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Hyperemesis Gravidarum

Section 1: Introduction

Nausea and vomiting are not an unusual experience for pregnant women. It is estimated that up to 80% of pregnant women experience this common condition. For most, these symptoms are an uncomfortable nuisance and tend to resolve as the second trimester begins. For some pregnant women, however, extreme nausea and vomiting can cause adverse outcomes for the mother and baby. This excessive level of nausea and vomiting during pregnancy is called Hyperemesis Gravidarum, and it affects up to 3% of pregnant women (Liu et al., 2021). Nurses who care for pregnant women should understand what hyperemesis is, what risk factors there are, how some risk factors may be modified, diagnostic methods, treatment options, and appropriate interventions to promote optimal outcomes.

Section 2: What is Hyperemesis Gravidarum?

Hyperemesis gravidarum (HG) describes the condition of excessive nausea and vomiting during pregnancy that often leads to weight loss and significant dehydration. While morning sickness affects most pregnant women, it does not usually cause significant dehydration and weight loss. While typical morning sickness tends to resolve after the first trimester, HG tends to last further into the pregnancy. Symptoms of HG include severe nausea, vomiting more than three times per day, weight loss of more than 5% of pre-pregnancy body weight, not being able to tolerate food, dehydration, dizziness, decreased urine output, fatigue, syncope, headaches, hypotension, tachycardia, dry skin, confusion, and jaundice (Cleveland Clinic, 2023). This condition is more commonly diagnosed in Western countries (Jennings & Mahdy, 2023).

A woman experiencing HG is more likely to experience adverse perinatal outcomes. The risk for placental abruption is increased for women with HG.

Women experiencing HG may struggle to consume enough calories. As a result, they may experience significant weight loss, dehydration, and electrolyte imbalances. Women diagnosed with HG are at higher risk for antenatal and postnatal thromboembolism (Jansen et al., 2023).

Evidence suggests that exposure to HG in the second trimester increases the risk of adverse outcomes for the offspring (Porgador et al., 2024). HG is associated with low birth weight and pre-term birth (Nijsten et al., 2022). Infants exposed to HG in utero are more likely to be admitted to the neonatal intensive care unit and are at higher risk for necrotizing enterocolitis, hypoglycemia, and jaundice, requiring phototherapy. There is also a significantly higher risk of needing neonatal resuscitation (Jansen et al., 2023). A systematic review published in 2022 found that in-utero exposure to HG had a strong association with anxiety disorder and sleep difficulties for children (Nijsten et al., 2022). Researchers have also found that children who were exposed to HG were more likely to have abnormal brain growth, neurodevelopmental delay, autism spectrum disorder, childhood cancers, and respiratory disorders (Fejzo, 2024). Children exposed to HG had 1.21 times greater risk for any hospitalization before the age of 16 compared to children who had not been exposed to HG. The risk for hospitalization due to neurologic, developmental, digestive, and other causes was specifically increased compared to control groups (Auger et al., 2024). A study that evaluated infants' ability to focus their attention during play was decreased for infants exposed to HG during gestation compared to those who had not (Reissland et al., 2023).

Hyperemesis gravidarum does not only affect physical health; it also impacts the mother’s mental health. Long-lasting mental health challenges can occur due to the mother’s experience with HG. In a study published in 2020, women with HG were over 8 times more likely to experience symptoms of depression while pregnant and more than 4 times as likely to experience postpartum depressive symptoms (Mitchell-Jones et al., 2020). Symptoms of PTSD have been found in

approximately 18% of mothers who experienced HG. Family planning can be affected by HG, as women may delay another pregnancy or choose not to become pregnant again due to their experience with HG. Women experiencing HG were 50% more likely to terminate their pregnancy and were at increased risk for suicidal ideation (Jansen et al., 2023).

