

NAUSEA/VOMITING OF PREGNANCY ALGORITHM

(HELP <20)

1. B6/Pyridoxine with or without doxylamine: (**Select ONE**)
 - Pyridoxine 10–25 mg PO (with or without Doxylamine 12.5 mg PO), 3 or 4 times per day.
 - Pyridoxine + Doxylamine 10 mg, two tablets PO at bedtime, add one tablet in AM & afternoon prn.
 - Pyridoxine + Doxylamine 20 mg, one tablet PO at bedtime, add AM tablet prn.
2. Lipothiamine/Benfotiamine 10-100 mg PO 1-3 times per day. (250 mg daily minimum after 20 weeks)
3. Continue prenatal vitamin with iron and B Complex until not tolerated → Switch to methylated folic acid.
4. Add gastric/esophageal protection at bedtime with onset of vomiting. (See shaded box below.)



Add up to 1 from each class:

1. Antihistamine (discontinue doxylamine before adding)
 - *Dimenhydrinate* 25-50 mg q 4–6 hours PO or PR (limit to 200 mg per day if taking doxylamine)
 - *Diphenhydramine* 25–50 mg PO q 4–6 hours
 - *Meclizine* or *Cyclizine* 25 mg PO q 6–8 hours
2. Dopamine Antagonist (Use only 1 at a time or alternate)
 - *Metoclopramide* 5-10 mg q 6-8 hours PO or ODT
 - *Promethazine* 25 mg q 4-6 hours PO or PR (avoid IM/IV)
 - *Prochlorperazine* 5-10 mg q 6-8 hours PO or 25 mg twice daily PR

Add a daily bowel regimen and serotonin antagonist:

1. Bowel Regimen: Stool softener 1-3x/day + Laxative prn (1-3x/week); consider magnesium supplement (*Triple Mg*) prn.
2. *Ondansetron* 4-8 mg q 6-8 hours PO or ODT, continuous subcutaneous infusion, or ODT given vaginally **OR**
2. *Granisetron* 1 mg q 12 hours PO or 3 mg TD patch

Consider NUTRITION (see below) and one of the following:

1. *Mirtazapine* 15 mg q 8 hours PO or ODT (Dose not established for HG. Discontinue other serotonin antagonists.)
2. *Steroids* (if 9+ weeks) q 8 hours PO or IV for 3 days. Taper over 2 weeks to lowest effective dose and maintain. Avoid duration exceeding 6 weeks. Extended low dose may help.
3. *Prochlorperazine* 5-10 mg PO q 6-8 hours
4. *Chlorpromazine* 25–50 mg IV or 10–25 mg PO q 4-6 hours

GERD or gastric/esophageal protection:

1. Calcium Antacid (avoid Aluminum, Bismuth or Bicarbonate) **AND/OR**
2. H2 antagonist BID: *famotidine* 20-40 mg PO **AND/OR**
3. Proton Pump Inhibitor (PPI) q 24 hours at bedtime
 - *esomeprazole* 30-40 mg PO or IV
 - *lansoprazole* 15-30 mg PO or ODT
 - *pantoprazole* 40 mg PO or IV

Select IV fluids and dilute vitamins; infuse slowly:

1. Banana Bag + Vit B6 + Vit B1 + Vit B3
2. NS or Lactated Ringers + MVI + B Vit: B1, B2, B3, B6, B9
3. D5NS or D5LR + MVI + B Vit: B1, B2, B3, B6, B9
 - Add prn: KCl, Na, Vit K, Vit D, Zn, Se, Fe, Mg & Ca.
 - Always give 200 mg B1 with IV dextrose (prevent WE).
 - Slowly replace low/marginal electrolytes (prevent CPM).
 - Restrict PO intake for 24-72 hours for gut rest.
 - Consider midline or central line for frequent IVs.

If not responding to or tolerating oral meds, change to:

1. *Thiamin* 100-500 mg IV 3 times daily
AND ONE OF THE FOLLOWING with a daily bowel regimen
2. *Ondansetron*:
 - IV: 8 mg over 15 minutes q 12 hours or 4 mg q 6 hours IV or continuous infusion
 - Subcutaneous (SubQ) continuous infusion: 8 mg starting dose, then 12-40 mg/day; wean slowly to PO if stable
3. *Granisetron* 1mg q 12 hours IV/continuous or transdermal **If needed, add one or both of these meds:**
4. *Dimenhydrinate* or *Diphenhydramine* (in 50 mL saline, over 20 min) q 4–6 hours IV
5. *Metoclopramide*:
 - IV: 5–10 mg q 8 hours SLOW push/infusion
 - SubQ continuous infusion: 5-10 mg starting dose, then 20-40 mg/day; wean slowly to PO when stable

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NUTRITION - If weight loss ≥10% and/or persistent HG, consult with GI & Nutrition & IV Therapy:

1. *Enteral therapy*: Gradually increase infusion (after resting GI tract) with or without additional parenteral/enteral fluids. (NJ or J/G-tube preferred). Use small bore tube if nasal.
2. *Intravenous fluids and/or parenteral nutrition*
 - Continue until gaining weight on PO intake and meds.
 - Prevent Refeeding Syndrome: Slowly restart nutrition & monitor weight, cardiac rhythm and electrolytes (Phos!).

Disclaimer: This is not medical advice. Do not change your diet, treatment or lifestyle without consultation from your medical provider.

