presentation is after 10 completed weeks of pregnancy.

This condition is known as hyperemesis gravidarum which can be defined as intractable vomiting associated with loss of more than 5% of pre pregnancy weight, dehydration, electrolyte disturbances, or need for hospital admission. There is a high risk of recurrence in subsequent pregnancies. Consider diabetic ketoacidosis as an alternative diagnosis in a ketotic woman with diabetes.

Risk factors and associations:

- First pregnancy
- Multiple pregnancy
- History of severe nausea and vomiting in previous pregnancies, motion sickness, or nausea with oral contraceptive use
- Gestational Trophoblastic disease (GTD), including molar pregnancy
- History of migraines
- History of first degree relative with NVP
- Obesity
- Stress
- Being seropositive for *Helicobacter pylori*

The condition spontaneously resolves in the vast majority of patients and complications are rare.

<u>Complications</u>

- Weight loss
- Electrolyte imbalance
- Abnormal LFTs
- Abnormal TFTs
- Central pontine myelinolysis (CPM)
- Wernicke's encephalopathy
- Other vitamin deficiencies (± megaloblastic anaemia), such as B12 or B6
- Venous thromboembolism (VTE)
- Adverse pregnancy outcomes including low birth weight, and increased risk of preterm delivery
- Adverse effect on quality of life and mental health
- Mechanical complications including Mallory-Weiss tears, retinal haemorrhage

Management

HARP Criteria

Patients that fulfil the criteria should be commenced on the integrated care pathway (ICP) pathway.

- Ketones of 2 or more
- No complications ie: weight loss, deranged bloods
- Consideration of past medical history and comorbidities
- Patient compliance

History

Quantify severity
To exclude other causes: abdominal pain, urinary symptoms, infection, drug history

Examination

Undertake an examination as per the ICP pathway. Includes basic observations, weight, abdominal examination, signs of dehydration, urine output, and other examination as guided by history.

Investigations:

On admission all patients require:

- Urine dipstick to quantify ketonuria
- MSU to exclude UTI if any positive findings on urine dip
- U&Es to identify electrolyte imbalance
- FBC and CRP to exclude infection
- Random blood glucose
- For diabetic patients, checking capillary blood glucose regularly is mandatory

On second admission*:*

Arrange ultrasound scan via EPAU to confirm viable intrauterine pregnancy, and exclude multiple pregnancy or trophoblastic disease.

Repeated attendances:

In addition to bloods as per first admission which should be checked on each attendance, periodically check TFTs, LFTs, blood group, magnesium, and amylase. Suggested frequency at least every second attendance, or more frequently if abnormal. TFTs may be checked less frequently such as once in first trimester and once in second trimester unless any abnormality noted.

Treatment

Inpatient management should be considered if there is at least one of the following:

a. continued nausea and vomiting and inability to keep down oral antiemetic's
b. continued nausea and vomiting associated with ketonuria and/or weight loss (greater than 5% of body weight), despite oral antiemetic's
c. Confirmed or suspected comorbidity (such as urinary tract infection and inability to tolerate oral antibiotics).
d. Weigh patient on admission, then twice weekly.

Intravenous (IV) infusions

- Insert non-ported cannula for IV access
- The rate of rehydration depends on the severity of NVP but usually aggressive rehydration with 1 litre of 0.9% saline with 20mmol potassium chloride (KCl) over 2 hours is often appropriate
- 0.9% saline with additional potassium chloride in each bag, guided by daily monitoring of electrolytes is the most appropriate IV hydration regimen as per RCOG guidance
- If hypokalaemic, 20-40mmol of KCl in 0.9% saline (note maximum infusion rate 10mmol/hr of KCl)
- Dextrose infusions are **not** appropriate unless the serum sodium levels are normal and thiamine has been administered
- Avoid glucose as it can precipitate Wernicke's encephalopathy.

Antiemetics

- There are safety and efficacy data for first line antiemetics such as H1 receptor antagonists and they should be prescribed first when required. Although generally safe in the first trimester, they are currently not licensed for use in pregnancy in the UK.
- Combination of drugs from different classes should be used in women who do not respond to a single antiemetic
- Use all antiemetics regularly rather than PRN
- The parenteral or rectal route may be necessary and more effective than the oral regimen for women with severe or persistent NVP

Recommended antiemetic therapies and dosages:

Drug	Dose	Major side-effects	Class
First Line			
Cyclizine	50mg PO/IM/IV TDS	Drowsiness, dizziness	H1 receptor antagonist
Prochlorperazine	5-10mg 6-8 hourly PO (also available as oral solution), 12.5mg 8 hourly IM, 3-6mg 12 hourly buccal	Hypotension, extrapyramidal symptoms (tardive dyskinesia, dystonia)	Antipsychotic phenothiazines
Promethazine (Phenergen)	12.5-25mg 4-8 hourly PO /Deep IM	Drowsiness, sedation	H1 receptor antagonist
Chlorpromazine	10-25mg 4-6 hourly PO/ Deep IM	Sedation, hypotension, extrapyramidal symptoms	Antipsychotic phenothiazines
Second Line			
Metoclopramide	5-10mg 8 hourly PO/IV/IM (also available as oral solution)	Extrapyramidal symptoms (torticollis, oculogyric crisis)	D2 receptor antagonist
Domperidone	10mg 8 hourly PO, 30-60mg 8 hourly PR	Minimal	D2 receptor antagonist
Second line if >13 weeks			
Ondansetron	4-8mg 8 hourly PO/IV	Headache, GI upset, Should be given >13 weeks only due to fetal risk of cleft palate and renal abnormalities	5-HT3 receptor antagonist
Third Line			
Corticosteroids	Hydrocortisone 100mg BD IV, convert to prednisolone 40-50mg OD PO and taper dose to lowest level which still controls symptoms	Patients should be given clear advice about self-management of tapering, and a steroid alert card	

When all other medical therapies have failed, enteral or parenteral treatment should be considered with a multidisciplinary approach. In refractory cases artificial nutritional support should be considered. Enteral (nasogastric or nasojejunal) or parenteral feeding can be considered. The MUST screening tool may be useful. Enteral feeding is contraindicated in women with acute vomiting due to the risk of aspiration ensure correct procedure

Thiamine

- Should be given to all women attending with prolonged vomiting, to prevent vitamin deficiency and Wernicke's encephalopathy.
- Thiamine 50mg oral once daily should be given to all patients treated according to the HARP for a 10 day course.

Iron

- Consider avoiding iron-containing preparations if these exacerbate symptoms

Anti-GORD measures

- Proton pump inhibitors (e.g. omeprazole) or H2 receptor antagonists may be used for women developing gastro-oesophageal reflux disease (GORD). Both are considered to be safe in pregnancy.

Venous Thromboembolism (VTE)

- Perform VTE risk assessment as per the VTE chart in the HARP integrated care pathway and treat accordingly. Appendix A

Patient education

- Reassurance
- Rest
- Dietary and lifestyle advice
- Patient information leaflet e.g.

  https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-pregnancy-sickness.pdf
  https://www.pregnancysicknesssupport.org.uk/resources/printable-leaflets/
- Signpost to additional support and information e.g.
  Pregnancy Sickness Support: www.pregnancysicknesssupport.org.uk
- NHS Choices

Impression:

Based on this assessment the patient may either be suitable or not suitable but should be considered for the HARP, as per inclusion and exclusion criteria above. If the patient is suitable for HARP, follow the rest of this guideline and commence with Integrated Care Pathway (ICP). Appendix B

Patients that fulfil the HARP criteria

HARP

- Commence integrated care pathway (ICP) for HARP
- If inpatient arrange readmission for the following day and discharge with venflon in situ
- If emergency admission arrange immediate commencement of HARP and cannulate
- Follow appropriate day as per ICP

Monitoring

- Observations 4 hourly unless otherwise indicated by the NEWS score
- Input / output chart
- Weight recorded each admission

Discharge Criteria

- Patient understands and agrees to comply with discharge instructions including cannula care if relevant
- Patient has a supply of oral antiemetic's to take home
- Satisfactory observations/ NEWS score
- Tolerating fluids and some food
- Passing adequate urine (0.5ml/kg/hr minimum)
- Make arrangements for follow up as below
- Ensure discharge criteria met for discharge home
- Ensure discharge advice given and provide open access information.
- Open access will continue until the patient reaches 22 weeks gestation at which point care must be transferred to the obstetric team
- Telephone number for Cley ward
- Give the patient the information leaflet on NVP
- Ensure that the patient has received the HARP cannula care leaflet

- Consider giving a supply of urinalysis strips for home ketone testing if felt to be appropriate in individual cases

Criteria for Mandatory Doctor Review:

- Persistent ketonuria on 4th day
- Abnormal NEWS
- Failure to control symptoms
- Deranged biochemistry
- Complications/ development of new problems
- At nurse's request for advice or review
- Where the nurse deems the patient to benefit from doctor review, the nurse will request the SHO/ Registrar/ Consultant to take over the care of the patient and document this in writing.
- After day 4 for admission or review of restarting HARP

Clinical audit standards / audit standards

To ensure that this protocol is compliant with the standards set out a random sample of 10 ICPs will be audited annually to ensure they are completed accurately.
The audit results will be sent to the gynaecology matron who will review the audit standards and make recommendations for further actions

Summary of development and consultation process undertaken before registration and dissemination

During the development process the protocol had been circulated between members of the gynaecology department. This included consultants, junior doctors, senior nurses, nurse sonographers and the early pregnancy assessment unit.