Severe HG can lead to Wernicke-Korsakoff syndrome. This memory disorder occurs when the brain is damaged due to a lack of thiamine (vitamin B1), which inhibits the body's ability to convert food to energy. This syndrome occurs in two phases. The first is Wernicke encephalopathy (Cleveland Clinic, 2022b). This acute neurological condition results in symptoms of ataxia, ophthalmoplegia with nystagmus, and confusion. If left untreated, this condition typically leads to the second stage, Korsakoff syndrome, a neuropsychiatric disorder that includes anterograde and retrograde memory deficiencies. Immediate memory is retained, though short-term memory is affected (Vasan & Kumar, 2023). As a result, the patient will experience confabulation, a neuropsychiatric disorder in which the patient will fabricate a false memory. However, they do not intend to deceive the person they communicate with. For example, when a patient experiencing confabulation is asked how they acquired a laceration on their knee, they may state they were in a car accident when, in fact, they fell on the sidewalk. This disorder is known as "honest lying" since the patient does not intend to be deceitful (Wiggins & Bunin, 2023). This life-threatening disorder must be treated immediately to lessen the risk of permanent disability or death (Cleveland Clinic, 2022b). Research has shown that the mortality rate for Wernicke-Korsakoff syndrome is approximately 50% for offspring and 5% for the mother (Jansen et al., 2023).

Section 2 Personal Reflection

How does Hyperemesis gravidarum differ from usual morning sickness? How does HG affect physical health? How does it affect mental health? How does HG affect the offspring? Left untreated, what are the potential consequences of HG?

Section 3: Risk Factors

Although the exact cause of HG is unknown, scientists believe multiple contributing factors exist (Jansen et al., 2023). Many scientists believe rising hormones significantly contribute to the incidence of HG. There is evidence to support genetic and non-genetic risk factors (Fejzo, 2024). It was previously commonly thought that human chorionic gonadotropin (HCG) was to blame for the incidence of HG. However, recent research has found an inconsistent association between the severity of HG and HCG levels (Jansen et al., 2024).

The most significant risk factor for Hyperemesis Gravidarum is having a first-degree relative, such as a mother or sister, with a history of HG (HER Foundation, 2022a). A woman whose mother had HG is at three times higher risk for experiencing HG. A woman whose sister experienced HG during pregnancy is 17 times more likely to experience HG (Liu et al., 2021). Women who experience nausea when taking medications that contain estrogen are at increased risk for HG. Women prone to motion sickness and migraines are also at increased risk (Jennings & Mahdy, 2023).

A recent genome-wide association study has confirmed that a genetic factor contributes to HG. The gene responsible for GDF15 (growth differentiation factor-15), the placenta and appetite hormone, had a common coding variant specific to HG. The placenta produces GDF15, which increases dramatically in the first trimester. This activates the area of the brain responsible for nausea and

vomiting through the GDF15/GFRAL/RET pathway, which is the same pathway that contributes to these symptoms for patients with cancer. This gene can help clinicians identify women at risk for HG and diagnose the condition (Fejzo, 2024). As a new clinical discovery, future research regarding GDF15 and its role in HG will be valuable in providing new information regarding the cause of HG.

There are physical risk factors for HG. Women who are younger, under age 20, at the time of their pregnancy, are at higher risk for HG. Women pregnant with a single female fetus are 1.2 times more likely to experience HG than women pregnant with a single male fetus. Pregnancy with multiples increases the risk of HG by double but does not significantly impact the overall risk of HG. Women who had experienced HG in a previous pregnancy were nine times more likely to experience HG in subsequent pregnancies. Those who had been hospitalized due to HG during their previous pregnancy were more than 15 times more likely to be hospitalized for HG in subsequent pregnancies (Pont et al., 2024). Women with pre-existing thyroid and parathyroid dysfunction, hypercholesterolemia, and Type 1 Diabetes are at increased risk for HG (Jansen et al., 2024).

Some lifestyle factors can influence the risk of HG. Women who are underweight, overweight, obese, have preexisting diabetes, asthma, autoimmune disorders, and psychiatric disorders are at increased risk for HG. Women with hypertension did not have an increased risk for HG. Women who underwent assisted reproductive technology were at a decreased risk for HG (Pont et al., 2024).

