Gynaecology: Management of Vomiting in Pregnancy and Hyperemesis Gravidarum

University Hospitals of Leicester NHS Trust

Trust ref: C31/2013

Contents

1. Introduction and who the guideline applies to:

The aim of this guideline is to provide a framework for management of pregnant women with vomiting in pregnancy and hyperemesis gravidarum in the University of Leicester NHS Trust and is intended for use by medical and nursing staff.

The aim of this guideline is to provide a framework to gynaecologists and nurses working in University Hospitals Leicester for the outpatient and inpatient management of pregnant women with vomiting in pregnancy and hyperemesis gravidarum.

Related UHL Documents:

- Thromboprophylaxis in Pregnancy Labour and Vaginal Delivery UHL Obstetric Guideline.pdf C1/2017
- Alcohol Withdrawal UHL Policy B30/2014

Background / Definitions:

Vomiting in pregnancy is a common complaint. Milder cases can be treated in the community with regular antiemetics, thiamine supplementation and dietary advice. Moderate cases (vomiting less easily controlled but no serious sequelae nor effect on haematology or biochemistry) may be successfully treated as a day case.
Hyperemesis gravidarum, however, is uncontrolled vomiting associated with severe dehydration, muscle wasting, electrolyte imbalance, ketonuria and weight loss of more than 5% of body weight and requires hospitalization [(1)]
Hyperemesis affects between 0.3% and 3.3% of all pregnancies. [(2)] Symptoms of hyperemesis peak at 9 weeks of gestation and subside by approximately 20 weeks. [(3)]
Women who experience hyperemesis in their first pregnancy have a high risk for recurrence in subsequent pregnancies. [(4)]

2. Assessment:

Assess, exclude other common causes of vomiting and commence initial treatment protocol if clinically unwell/dehydrated. Following this admit for ongoing inpatient management as clinically indicated.

2.1 Initial Assessment and treatment Protocol

History: Take patient's history with particular reference to possible differential diagnoses and complications [(5)]. Hyperemesis is a diagnosis of exclusion.

- Previous history of NVP /HG
- Quantify severity using PUQE/HELP score.
- Assess self-reported nutritional status /weight loss.
- Ask for medical and surgical history:

- Infection – UTI, Hepatitis, *H. pylori*
- Drug-Induced – Iron supplements, antibiotics
- Metabolic – Thyrotoxicosis (other features {e.g. lid lag} and positive antibodies), hypercalcaemia, Uraemia, Diabetic ketoacidosis, Addison's disease
- Gastrointestinal – Appendicitis, cholecystitis, small bowel obstruction, pancreatitis, peptic ulcer disease
- Vestibular disease. [(6)]
- Mallory Weiss tears and oesophageal rupture

Clinical assessment: of degree of dehydration – e.g.

- Dry mucous membranes, tachycardia, weight loss, concentration of urine
- Blood pressure, Pulse, respiratory rate, O_2 saturation

An objective and validated index of nausea and vomiting such as the Pregnancy-Unique Quantification of Emesis (PUQE) score and HELP Score be used to classify the severity of nausea and vomiting in pregnancy (see appendix). However, at present use the protocol in Appendix 1.

Commence initial treatment protocol for rehydration (see appendix) and file in notes.
If after full assessment and completion of initial treatment protocol symptoms have settled, the patient may be discharged home with oral antiemetics and information leaflet.

Criteria for Ward Admission

- Intractable vomiting associated with clinical dehydration (e.g. ketonuria >3+)
- Abnormal urea and electrolytes (using normal pregnancy ranges)
- Loss of 10% body weight
- Haematemesis
- Severe abdominal pain or symptoms suggestive of another cause of vomiting
- Failure of day case/outpatient management
- Co-morbities which may be complicated by lack of oral intake of medicines (epilepsy, diabetes, HIV, psychiatric conditions, hypoadrenalism).
- UTI and unable to take oral antibiotics.