References

1. Kenyon AP, Nelson-Piercy C. Hyperemesis gravidarum, gastrointestinal and liver disease in pregnancy. *Current Obstetrics and Gynaecology* 2001; **11:336**-343.
2. Boelig RC, Barton SJ, Saccone G, Kelly AJ, Edwards SJ, Berghella V. Interventions for treating hyperemesis gravidarum (Cochrane Review). *Cochrane Database of Systematic Reviews 2016.*
3. Nelson-Piercy C, Fayers P, de Swiet M. Randomised, double-blind, placebo-controlled trial of corticosteroids for the treatment of hyperemesis gravidarum. *Br J Obstet Gynaecol* 2001; **108:9**-15.
4. Trogstad LIS, Stoltenberg C, Magnus P et al. Recurrence risk in hyperemesis gravidarum. *Br J Obstet Gynaecol* 2005;**112**:1641-1645
5. Welsh A. Hyperemesis, gastrointestinal and liver disorders in pregnancy. *Current Obstetrics and Gynaecology* 2005;**15**:123-131

6. Antenatal care: routine care of the healthy pregnant woman. NICE clinical guideline 62 March 2008.
7. Turner M. Hyperemesis gravidarum: providing woman-centred care. *Br J Mid* 2007;**15(9)**: 540-544
8. Management of nausea and vomiting in pregnancy Jarvis S Nelson Percy C BMJ 2011 342 d 3603
9. Consequences of hyperemesis for offspring: a systematic review and meta-analysis. Veenendaal et al BJOG 2011 Oct 119(11) 1302-13
10. The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum (Green-top Guideline No. 69) June 2016
11. NICE CKS. Nausea/Vomiting in pregnancy. February 2020. Accessed 18/11/2020 at https://cks.nice.org.uk/topics/nausea-vomiting-in-pregnancy/
12. RCOG. The management of nausea and vomiting of pregnancy and hyperemesis gravidarum. Green-top guideline no. 69. June 2016. Accessed 18/11/2020 at https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg69/

Appendix A

Thromboprophylaxis risk assessment

Thromboprophylaxis risk assessment			
Lower risk (score 1 each) Less than 3 of the following risk factors		**Higher risk (score 3)** Any of the following risk factors	
	Age >35 years		Personal history of VTE
	Varicose veins		Medical comorbidity e.g. inflammatory conditions, heart/lung disease, SLE, IBD, type 1 diabetes with nephropathy, nephrotic syndrome, cancer, sickle cell disease, IV drug abuse
	Parity ≥3		
	BMI ≥30 (score 2 if BMI ≥40)		
	Smoker		
	Current systemic infection		
	Multiple pregnancy/assisted reproductive technique		Hyperemesis / ovarian hyperstimulation syndrome until recovered
	Dehydration		Any Thrombophilia e.g. antiphospholipid syndrome, Factor V Leiden, Protein C or S deficiency, antithrombin deficiency, Prothrombin gene mutation
	Immobility/journey >4 hours		
	Family history of <u>unprovoked</u> or <u>oestrogen related</u> VTE in first degree family member where thrombophilia testing not performed or results not available, if not done perform antenatal Thrombophillia screen profile bloods. (Blood profile available on WebICE)		Any surgical procedure in pregnancy (except SMM or TOP)
			Any 3 or more of the 'lower risk' factors

Risk assessment results						
	Low risk (TRA <2)		Intermediate risk (TRA 2-3)		High risk (TRA 4+)	
	No VTE prophylaxis required		Prescribes TEDS if inpatient, and LMWH for 10 days		Prescribe LMWH from first trimester and continue until 6 weeks postnatally	
Completed by: **(Print name, signature, designation)**					**Date:**	

Appendix B

Integrated Care Pathway to be updated

Appendix C

Patient Information Leaflet for Hyperemesis Ambulatory Rehydration Program (HARP)
Trust Docs Id: 18658