A diagnosis of Helicobacter pylori infection may contribute to HG symptoms (Jansen et al., 2024). H. pylori is a commonly found bacteria known to attack the stomach lining. Most infections are considered harmless, but evidence suggests that most women with HG are also seropositive for H. pylori. However, no association has been found between seropositivity and the duration of the

symptoms associated with HG. Other studies have not found a correlation between H. pylori seropositivity and the incidence of HG (Liu et al., 2021).

A rare condition called gestational trophoblastic disease may occur during pregnancy and can increase the risk of HG (Cleveland Clinic, 2023). It is characterized by a group of rare tumors that develop in early pregnancy when abnormal changes occur in the trophoblast cells, which are responsible for the development of the placenta. Most of these tumors are benign. The pregnancy result of this condition is usually a hydatidiform mole or molar pregnancy, but it can also cause choriocarcinoma, a placental site trophoblastic tumor, or an epithelioid trophoblastic tumor (Cleveland Clinic, 2022a).

Some risk factors for HG may be modifiable. There has been conflicting evidence to support that maternal smoking could increase the risk for HG. Underweight women are at higher risk for HG, so it may be recommended to advise patients to attain a BMI within the typical range to lessen their risk (Kim et al., 2020); however, other sources state that women who weigh more than 170 lbs are at increased risk (HER Foundation, 2022a). Evidence supports the idea that alcohol consumption decreases the risk of HG hospitalization. This practice is not recommended, though this information may be valuable in developing treatments for HG (Kim et al., 2020). Other modifiable risk factors may include a diet high in saturated fat and excessive social stress (HER Foundation, 2022a).

Section 3 Personal Reflection

What are genetic risk factors that increase the likelihood of experiencing HG? How can the discovery of the association between GDF15 and HG inform providers regarding the cause of HG? What are the physical risk factors for HG? Why do you think there is conflicting evidence in the literature regarding risk factors for HG?

How does identifying the role of GDF15 in HG help make sense of conflicting evidence of other risk factors? What are the few modifiable risk factors for HG?

Section 4: Diagnostics

Providers diagnose Hyperemesis Gravidarum by collecting a medical history, including estimated gestational age, history of complications in prior pregnancies, frequency, and severity of nausea and vomiting, as well as asking about what interventions they have attempted and what the results of those were (Jennings & Mahdy, 2023). The clinician will perform a physical exam, assessing vital signs and the patient's weight. Monitoring weight can help determine the percentage of weight the patient has lost from their pre-pregnancy weight (Cleveland Clinic, 2023). The physical exam should also include fetal heart rate monitoring, depending on gestational age, and assessment of fluid status. Blood pressure, heart rate, mucous membrane dryness, capillary refill, and skin turgor can be used to determine the level of dehydration, if any, the patient is experiencing. If the patient is experiencing abdominal tenderness, pelvic tenderness, or vaginal bleeding, the practitioner should continue to assess for an alternative diagnosis (Jennings & Mahdy, 2023). An ultrasound may be used to determine if there is a multiple pregnancy, signs of gestational trophoblastic disease, or ectopic pregnancy (Cleveland Clinic, 2023). An MRI may be ordered to determine if appendicitis is the cause of illness (Jennings & Mahdy, 2023).

Certain lab tests may help the clinician as they determine a diagnosis. A urinalysis should be completed to assess for ketonuria and the specific gravity of the urine. A complete blood count and electrolytes should also be evaluated. If the patient is dehydrated, the provider can expect an elevation in hematocrit or hemoglobin. Elevated serum creatinine, blood urea nitrogen, and reduced glomerular filtration may indicate acute kidney injury due to dehydration. Prolonged vomiting episodes

with little fluid intake can alter potassium, calcium, magnesium, sodium, and bicarbonate. The practitioner may also order thyroid, lipase, and liver function tests to consider alternative diagnoses (Jennings & Mahdy, 2023).