2.2 Tests required (after clinical assessment)

- **FBC** - to check for anaemia and Hct for degree of dehydration, Infection.
- **U&E** - to check sodium and potassium levels and renal function (to guide fluid and electrolyte replacement)
- **CBG** (capillary blood glucose) or serum **random glucose to diagnose diabetes, exclude diabetic ketoacidosis**
- **LFT** - to check for hepatic causes of vomiting, ALT is commonly raised (50% of cases) secondary to vomiting but will normalise as vomiting settles if no other underlying pathology. Consider other hepatic causes (gallstones, viral hepatitis, drug-induced hepatotoxicity {e.g. methyldopa, azathioprine, chlorpromazine, HAART}, pre-existing liver disease, auto-immune chronic active hepatitis, PBC, Sclerosing cholangitis) if does not settle as vomiting comes under control.
- **Amylase** - to exclude pancreatitis
- **Thyroid Function Tests** NOT routinely required unless history suggests thyrotoxicosis (e.g. weight loss predating pregnancy, palpitations, persistent tachycardia despite rehydration, sweating, diarrhoea). TFTs are abnormal in two-thirds of patients due to partial stimulation of TSH receptors as TSH and hCG share common α subunits. Patients are often clinically euthyroid and abnormalities resolve as hyperemesis improves. Where thyroid disease is suspected, thyroid stimulating antibodies should be performed.
- **Urinalysis**: Nitrites may indicate infection. Assessing urinary ketones does not have any use in the management of NVP or HG and can be misleading.

2.3 Ultrasound Scan

- An Ultrasound scan (non-urgent) should be arranged to confirm gestational age and to rule out multiple pregnancy/assess for molar pregnancy.

- If not previously scanned in this pregnancy and in the absence of vaginal bleeding and/or pain, a scan may be arranged on a non-urgent basis

3. Management

Commence **rehydration with** 0.9% Nacl+20mmol of K+ in each bag as per initial treatment protocol. A fluid balance chart is required for patients requiring admission.

3.1 Fluid and Electrolyte Replacement

- 1 x 1000ml Fluid infused at 500ml/hr then
- 1 x 1000ml Hartmann's solution infused at 250ml/hr

- Subsequent rate of rehydration would be dependent on clinical picture, degree of dehydration and any urea and electrolyte abnormalities and done daily in case of admission.

NO FURTHER HARTMANN'S TO BE GIVEN DURING THIS 24H PERIOD AND RECHECK K+ DAILY
Medical input and Cardiac Monitoring is required if K+ < 2

- Strict input-output chart
- **If Hyponatraemia (<120mmol/L)** is present, may cause lethargy, seizures and respiratory arrest.
- Both severe hyponatraemia and its rapid reversal may cause central pontine myelinolysis (pyramidal tract signs, spastic quadraparesis, pseudobulbar palsy and impaired consciousness). It may co-exist with Wernicke's encephalopathy. Involve the on call medical team with the management of severe hyponatraemia.

Hypoglycaemia is unusual in the absence of diabetes. Traditional teaching is to never treat hypoglycaemia prior to giving thiamine due to risk of precipitating Wernicke's encephalopathy. It is important to involve the on call medical team in such cases and never delay treatment of hypoglycemia.

3.2 Antiemetics

Anti-emetic Therapy

1. Withhold non-essential medications associated with nausea and vomiting e.g. oral iron
2. First dose of antiemetic should be given I.V or I.M.
3. Give regular antiemetic I.V. or I.M. until patient is eating without vomiting
4. A combination of medications may be required after trying one from each drug family in turn, each for at least 24h.

First Line Anti-emetics [5], [7]

1) Doxylamine and Pyridoxine (Xonvea®) **(B6)** 20mg/20mg PO at night and 10/10mg dose can be added in morning and lunchtime.

2) Promethazine – PO/IM /IV– 25mg qds or **Cyclizine** – PO/IM/IV– 50 mg 8 hourly (avoid Cyclizine by all routes in patients with history of IVDU)

3) Phenothiazines – Prochlorperazine – deep IM /IV– 12.5mg 8 hourly or 5-10mg PO–6 to 8 hourly or Buccastem 3- 6 mg buccal bd

4) Chlorpromazine – **10-25mg 4-6hrly PO/IM/IV**

Second Line

1. **Metoclopramide: 5-10mg PO/IM/or IV 8hrly or SC**

2. **Domperidone ÷ 10mg 8hrly PO**

3. **Ondansetron 4mg 8hrly /8mg 12hrly PO or IV (given slowly) – add laxatives if constipation develops. (Risk of orofacial clefts is extremely small - 3 more cases per 10,000 exposed pregnancies) Risks should be balanced with poorly controlled hyperemesis.**

Extra-Pyramidal Side Effects

Initial symptoms of restlessness, agitation, malaise, or a fixed stare. Characteristically, there are muscular spasms of neck – torticollis, eyes – oculogyric crisis, tongue, or jaw, blurred vision, unsteadiness, nystagmus, finger – nose ataxia. May occur with and Metoclopramide. Treatment is with **Procyclidine** 5mg IM/IV. This is stocked on GAU, or in theatre17 or Delivery suite if none available on GAU.

