ABNORMALITIES OF EARLY PREGNANCY

MANAGEMENT OF HYPEREMESIS GRAVIDARUM

AIM
To provide information on the care of a woman with hyperemesis gravidarum.

BACKGROUND
Many women are affected by nausea (80%-85%)\(^2\) and vomiting (52%) in the first trimester of pregnancy.\(^2\) Severe vomiting requiring hospitalisation occurs in 0.3-20% of all pregnant women, however hospital admission rates fall from 8 weeks.\(^2\) The peak severity for hyperemesis is around 12 weeks,\(^1\) and whilst most will resolve by 20 weeks,\(^1,2\) 10% will continue throughout pregnancy.\(^2\)

Hyperemesis gravidarum is a severe form of nausea and vomiting which occurs in 0.3%\(^1\) to 1.5% of pregnancies.\(^2\) Excessive vomiting of both solid food and liquids may lead to dehydration, ketosis, electrolyte imbalance, thyrotoxicosis and rarely vitamin deficiency in pregnancy.

The term “hyperemesis” however, should be used only where one or more of the following exist:
- persistent symptoms that have led to attendance at the hospital, and the need for intravenous (IV) therapy;
- weight loss of > 4 kg (or >5%\(^1\)) since conception associated with persistent vomiting/anorexia;
- lack of response to usual antiemetic and other medications.

Other causes of severe nausea and vomiting need to be excluded.\(^1,3\) Most cases have other causes for symptoms and must be evaluated fully for serious obstetric and medical complications.

KEY POINTS
1. Therapeutic interventions are mainly supportive in conjunction with anti-emetic medication. Non-pharmacologic interventions are used frequently, whilst prescribed treatment is usually not indicated unless the symptoms are severe.\(^2,3\) The safety and effectiveness of anti-emetics should then be discussed with women with severe symptoms.\(^2\) Cessation of hyperemesis may result in superior perinatal outcomes.\(^4\)
2. Consultation with a Dietitian is very useful to obtain an accurate dietary history, elucidate possible nutritional avenues to pursue, and to counsel the woman. Dietary and lifestyle changes should be encouraged. Women should be advised about appropriate foods and fluids to prevent dehydration and minimise aggravation of symptoms. Refer all repeat admissions to the Dietitian.
3. Clinical Psychologists and Social Workers are also available to provide multi-disciplinary care for this condition.
4. Complementary therapies have been used including ginger\(^3\) (Zingiber officinale – not stocked in pharmacy) and acupuncture / acupressure.\(^2\) However, there is
currently insufficient high quality evidence to support a particular choice of complementary therapy.\textsuperscript{2, 5} See Clinical Guideline Minor Symptoms or Disorders of Pregnancy.

5. Iron supplementation may worsen symptoms.\textsuperscript{2} Discontinuing iron-containing multivitamins (where appropriate) may improve hyperemesis symptoms.\textsuperscript{2}

6. Women admitted with hyperemesis should be considered for thromboprophylaxis with LMWH and can discontinue thromboprophylaxis when the hyperemesis resolves.\textsuperscript{10}

COMPLICATIONS

- Whilst nausea and vomiting do not directly have a harmful effect on pregnancy, and no studies link nausea and vomiting with teratogenicity, it does affect the woman’s quality of home and work life, relationships and use of healthcare resources.\textsuperscript{2}
- Depression is common, either preceding or resulting from hyperemesis.\textsuperscript{3}
- Dehydration increases the risk of Diabetic Ketoacidosis in those with Type 1 diabetes.
- Electrolyte disturbances as seen in any patient with persistent vomiting – hypochloraemic alkalosis, hypokalaemia and hyponatraemia.
- Protein-calorie malnutrition and accompanying ketosis, anaemia, hypoalbuminaemia.
- Vitamin / mineral deficiencies and accompanying problems – e.g. Wernicke’s encephalopathy from thiamine deficiency, folate deficiency, iron deficiency.
- Thyroid dysfunction – e.g. “pseudothyrotoxicosis” – suppressed TSH with high free thyroxine resulting from thyroid stimulation by HCG.
- Renal dysfunction\textsuperscript{3} – (reversible) elevated urea and creatinine.
- Hepatic dysfunction accompanying hyperemesis\textsuperscript{3} – elevated ALT, AST, low albumin, elevated bilirubin, subsequent to malnutrition and catabolic changes.
- Ulcerative oesophagitis.
- Sialorrhoea – constant salivation (“ice-cream bucket syndrome”).

MANAGEMENT

ASSESSMENT

\textit{Gynaecological / Obstetric history}

1. Obtain details of current pregnancy.
   - Determine first day of the last menstrual period.
   - Check whether an ultrasound has been performed in this pregnancy, at what gestation and where this was performed. If this was performed outside KEMH, arrange for the report to be faxed to KEMH and following review & initialling, a copy filed in the woman’s hospital notes.
   - Confirm the gestation.
   - Determine whether there has been any vaginal bleeding.
1. Seek information regarding the woman’s anxiety about progress of her pregnancy – some cases require ultrasound to confirm fetal viability.

2. Obtain a dietary history to ascertain state of nutrition and recent intake. Ask specifically about the nausea and vomiting.
   - What is being kept down after ingestion?
   - Does anything precipitate the nausea?
   - Is the appetite normal / decreased?

3. Determine the presence of other symptoms. The following factors predispose to or aggravate hyperemesis:
   - Multiple pregnancy
   - Molar pregnancy
   - Previous hyperemesis
   - Pre-existing eating disorders
   - Depression or anxiety
   - Rejecting or unplanned pregnancy
   - Greater weight
   - Restrictive diet (e.g. lactose-free, vegetarian or nutritional deficiency)
   - Financial and other situational stresses
   - Cultural isolation, removal from country of origin, separation from spouse/family.