A Pregnancy-Unique Quantification of Emesis and Nausea (PUQE) survey tool may be used to determine how the patient's quality of life is influenced by their condition (Ogunyemi, 2024). Another tool that may be used is Health-Related Quality of Life for Nausea and Vomiting during Pregnancy (NVP-QOL). These assessment tools can help assess the severity of the patient's nausea and vomiting by determining how it affects their daily life. The PUQE-24 tool evaluates three symptoms, nausea, vomiting, and retching, within a 24-hour period. The patient tracks the length of time they experienced nausea during the evaluation period, the number of times they vomited, and the number of retching episodes (Hada et al., 2021). A PUQE score less than or equal to 6 indicates mild symptoms, a score of 7-12 indicates moderate symptoms, and a score of 13 or greater indicates severe nausea and vomiting during pregnancy (Liu et al., 2021). The Hyperemesis Level Prediction (HELP) tool was developed to help quantify HG symptoms over time and provide context to monitor symptoms and evaluate the success of treatments (HER Foundation, 2022b). The NVP-QOL tool uses a seven-point scale to measure thirty items within a week that help to determine the quality of life for a pregnant woman experiencing nausea and vomiting. A higher score on this tool indicates more disruption to the patient's daily activities and a decreased quality of life. The NVP-QOL and PUQE-24 are concurrently valid tools that can help providers determine the severity of HG the patient is experiencing (Hada et al., 2021). The Hyperemesis Level Prediction (HELP) scale may be more accurate when evaluating for severe symptoms (Liu et al., 2021).

There are specific criteria used for diagnosing HG. The Fairweather criteria, presented in 1968, was used to diagnose HG for decades. This includes more than three episodes of vomiting per day, weight loss, ketonemia, electrolyte imbalance,

and volume depletion, with onset between weeks four and eight of the pregnancy. Recent research, however, has found that ketonuria does not necessarily indicate the severity of HG. In 2021, an international consensus was reached regarding the definition of HG to standardize the condition for clinical trials. The consensus reached is called the Windsor definition and will be significant as more research is conducted to study ways to treat HG. This diagnostic criterion requires a patient present with nausea and vomiting, at least one of which is described as severe, inability to eat or drink normally, the condition strongly affects the patient's daily activities, and symptoms begin before 16 weeks of gestation. Signs of dehydration may or may not be present according to the Windsor definition (Jansen et al., 2023).

Section 4 Personal Reflection

What are the signs and symptoms of HG? How can survey tools help diagnose and monitor symptoms associated with HG? Why are specific criteria necessary for diagnosing HG? How can specific diagnostic guidelines strengthen the evidence found in future clinical studies?

Section 5: Treatments

Hyperemesis gravidarum should be treated to prevent dehydration and malnutrition, which may contribute to further adverse outcomes, or when the severity of HG dramatically affects the patient's quality of life and their ability to perform their daily activities (Jansen et al., 2024). The American College of Obstetrics and Gynecology (ACOG) provides guidelines for treating nausea and vomiting during pregnancy. It is recommended that non-pharmacologic interventions be used before prescribing medications (Jennings & Mahdy, 2023). Unfortunately, there is no consistent evidence to support any one intervention for

treating HG, so treatment is focused on minimizing nausea and vomiting (Jansen et al., 2024). Fetal growth should be monitored for women who experience HG symptoms through their second and third trimesters, as women who experience inadequate weight gain during pregnancy are at increased risk for premature birth and low birth weight (Nelson-Piercy et al., 2024).

For mild cases of HG, non-pharmacologic interventions may be recommended to manage symptoms. Wearing a pressure-point wristband may help through acupressure (Cleveland Clinic, 2023). Studies have found that acupressure was more effective than placebo in reducing PUQE score and was associated with less use of antiemetics (Jansen et al., 2024). Acupressure and acupuncture treatment utilize the PC-6 traditional Chinese medicine point, located approximately 2 cm above the transverse crease of the wrist. According to the traditional principle of Qi, applying pressure to this point can block abnormal energy, thus reducing nausea and vomiting. Acupuncture and acupressure are both effective at the PC-6 point in treating nausea associated with pregnancy (Liu et al., 2021).

