

PERNICIOUS VOMITING

Abstract

Hyperemesis gravidarum or pernicious vomiting of pregnancy is a complication of pregnancy that affects various areas of the woman's health, including homeostasis, electrolytes and kidney function and may have adverse fetal consequences. Whenever a patient is diagnosed as a case of pernicious vomiting, she should be admitted in the hospital, with the same diet and drugs used at home. When general measures like dietary advice, rest and anti-emetics fail to control the vomiting, when there is clinical evidence of dehydration like sunken eyes, tachycardia, dry furred tongue, loss of skin turgor and oliguria or when there is presence of ketone bodies in the urine then fluids should be corrected by IV line and further investigation should be done.

Keywords: vomiting, pernicious, Hyperemesis gravidarum, pregnancy, woman's health, including homeostasis, electrolytes.

Author

Ms. Pangshatabam Bidyarani Devi
Assistant Professor
NSMS Nursing Institute
Durgapur, West Bengal, India.
Bidyaranimangang2017@gmail.com

I. INTRODUCTION

Pernicious vomiting, medically known as **Hyperemesis gravidarum**, is excessive vomiting in early pregnancy. It is a severe form of morning sickness, with unrelenting, excessive pregnancy-related nausea and/or vomiting that prevents adequate intake of food and fluids.¹

II. ETIOLOGY

- 1. Hormonal changes:** During pregnancy, there is a significant increase in hormones, particularly human chorionic gonadotropin (hCG) and estrogen. These hormonal changes are thought to play a role in triggering nausea and vomiting.
- 2. Sensitivity to hCG:** Some women may be more sensitive to the effects of hCG, which can lead to increased nausea and vomiting.
- 3. Thyroid dysfunction:** Pernicious vomiting has been associated with thyroid dysfunction, specifically elevated levels of thyroid hormones (hyperthyroidism).
- 4. Helicobacter pylori infection:** Some studies have suggested a potential link between HG and Helicobacter pylori infection, a bacterium that can cause stomach inflammation.
- 5. Genetic factors:** There may be a genetic predisposition to developing pernicious vomiting, as it can sometimes run in families.
- 6. Psychological factors:** Stress and psychological factors may exacerbate the symptoms of pernicious vomiting, although they are not considered the primary cause.²

III. PATHOLOGY

One of the main contributors to HG is the elevated levels of certain hormones during pregnancy. Human chorionic gonadotropin (hCG) is a hormone produced by the placenta, and its levels increase rapidly during the first trimester. High levels of hCG are thought to play a role in triggering nausea and vomiting. In some cases, women with HG may have significantly higher hCG levels than women with typical morning sickness. The gastrointestinal tract undergoes changes during pregnancy due to increased hormone levels, particularly progesterone. Progesterone is responsible for relaxing the smooth muscles of the uterus to support the growing baby, but it also affects the GI tract, leading to reduced motility (peristalsis) and delayed gastric emptying. This slowed movement of food through the digestive system can contribute to nausea and vomiting. Some pregnant women may be more sensitive to the effects of pregnancy hormones, such as hCG and estrogen, which can intensify the symptoms of nausea and vomiting. There might be a genetic predisposition to developing pernicious vomiting, as it can sometimes run in families. This suggests that certain genetic factors may make some women more susceptible to the condition. Stress and psychological factors may not cause HG directly, but they can exacerbate the symptoms and make coping with the condition more challenging. Severe and prolonged vomiting in HG can lead to metabolic imbalances, such as dehydration, electrolyte disturbances (e.g., low potassium, sodium, and chloride levels), and weight loss. These imbalances can further worsen the symptoms and may require medical intervention.³

IV. SIGN AND SYMPTOMS

- 1. Symptoms:** The condition usually starts as emesis then is proceed to hyperemesis. Apart from this continuous vomiting at day and night time may be seen. Thirst and constipation may be present. In severe cases the vomitus is bile or blood stained.
- 2. Signs:** Loss of 5% or more of pre-pregnancy body weight is seen in most of the cases. There may be dehydration which can results in sunken eyes and dry tongue, quick and rapid pulse, low blood pressure and raise in temperature. Decreased vitamin K causes coagulation disorders. Elevated liver enzyme and jaundice may also be present.⁴

V. COMPLICATIONS

1. Maternal

- Weight loss
- Dehydration
- Electrolyte imbalance
- Short term hepatic dysfunction
- Risk for preterm labor
- Maternal death
- Depression is common secondary complication of pernicious vomiting
- Retinal hemorrhage
- Convulsions
- Coma
- Stress ulcer in the stomach
- Esophageal tears (Mallory-Weiss syndrome)
- Jaundice due to liver damage
- Renal failure
- Vitamin K deficiency
- Beriberi

2. Fetal

- IUGR
- Fetal anomalies
- Fetal death may occur
- Low birth weight⁵

VI. INVESTIGATIONS

1. Complete blood count

- Hemoconcentration leads to rise in Hb, RBC count and hematocrit.
- Slight increase in WBC count.