3.3 Steroids (Third line)

Steroids (Refractory Cases only)

Steroids have a direct effect on the vomiting centre of the brain by stimulation of appetite. They should only be used

1. after Consultant review of patient
2. after other common causes of vomiting excluded
3. all anti-emetic treatments have failed

Hydrocortisone – IM/IV - 100mg bd for 48 h or until patient tolerating oral fluids.
Once the patient responds and is eating, continue with following regime;

Prednisolone – po – 20mg bd for 7 days
Then Prednisolone – po – 15mg bd for 7 days
Then Prednisolone – po – 10mg bd for 7 days
Then Prednisolone – po – 5mg bd for 7 days
Then Prednisolone – po – 5mg od for 7 days and then usually stop if >16/40

Steroids cannot normally be discontinued until a gestation at which hyperemesis would have resolved spontaneously (approx 16/40). In some extreme cases this may need to be continued to delivery. (5)

Pts who have required steroids will subsequently require

- Follow up in Consultant Direct 2/52 later
- Referral to General Obstetric Clinic
- 10 micrograms per day Vitamin D supplementation (e.g. with Adcal D3 PO Ť od) is recommended to all pregnant and breastfeeding women and is particularly important where steroids are prescribed and with BMI>30(11)
- Hydrocortisone cover in labour – Women receiving oral steroids (Prednisolone >7.5mg/day for >2/52) prior to delivery {i.e. all those on the above regime} should receive parenteral Hydrocortisone 50-100mg tds/qds during labour. (5)

If patient does not respond to steroid therapy, it should be discontinued. The patient should be referred to Gastroenterology consultant of the week. This should be via Consultant-to-Consultant referral for consideration of Endoscopy (to exclude peptic ulcer, *H.pylori* infection, hiatus hernia and malignancy) and concurrent insertion of a nasojejunal feeding tube (NJT) under direct vision. Subsequent feeding through the tube will involve the Nutrition team and dieticians, HENS (Home Enteral Nutritional Support) team and subsequent follow up with the maternal medicine team (please refer accordingly).

When patients cannot tolerate NJT, insertion of a PEG- J may be considered or very rarely parenteral feeding (TPN) will be considered as a last resort.

3.4 Thromboprophylaxis

Administer Thromboprophylaxis as per Thromboprophylaxis in Pregnancy Labour and Vaginal Delivery UHL Obstetric Guideline.pdf

VTE assessment should be completed on admission. Anti-embolic stockings and Low molecular weight heparin (LMWH - Enoxaparin) should be given to all clinically dehydrated, pregnant patients admitted to hospital. Re-assessment is required on discharge to verify whether LMWH needs to be continued and/or referral made to the Haematology Obstetric clinic.

3.5 Thiamine

Administer thiamine replacement therapy and give nutritional support

Thiamine Replacement

Thiamine should be a routine supplement in patients with protracted vomiting

-Pabrinex on admission diluted in 100ml of 0.9% sodium chloride infused over 30 to 60 minutes, weekly or up to alternate days in the most severe cases [6]
-Thiamine for all women once tolerated – 100mg PO/IV TDS

-Where Wernicke's encephalopathy or Korsakoff's psychosis is suspected (confusion, ataxia, memory loss, visual disturbance, hallucinations), Pabrinex is given by intravenous infusion of 2 pairs (4 ampoules) tds for 3 days followed by 1 pair OD for 3-5 days followed by oral Thiamine 200mg daily and twice daily *Vitamin B compound, strong*. Follow UHL guidance for Alcohol-related Wernicke's encephalopathy [10]

Nutrition
-Nil by mouth until dehydration corrected followed by small frequent feeding. Allow patient to eat if hungry
-Encourage clear fluids initially
-Early involvement of dietitians (beware of amount of Vitamin A contained in some supplements)
-If remains unresponsive to all treatment measures, patient will require consultant to consultant referral to the gastroenterology team [5] *see Recommendation 3.3 - section on Steroids above*
- Constipation should be treated
- Well-being support should be offered to women.