Some recommendations may help with symptoms of HG, though the evidence is limited for many commonly recommended options. Ginger chews or tea may help alleviate nausea (Cleveland Clinic, 2023). Although the evidence supporting the use of ginger to treat HG is inconsistent, ginger presents no known risk to the fetus. In an internet-based survey of mothers who used ginger, some women reported adverse physical or psychological effects (Jansen et al., 2024). It is also recommended that the patient discontinue using a traditional prenatal vitamin and instead supplement with folic acid alone (Jennings & Mahdy, 2023). Dietary changes may also help manage symptoms. Small, frequent meals every two hours can help improve food tolerance. Eating dry and bland foods can also help to reduce nausea. Foods high in fat can worsen symptoms. Patients may also be able to determine potential triggers, like certain smells or riding in the car. Avoiding food or activities that cause nausea is recommended (Cleveland Clinic, 2023).

More research is needed to provide evidence to support the recommendation of these interventions.

Medications to treat HG are similar to those used to treat nausea and vomiting in other conditions, though the medications prescribed must be safe to use during pregnancy (Jansen et al., 2024). Some over-the-counter medications may be recommended to relieve symptoms if non-pharmacologic interventions are unsuccessful. Pyridoxine (vitamin B6) and doxylamine (Unisom) are commonly used to reduce nausea (Clinic, 2023). They are Pregnancy Category A medications, meaning they are safe to use during pregnancy (Jennings & Mahdy, 2023). Pyridoxine and doxylamine should be used concurrently, as evidence suggests this combination is more effective than pyridoxine alone (Nelson-Piercy et al., 2024). Prescribing options include:

- 10-25 mg pyridoxine with 12.5 mg doxylamine orally 3-4 times per day
- 10 mg pyridoxine and 10 mg doxylamine orally up to four times per day; OR
- 20 mg pyridoxine and 20 mg doxylamine orally twice per day

  (Jennings & Mahdy, 2023)

The prescriber may try second-line treatment options if these medications do not improve symptoms. These include antihistamines and dopamine agonists. Options include:

- 25-50 mg diphenhydramine (Benadryl) orally every 4-6 hours
- 25-50 mg dimenhydrinate (Dramamine) orally every 4-6 hours
- 25 mg prochlorperazine (Compro) rectally every 12 hours
- 12.5 to 25 mg promethazine (Phenergan) orally or rectally every 4-6 hours

  (Jennings & Mahdy, 2023)

Metoclopramide (Reglan), ondansetron (Zofran), and promethazine (Phenergan) may be used orally if there is no concern for dehydration. If there is clinically significant dehydration, an intravenous fluid bolus of normal saline with added potassium chloride should be administered alongside IV metoclopramide, ondansetron, or promethazine. Some studies have found that ondansetron may be more effective than pyridoxine and doxylamine in reducing nausea and vomiting for all severity levels of HG. As a result, ondansetron is becoming more commonly prescribed for patients with HG. However, pyridoxine and doxylamine continue to be the first-line treatment for HG because the use and safety of these medications are well-established. These medications also have fewer side effects compared to ondansetron (Nelson-Piercy et al., 2024).

Intravenous rehydration may be necessary for patients experiencing HG and can be administered in an inpatient or outpatient setting. Normal saline (0.9%) with additional potassium chloride is often used for rehydration because patients with HG who require IV rehydration often present with hyponatremia, hypochloremia, and hypokalemia. Fluid volume guidelines for rehydration of women with HG are consistent with typical adult rehydration guidelines. Dextrose-containing solutions are not recommended and can contribute to Wernicke encephalopathy in thiamine-deficient women (Nelson-Piercy et al., 2024). If necessary, electrolytes may be replaced via the IV route. Severe cases of HG may be treated with intravenous or intramuscular administration of 25-50 mg chlorpromazine (Thorazine) (Jennings & Mahdy, 2023). Intravenous or orally administered 16 mg methylprednisolone (Solu-medrol) every eight hours may also be used to treat HG (Jennings & Mahdy, 2023). Intravenous thiamine supplementation is recommended for hospitalized patients receiving IV fluids (Jansen et al., 2024).