2. Electrolytes: Na⁺, K⁺, Cl⁻ decreased due to loss in vomitus.

3. Random blood glucose: Hypoglycemia

4. Urinalysis:

- Quantity (to see for oliguria)
- Dark color (due to concentration)

- High specific gravity with acid reaction
 - Presence of acetone, occasional presence of protein and bile pigments
 - Diminished or even absence of chloride
5. **Liver function tests:** Albumin, Prothrombin time, ALT, AST, ALP, Bilirubin levels.
 6. **Renal function test:** Urea and Creatinine levels
 7. **Ophthalmoscopic examination:**
 - Retinal hemorrhage
 - Detachment of retina
 8. **ECG:** Abnormal serum potassium level can cause arrhythmias
 9. **USG**
 - Confirms pregnancy
 - Excludes molar or twin pregnancy
 - Excludes other gynaecological, surgical and medical causes for the hyperemesis³

VII. PREVENTIVE MEASURES

There is no known prevention of pernicious vomiting. The following habits can be used as relieving measures:

1. **Rest:** Tiredness can make nausea worse which can lead to pernicious vomiting. Getting plenty of rest is vital to reduce the chance of getting pernicious vomiting.
2. **Liquids:** Fluid intake should be regular and in small amounts, rather than less often and in large quantities. This may help reduce the chance of getting pernicious vomiting. Sucking ice cubes made from water or fruit juice or lollipops can help.
3. **Food:** Consuming more meals per day, with smaller portions may help especially high carbohydrate meals. Dry foods such as crackers or toast are usually better tolerated than sweet or spicy foods. Cold meals are often better tolerated than hot ones because they have less odor.
4. **Empty stomach:** Pregnant women with morning sickness should try to avoid having an empty stomach.
5. **Early morning:** Eating plain biscuits within 20 minutes after getting up helps.
6. **Triggers:** Avoiding personal triggering factors helps reduce the chance of getting pernicious vomiting.⁵

VIII. MANAGEMENT

The management of hyperemesis gravidarum (HG) involves a multi-faceted approach to alleviate symptoms, prevent complications, and support the well-being of the pregnant person and the developing fetus. It is essential to work closely with healthcare professionals experienced in managing HG for proper evaluation and personalized care.

Eating small, frequent meals throughout the day to avoid an empty stomach, which can worsen nausea is an excellent choice. Avoiding triggers that worsen nausea, such as certain foods or smells, resting and getting adequate sleep to help reduce fatigue and stress may be helpful. Ensuring adequate hydration is crucial. If oral intake is challenging due to vomiting, intravenous fluids may be necessary to rehydrate and correct electrolyte imbalances. In cases of severe vomiting that lead to malnutrition, nutritional support may be required. This can include enteral feeding (feeding through a tube) or total parenteral nutrition (TPN), where

nutrients are delivered directly into the bloodstream via an IV. Antiemetic drugs can help control nausea and vomiting. Commonly used medications include ondansetron, metoclopramide, and promethazine. The choice of medication depends on the individual's medical history and the severity of symptoms. Pregnant individuals with HG may require vitamin and mineral supplements, particularly folic acid and thiamine, to address potential deficiencies. In severe cases of HG, hospitalization may be necessary to closely monitor the pregnant person's condition, provide intensive care, and manage hydration and nutrition. Hyperemesis gravidarum can be physically and emotionally taxing. Providing emotional support and understanding is crucial for the well-being of the pregnant person. Reviewing any medications the pregnant person may be taking to ensure that they do not contribute to nausea and vomiting. Adjusting or changing medications under medical supervision may be necessary. Some complementary therapies, such as acupuncture or ginger supplements, may offer relief for some individuals. However, it's essential to consult with a healthcare provider before trying any alternative remedies during pregnancy. Regular prenatal check-ups and fetal monitoring are essential to ensure the baby's well-being and development during HG.³

IX. CONCLUSION

Pernicious vomiting is a common problem for an obstetrician. Though nausea and vomiting are quite common in pregnancy, pernicious vomiting is found in less than 1 in 1000 pregnancies. Most patients require hospitalization and antiemetic and even short term steroid therapy. Serious complications are rare but medical therapy is mandatory. Though it is rare but patient diagnosed with pernicious vomiting should be treated carefully as it can lead to maternal death also.

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