4. Discharge

Patients will be discharged with antiemetics to be taken regularly up to 16/40. *Ondansetron* may not be prescribed by GPs in community so there is an agreement with the CCG that patients may return to GAU for repeat prescriptions if required.

1 in 3 women are admitted within same pregnancy; therefore proper advice should be given at the time of discharge to reduce readmission.

4.1 Discharge

- TTOs for Thiamine and oral/buccal antiemetic even if clinically well, to be continued until 16-20/40.
- Adcal D3 and folic acid should also be prescribed to all women
- If patient on Ondansetron, prescribe Ondansetron 4-8mg po 12hourly to cover up to 16/40. If longer prescriptions are likely to be required, this will need to be provided by GAU as GPs are unable to prescribe this in the community (Red listed). If prescription runs out and patient requires a further prescription, she can return to GAU/MAU to collect an outpatient prescription of Ondansetron.
- Patient information leaflet on vomiting in pregnancy should be given to the patient.
- Patients should be given advice on diet and risk of VTE.

4.2 General advice

- Eat dry bread, biscuit or cereal before getting out of bed. Get out of bed slowly.
- Drink liquids between rather than with meals
- Avoid large meals and fatty/ highly spiced foods and dairy products
- Suck something sour e.g. lemon or ice

4.3 Nursing Input

- Fluid balance should be kept on EWS chart
- VTE assessment /AES/LMWH should be considered
- Weigh on admission and then weekly thereafter
- Provide emotional and psychological support

Patients will have open access to telephone advice/admission as necessary following admission for vomiting in pregnancy up to 16/40 gestation. Thereafter they will be referred to the Maternity Assessment Unit of their booked hospital (either LGH or LRI). Patients will be given a take home card 'green card' which will have information about their visit to the hospital and the medications administered. They will be asked to bring the card with them for each admission to the hospital for hyperemesis (see Appendix 4 for the 'green card'.

5. Education and Training:

Dissemination of the guideline review via newsletter

6. Monitoring and Audit Criteria:

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Admission criteria adhered to	Audit	HoS	3 yearly	Departmental audit group
Antiemetics tried in turn for 24h	Audit	HoS	3 yearly	Departmental audit group
Correct fluid replacement regime adhered to	Audit	HoS	3 yearly	Departmental audit group
Pabrinex given on admission	Audit	HoS	3 yearly	Departmental audit group

Alternative diagnoses were excluded (bloods/urine)	Audit	HoS	3 yearly	Departmental audit group
VTE assessment completed/LMWH given on admission and discharge	Audit	HoS	3 yearly	Departmental audit group
Patients unresponsive to treatment were referred to Gastroenterology	Audit	HoS	3 yearly	Departmental audit group

6. Supporting References:

1. RCOG 2024 (gtg 69) The management of nausea and vomiting of pregnancy and hyperemesis gravidarum. London
2. UHL Guideline: Acute alcohol withdrawal guideline
3. NICE Guideline: PH11 Maternal and child nutrition: guidance 26 March 2008 https://www.nice.org.uk/guidance/ph11/chapter/2-Public-health-need-and-practice (accessed March 2022)

7. Keywords

Hyperemesis, vomiting in pregnancy

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) Miss Olivia Barney - Consultant Mr Ashok Banerjee - Consultant	**Executive Lead** Chief Nurse
Original authors: : A Gyesi-Appiah, O Barney Mr A Banerjee, R Meakin, C Jeary	
Details of Changes made during review:	

Date	Issue Number	Reviewed By	Description Of Changes (If Any)
April 2015	**2**	Miss Olivia Barney, Dr Sanjeev Pattni (Consultant Gastroenterologist) Gynae guidelines group	Hypoglycaemia should be managed jointly with Medical team on call Patients may have open access following admission with vomiting in pregnancy Adcal D3 should be prescribed to all women Consultant to consultant referral pathway agreed with gastroenterology for patients unresponsive to treatment
April 2019	**3**	Miss N Potdar	Insertion of Pregnancy-Unique Quantification of Emesis/Nausea (PUQE) index

March 2022	**4**	Miss N Potdar - Consultant	Added hyperemesis card Format update
Sept 2024	**5**	Divya Agrawal(Registrar) Ms P Patil(consultant)	Added new drug Xonvea, removed ketones in investigations and added mental health support. Removed ginger as treatment. Continuity of care in Maternity after 16 weeks with ongoing hyperemesis.