Women experiencing severe malnutrition due to HG may require supplemental nutrition. This may include the placement of a feeding tube or total parenteral intravenous nutrition (Clinic, 2023). Nutrition therapy is indicated for women who

continue to have severe nausea and vomiting despite IV rehydration and antiemetic therapy, persistent ketonuria, and lack of improvement in oral nutrition tolerance. Tube feedings are preferred when treatment is expected to be necessary for the long term. A gastric or jejunal tube may be placed through gastroscopy. Nasojejunal feeding may also reduce vomiting during pregnancy. An endoscopic jejunostomy tube may reduce gastric residual volume, which can also prevent vomiting during pregnancy. Tube feeding is not routinely used during pregnancy, as many women report discomfort with this therapy (Liu et al., 2021).

Corticosteroids have been shown in some studies to produce rapid and significant improvement in nausea and vomiting for women whose symptoms have not responded to other treatments. However, studies have found that corticosteroids may not affect rehospitalization rates. Corticosteroids should not be used to treat HG until after first- and second-line treatments, including intravenous rehydration, have been tried unsuccessfully. Intravenous hydrocortisone may be given twice daily in 100 mg doses. Once symptoms have been reduced, the patient can use 40-50 mg oral prednisolone daily. From this point, the provider can wean the dose until the lowest dose that provides symptom relief is found. Corticosteroids have not been studied as robustly as antiemetics, but evidence suggests they are safe to use in early pregnancy (Nelson-Piercy et al., 2024).

Proton pump inhibitors were found to significantly reduce PUQE scores and positively impact scores measuring well-being. Reducing acid symptoms correlated with reducing nausea and vomiting. Omeprazole (Prilosec OTC) and lansoprazole (Prevacid) are considered safe for use during pregnancy (Jansen et al., 2024).

Selective serotonin reuptake inhibitors (SSRIs) and mirtazapine (Remeron) are currently being studied to treat HG. They are not known to cause congenital anomalies but may cause maternal weight gain or preterm birth. Antidepressants

may be used when nausea disturbs sleep or when the inability to sleep worsens the patient's nausea (Jansen et al., 2024).

Hospitalization should be considered for pregnant women with electrolyte imbalances. They may also need thrombosis prophylaxis, though many medications to prevent thrombosis are not safe for pregnancy (Jansen et al., 2024). Pregnant women experiencing HG should not be discharged from inpatient care until they have been able to tolerate treatment, their nausea and vomiting are controlled, and they can tolerate oral nutrition and hydration. Any concurrent conditions should also be managed prior to discharge. Failure to effectively reduce symptoms before hospital discharge increases the likelihood that the patient will require readmission. Up to one-third of women admitted due to symptoms of HG will be readmitted during the same pregnancy (Nelson-Piercy et al., 2024).

Patients with HG can benefit from individualized care. Consistent healthcare workers and an individualized care plan through the first and second trimesters can positively impact patients with HG. Through continuity of care, patients may experience improved physical and psychological well-being and are less likely to be hospitalized due to HG. They are also less likely to visit an emergency department needing care for HG symptoms (Jansen et al., 2024).

More research with larger cohorts is needed to provide clinical evidence for treatments for HG. Ongoing studies include evaluating the effects of ondansetron and mirtazapine on nausea and vomiting during pregnancy. A study is also being conducted to evaluate the impact chewing gum containing vitamin C may have on emesis during pregnancy (Jansen et al., 2024). Further research related to the incidence of H. pylori could benefit patients with HG. More evidence is needed to determine if the presence of H. pylori contributes to the development of HG or if it only exacerbates symptoms (Liu et al., 2021). Increased clinical trials to evaluate the effectiveness of acupuncture and acupressure on nausea and vomiting during

pregnancy may also provide more evidence for this treatment method (Liu et al., 2021). Exploration of ways to increase GDF15 before pregnancy may desensitize patients to the effects of rising levels. One method under current investigation is using metformin prior to pregnancy to facilitate desensitization to the rising GDF15 hormone. Understanding the interaction between GDF15 and GFRAL (a GDF15 receptor) could improve treatment methods (Fejzo, 2024).