4. Ask about:
   - Bowel habits and the presence of diarrhoea and/or constipation.
   - Urinary symptoms such as dysuria, frequency and suprapubic pain.
   - Presence of abdominal/pelvic/back pain.
   - Past surgical, medical and psychiatric history.
   - The dose and frequency of use of alcohol, smoking and other recreational drugs.
   - Incidence of any rigors or shivering.
   - Social circumstances.
   - Current medications and allergies.

5. Exclude any symptoms suggestive of thyrotoxicosis.

**Examination**

A full history and examination are required as there is always a lengthy differential diagnosis.

In addition to the disorders mentioned above, papilloedema must be excluded, surgical and medical abdominal disorders, urinary infection, gastrointestinal infection (such as giardiasis, acute helicobacter gastritis) neurological states such as recurrent migraine, benign recurrent and positional vertigo, and vestibular neuritis, severe hypercalcaemia should be considered.
Investigations

- Urine testing: To ascertain the degree of ketosis and identify any other abnormalities.
- Blood tests: FBC, U & E’s, LFT’s, TFT’s.
- Ultrasound Scan: Arrange if this has not already been performed to exclude molar or multiple pregnancies which precipitate hyperemesis.
- Other investigations:
  - Ketosis
  - Bicarbonate level
  - Blood gases if required.
- Women with diabetes should be monitored carefully as dehydration increases the risk of diabetic ketoacidosis.

**Note:** BHCG can cause gestational thyrotoxicosis through cross reaction with the TSH receptor. BHCG is a glycoprotein similar in structure to TSH thus the circulating levels of free T4 and T3 are elevated at this stage of pregnancy and more so in hyperemesis gravidarum. This is usually self-limiting but occasionally anti thyroid medication is required.

**MANAGEMENT**

1. Admit if the woman continues to be dehydrated after treatment in EC/HITH for IV fluid resuscitation and electrolyte restoration with Sodium Chloride 0.9%. Hartmann’s has no advantage. Do not give Dextrose containing fluids as they may precipitate encephalopathy and may also worsen hyponatraemia. Where possible, providing warmed fluids and blankets reduces caloric loss from shivering.
   - See also Clinical Guideline, Management in the Home.
2. If hypokalaemic, the woman may require potassium (Oral route preferred).
3. Reassure the woman. Nausea and vomiting can have a profound effect on a woman and her family's health and quality of life.
4. Fast the woman until the mode of treatment has been determined. If she is not to be fasted, offer dry crackers, lemonade and ginger beer. Provide advice on oral hygiene as vomiting affects oral health.
5. Administer IV fluids and medications as prescribed.
6. Commence a fluid balance chart.
7. Perform a daily ward urine test for ketones.
8. Do not rush oral intake. It may help to keep the woman fasted or suck ice cubes for the first 24 hours until the anti-emetics become effective.
9. Provide dietary education. Provide the woman with a copy of the booklet *Nutritional Fitness in Pregnancy* and *Morning Sickness*, available from Ward 6 and the Emergency Centre.

**MEDICATIONS**

To reduce possible risk of neonatal withdrawal symptoms, drug therapies should cease two weeks before planned birth.
First Line Drug Therapy

- Prescribe anti emetics:
  - **Prochlorperazine** (Stemetil)
  - **Metoclopramide** (Maxalon) 10mg.
  
  These should not be administered more frequently than every 8 hours.

- Prescribe **Pyridoxine** (Vitamin B6) 25mg every 8 hours.
  
  - Limited evidence supports use and toxicity may occur at high doses.

- Consider prescribing:
  - Antihistamines to reduce the nausea. Prescribe 8 hourly in the interval between the administration of the antiemetic.
  - **Thiamine** (Vitamin B1) 100mg once daily to prevent Wernicke’s encephalopathy.
  - **Folic acid** and multivitamins.

Second Line Drug Therapy

- Commence antiemetics such as **Ondansetron** 4mg every 8 hours in cases of:
  - Further refractory vomiting
  - Failure to improve
  - Recurrent hospital admissions.

Third Line Drug Therapy: Rarely used and only after consultation

- **Prednisolone**
  
  Or

- **Hydrocortisone**

Note: Steroids may increase the risk for congenital malformations such as oral clefts in the first 10 weeks of gestation.

ENTERAL FEEDING

- Consider enteral feeding in extreme cases of intractable vomiting that does not respond to any of the above interventions.

Indications are:

- Significant weight loss or failure to achieve an appropriate gestational weight gain
- Inability to tolerate oral feeding despite antiemetic treatment
- Multiple hospital admission for hyperemesis gravidarum
- Poor nutritional status
- Significant vitamin deficiencies
- Persistently abnormal LFTs.

NB: Maternal complications associated with PICC line placement are substantial and the use of PICC lines for the treatment of hyperemesis gravidarum should not be routinely used. If a PICC is used consider VTE prophylaxis.
REFERENCES & STANDARDS


National Standards – 1.7.2 Clinical Care
Legislation - Nil
Related Policies – Nil
Other related documents –
- AHMAC National Evidence-Based Antenatal Care Guidelines: *Module 1* (p.91-95).
- Clinical Guideline, Section B: *Minor Symptoms or Disorders of Pregnancy*
- Clinical Guideline, Section C, Hyperemesis: *Management in the Home*
- Clinical Guidelines, Section P: *Folic acid; Hydrocortisone; Metoclopramide; Ondansetron; Prednisolone; Prochlorperazine; Pyridoxine; Thiamine*
- *Nutritional Fitness in Pregnancy* and *Morning Sickness* patient brochures.

RESPONSIBILITY

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Access the current version from the WNHS website.