Appendix 1: Initial treatment protocol

Vomiting in Pregnancy – Initial treatment Protocol

Addressograph

Clinical assessment: Date:_____/_____/_____

After clinical assessment, if the patient is NOT dehydrated and does not need to be admitted to the ward for another concern, an oral prescription can be given for either Xonvea, Promethazine, Cyclizine or Prochlorperazine. The patient should be counselled on diet, medication before discharging and given a patient information leaflet.

Consider admission for re hydration and assessment of tolerance to oral fluid/diet if required.

Treat on Symptoms and not Ketones if patient eating and drinking not vomiting, tolerating fluids and diet – discharge home with antiemetic, folic acid and thiamine

Blood tests required

Blood Tests on first admission				
FBC	Glucose or CBG	U&E		
Blood Tests on second admission				
FBC	Glucose or CBG	U&E	LFT	Amylase
TSH	FT4	Ca & Phos		

☑ **when following completed**

☐Weight……kg. ☐BMI……. ☐VTE ☐Dietitian referral

☐Book ultrasound scan ☐Counsellor referral ☐CBG ☐EWS score

Intravenous Treatment to be prescribed as a complete 'set'

☑	iv fluids	Rate
☐	1L 0.9% saline + 20umol K+/Hartmann's	500ml/hour
☐	1L 0.9% saline + 20umol K+/Hartmann's	250ml/hour
☐	IV/PO Omeprazole	20mg od/bd - Consider continuing orally
☐	IV Pabrinex 1 pair ampoules mixed in 100ml normal saline/30min	Stat

☑	Order	Drug	Dose	Route	Frequency
☐	1st	Xonvea	20mg	PO	TDS
☐	1st	Cyclizine	50mg	PO/IM/IV	TDS
☐	1st	Prochlorperazine Prochlorperazine Prochlorperazine	12.5mg 3mg-6mg 5-10mg	IM /IV Buccal PO	TDS BD TDS
	1st	Promethazine	25mgs	PO/IM/IV	QDS
☐	2nd	Metoclopramide	5-10mg	PO/IV/IM/SC	8 hrly
	2nd	Domperidone	5-10mg	PO	8 hrly
	2nd	Ondansetron	4-8mg	PO/IV	4-8hrly

Try each Antiemetic Treatment in turn for 24 hours (NB consider antiemetic Hx)