Section 5 Personal Reflection

Why are non-pharmacologic interventions recommended before pharmacological interventions are prescribed? Why do you think certain interventions are recommended despite conflicting evidence of their effectiveness in treating HG? Why is it important to have hospital discharge criteria for HG? How can individualized care improve the experience of women with HG? How can further research related to HG treatment improve treatment guidelines for future patients experiencing HG?

Section 6: Nursing Interventions

Nurses can positively impact outcomes among women with hyperemesis gravidarum (HG) through various interventions. The lack of consistent research findings creates an opportunity for nurses to investigate some of the interventions that could improve symptoms for pregnant women. Well-constructed research studies would improve the body of evidence available to healthcare workers as they treat women with HG and improve their outcomes. Specifically, more research related to the GDF15-GFRAL axis is needed to further understand its influence on nausea and vomiting during pregnancy and possible treatment methods (Liu et al., 2021).

Patient education is an essential tool nurses can use to promote optimal outcomes for pregnant women experiencing HG. It is important for nurses to explain to patients that the results of non-pharmacologic treatments are varied; therefore, if they do not see improvement with one treatment, another treatment may be more successful. Nurses should also advise patients to continue to take medications that have been prescribed to treat nausea and vomiting, even if they are feeling less symptoms. For women who have been hospitalized due to HG, nurses should advise patients to continue their antiemetics after hospital discharge to reduce the risk of readmission (Nelson-Piercy et al., 2024). Patient education also needs to include symptoms that should be reported to the provider, including nausea that persists throughout the day and prohibits the patient from eating, vomiting three or more times per day for multiple subsequent days, weight loss, dizziness, and feeling faint or confused. Women should also report significantly reduced or dark urine output to their provider (Cleveland Clinic, 2023).

As previously discussed, symptoms of hyperemesis gravidarum can have a profound impact on women's psychological well-being. Women who were interviewed stated that a dedicated service that could provide support for HG, including education, would be impactful. This type of resource could improve symptom management and personalized care. Women also emphasized the need for clinical leadership and continuity of care through pregnancy and into the postpartum period. Women also expressed that improved mental health support while experiencing HG would be beneficial (Beirne et al., 2023). Nurses can advocate for their patients to improve these types of services and their availability to patients. Nurses can also support women through their experience with HG by listening, validating their experience, and providing evidence-based guidance. As more evidence-based research emerges regarding the cause, risk factors, and

treatment of HG, nurses can continue to educate their patients using the most recent information available.

Section 6 Reflection Questions

How can nurses impact the lack of current evidence regarding treatments for HG? What patient education points should be communicated to women experiencing HG? How can support for women with HG improve outcomes? How do these nursing interventions promote positive outcomes?

Section 7: Case Study

Miranda is a 19-year-old pregnant woman who presents to the clinic with her first pregnancy at nine weeks gestation. Miranda's pre-pregnancy weight was 130 lbs, and her current weight is 122 lbs. She reports feeling nauseous most of the day, is extremely tired, has headaches, and often feels dizzy. Miranda states she has been vomiting 4-6 times per day for the last two weeks. She states she has been urinating less often than usual. She states she has difficulty at work due to the intensity of nausea she has been experiencing. Miranda's nurse asks more questions about Miranda's family history. Miranda reports that her sister was pregnant two years ago and experienced hyperemesis gravidarum during her pregnancy. Miranda also has a history of anxiety and asthma. A PUQE tool is used with a resulting score of 14.

What are the risk factors Miranda has for Hyperemesis gravidarum?

This is Miranda's first pregnancy. She is under the age of 20 and in the first trimester of her pregnancy. She has a first-degree relative who has experienced HG. Since this relative is her sister, the risk for HG is even higher. Miranda also has two diagnoses that are known to correlate with HG.

What are some diagnostic criteria that Miranda has that suggest HG?

Miranda reports more than 5% weight loss from her pre-pregnancy weight. She reports nausea that inhibits her ability to perform daily activities. She expresses fatigue and complains of headaches and dizziness. Miranda reports more than three episodes of vomiting per day for multiple subsequent days. She also reports decreased urine output. Miranda has a score on the PUQE tool that indicates she is likely experiencing significant HG.

What non-pharmacologic treatment options will likely be recommended for Miranda?

Miranda's provider recommends using acupressure bands to alleviate her symptoms. She also recommends eating small, more frequent meals every two hours and bland, dry foods to improve her food tolerance. Her provider explains that ginger may or may not help, but she can try using ginger chews to reduce nausea.

What other studies might be ordered for Miranda?

Miranda's provider orders an ultrasound to rule out gestational trophoblastic disease or a multiple pregnancy. A complete blood count and metabolic panel are also ordered.

Miranda returns to the clinic four weeks later and continues to complain of severe nausea and vomiting. She now weighs 119 lbs. Upon assessment, her heart rate increased, and her blood pressure is decreased from her last visit.

What interventions can be expected for Miranda at this point?

Another blood panel is ordered, which reveals imbalanced electrolytes. A physical assessment also reveals multiple indicators that suggest Miranda is dehydrated.

Due to the electrolyte imbalance and dehydration, Miranda will need intravenous rehydration.

Miranda is admitted to the antepartum unit. She is receiving IV fluids in addition to oral pyridoxine and doxylamine to treat her severe nausea and vomiting. She is also receiving thiamine supplementation. After three days of therapy, Miranda is experiencing less nausea and very little vomiting. She has tolerated an adequate amount of oral fluid and nutrition.

Is Miranda ready for discharge?

Miranda has been rehydrated using IV fluids and can tolerate food and fluids while using an oral treatment option.

What is important for the nurse to communicate to Miranda when sharing discharge teaching?

The nurse should emphasize the necessity of continuing the oral pyridoxine and doxylamine, even when symptoms have improved. The nurse advises Miranda that discontinuing these medications too early can result in readmission.

If the pyridoxine and doxylamine therapy had not worked, what could have been used as a next step for pharmacologic treatment?

The provider would likely prescribe an antiemetic, such as ondansetron, as clinical evidence has supported using this medication as a second-line treatment. Further treatment could include corticosteroids.

What other supplementation might be necessary?

If the provider has instructed Miranda to discontinue using her prenatal vitamin, she will likely be recommended a folic acid supplement. Due to the severity of her symptoms, Miranda will probably be encouraged to take thiamine supplements as well.

How can the nurse support Miranda's psychological health through this experience?

The nurse validates Miranda's concerns regarding her health and the health of her child. The nurse can share resources with Miranda, such as an online support group, where she can find support. The nurse communicates with the provider and Miranda to create an individualized care plan to reduce the risk of hospital readmission. The nurse advocates for her patient by requesting that Miranda see the same provider through her second trimester, as continuity of care is known to positively impact the physical and psychological symptoms of hyperemesis gravidarum.

Miranda delivers a smaller-than-average, healthy baby girl three weeks before her due date. At her follow-up appointment post delivery, Miranda wants to discuss her risk of experiencing hyperemesis gravidarum in the future.

What information can the healthcare team share with Miranda regarding her risk for HG in future pregnancies?

There is a high incidence of recurrence for HG in subsequent pregnancies. Since Miranda is now 20, her risk for HG is decreased for future pregnancies. HG is also known to be more common for women pregnant with female offspring.

How can Miranda prevent a recurrence of HG?

Unfortunately, there is very little a woman can do to prevent HG. Miranda is encouraged to maintain a healthy weight prior to her next pregnancy. She may also be prophylactically treated for H. pylori prior to her next pregnancy, as some evidence shows H. pylori can exacerbate symptoms of HG.

Section 8: Conclusion

Though hyperemesis gravidarum affects a small portion of pregnant women, it has a significant impact on the health and daily life of women who experience this rare pregnancy complication. Understanding the potential causes, risk factors, diagnostic methods, treatment options, and needs of women with hyperemesis gravidarum can improve nursing practice and promote optimal outcomes. More research is warranted in all aspects of hyperemesis gravidarum. As the healthcare community learns more about this condition and more effective ways to treat it, nurses can lead the charge in discovering and implementing new strategies to promote the health of both the pregnant mother and her offspring.

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