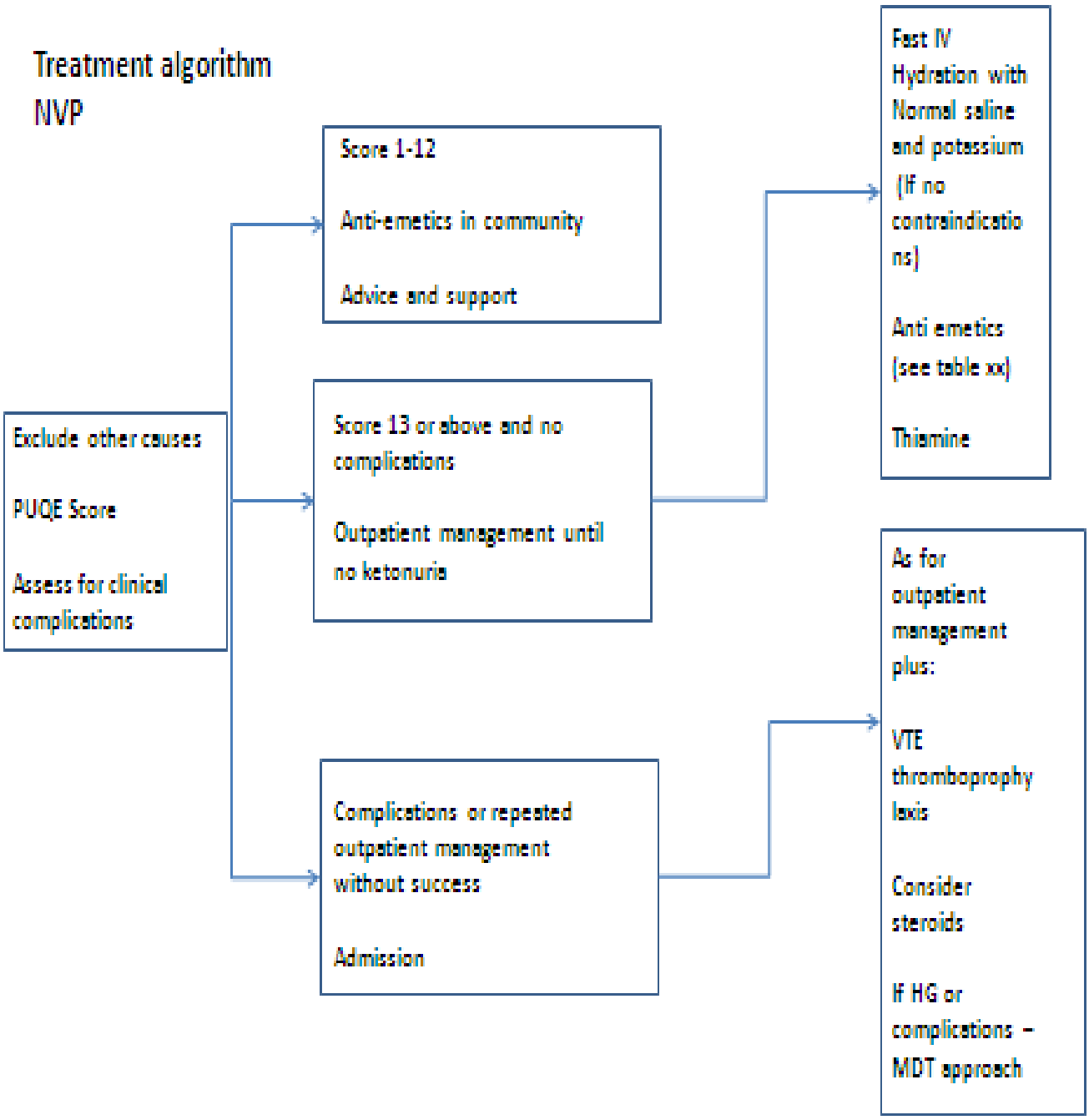
Appendix 2: PUQE

Pregnancy-Unique Quantification of Emesis/Nausea (PUQE) index

Total score is sum of replies to each of the three questions. PUQUE 24 SCORE: Mild = ≤ 6; Moderate = 7–12; Severe NVP = ≥ 13. Reprinted with permission from Koren et al.

1. **In the last 12 hours, how much have you felt nauseated or sick to your stomach?**				
>6 hrs (5)	4-6hrs (4)	2-3hrs (3)	≤1 hr (2)	Not at all (1)
2. **In the last 12 hours, how many times have you vomited?**				
7 or more times (5)	5-6 times (4)	3-4 times (3)	1-2 times (2)	None (1)
3. **In the last 12 hours, how many times have you had retching or dry heaves without bringing anything up?**				
7 or more times (5)	5-6 times (4)	3-4 times (3)	1-2 times (2)	None (1)
Total PUQE Score:				
Source: Koren G, Piwko C, Ahn E, Boskovic R, Maltepe C, Einarson A, Navioz Y, Ungar WJ Validation studies of the Pregnancy Unique-Quantification of Emesis (PUQE) scores. J Obstet Gynaecol. 2005 Apr;25(3):241-4.				

Appendix 3: Treatment algorithm for NVP



Appendix 4: Hyperemesis card

Vomiting in pregnancy / Hyperemesis card
Leicester Royal Infirmary
University Hospitals of Leicester
Contact: GAU 01162586259

Patient label

Gravida:

Para:

EDD:

Allergies:

Medical History:

Current Medications:

Diagnosis: Vomiting in pregnancy /Hyperemesis /

Order of Antiemetics	Date tried
Xonvea	
Cyclizine	
Prochlorperazine	
Promethazine	
Metoclopramide	
Domperidone	
Ondansetron	

Date	Gestation Wks	Symptoms PUQE score	Diagnosis	Antiemetic Prescribed	Follow up /Scan/HCG
			NVP / HG		
			NVP / HG		
			NVP / HG		
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