IMPORTANT NOTES:

1. If symptoms persist, follow arrows to next level of care and consider non-oral forms of medications such as compounded, transdermal, IV, or SubQ. Always wean meds slowly.
2. After IV therapy, use non-oral options or move slowly to oral medications if tolerated.
3. Most medications can cause QT prolongation, consider EKG or cardiac monitoring for high risk patients, high doses, multiple medications, or electrolyte abnormalities.
4. Intramuscular injections (IM) not recommended due to muscle atrophy and pain sensitivity.
5. Dehydration and nutrient (e.g. electrolytes) deficiencies decrease medication effectiveness.
6. Weaning too early or rapidly may result in worsening or refractory symptoms.
7. HELP = HyperEmesis Level Prediction Score. Learn more: www.hyperemesis.org/tools.



HER
Foundation

The global voice of HG

www.hyperemesis.org/tools
Email: info@hyperemesis.org

Hyperemesis Gravidarum (HG) is usually diagnosed if a patient has nausea and vomiting that requires medication and/or intravenous therapy due to severe nausea and vomiting with weight loss and debility. Failure to adequately treat may result in refractory and prolonged symptoms, along with serious complications for both mother and child. HG is caused in part due to genes (e.g. GDF15) that reduce appetite, alter taste, and cause nausea, vomiting and muscle wasting. Additionally, critical nutrient deficiencies (e.g. B1, magnesium, and potassium) worsen symptoms and may increase GDF15 hormone levels. (hyperemesis.org/research/#cause)

ANTIEMETIC ESSENTIALS

1st: Δ dose/frequency

2nd: Δ route (SubQ, TD, rectal, IV)

3rd: Add/replace a medication

- Avoid abrupt Δ's in 1st trimester.
- Wean over 2+ weeks if asymptomatic.
- Prevent/proactively treat side-effects.
- Give IV fluids slowly and dilute irritating medications.
- Try non-oral meds and continuous antiemetic infusions.
- **Cocktail:** Antihistamine + 5HT3 antagonist + acid reducer + promethazine OR metoclopramide.

Once stable for 2 weeks on IV or subcutaneous infusions, try transitioning to oral or SubQ, then if fails return to IV. Wait 2-4 weeks or until symptoms improve for 2 weeks before weaning again. Repeated failures to wean in later pregnancy may indicate a patient will need medications until delivery.

Kimber's RULE OF 2'S

Wean medications for HG:



Over 2+ weeks



After 2+ weeks
without symptoms



In 2nd trimester
or later

PREVENT OR TREAT ADDITIONAL ISSUES

Issues: ptialism, GERD, encephalopathy, gastroparesis, UTI, insomnia, helicobacter pylori, nutrition/electrolyte deficiencies, embolus (prolonged bedrest)

Medication side-effects: severe constipation, serotonin syndrome, anxiety, headache, extrapyramidal symptoms, arrhythmias



The Genes Have Spoken:
**not in her HEAD
but in her GENES**

EDUCATE PATIENTS

- Symptom relief not 100%
- Most meds don't help nausea
- Multiple meds typical
- May need non-oral meds
- Dose changes common
- Dosing same in pregnancy
- Don't discontinue abruptly
- Meds possible until delivery

I's of IMMEDIATE INTERVENTION

- Inability to tolerate antiemetics
- Intake of ≤1 meal/day
- Inadequate UOP/ketonuria
- Increased weight loss (>2 lbs (1 kg) per week)
- Inability to cope or function
- Increasing HELP Score

Δ = Change
IM = Intramuscular
SubQ = Subcutaneous
IV = Intravenous
TID = 3 times/day
MFM = Maternal-Fetal Medicine
GERD = gastroesophageal reflux disease
UTI - Urinary Tract Infection

WE = Wernicke's encephalopathy
ODS = Osmotic Demyelination Syndrome
UOP = urine output
GI = gastrointestinal
PTSD = Post Traumatic Stress Disorder
PMAD = Perinatal Mood/Anxiety Disorder
HELP Score = HyperEmesis Level Prediction Score (hyperemesis.org/tools)

WE/ODS ESSENTIALS ****Screen each visit****

Causes: Thiamin and electrolyte deficiency/shifts

Risks: infection, diuretic, malabsorption, atrophy, malnutrition

Signs: Change in vision or speech or gait or mental status, abdominal pain, headache, cardiac symptoms (tachy then brady), somnolence, dizziness, weakness, aphasia, tremor, irritability, spastic paresis, seizure, myalgia, myoclonus, anorexia, dysphagia, elevated transaminase, refractory HG

Prevention/Ongoing Recovery: oral/IV thiamin 100-250 mg 1-3x daily; continue until consistent healthy diet for several months after HG resolves. Take during breastfeeding.

Acute Care: Thiamin 500+ mg IV TID until asymptomatic, 5+ days. (See WE & Thiamin Fact Sheets. hyperemesis.org/tools)

SUMMARY

1. Changing medications abruptly or frequently may cause symptoms that are worse or refractory.
2. Effectiveness changes with increased doses or frequency, changes in route or medication combinations.
3. Scheduled dosing and non-oral medications are beneficial.
4. Inadequate nutrition and hydration often reduce medication response and worsen symptoms.
5. Side-effects are better prevented than managed.
6. If a history of HG or severe symptoms, rapidly intervene and move to non-oral medications if orals not tolerated.
7. Wean each medication separately and slowly after 2+ weeks of minimal symptoms with adequate intake and hydration.
8. Medication and IV therapy may be needed until delivery.
9. Listen as women can offer valuable insight into their care.
10. HG is traumatic so treat with compassion and refer to the HER Foundation for resources. hyperemesis.org/support

COMFORT MEASURES

- Private room (avoid triggers)
- Avoid IM injections (atrophy)
- Warm IV fluids/blankets
- Use lidocaine for IVs
- Offer preferred foods when feeling least ill

CONSULTS/ADJUNCTIVE CARE

Consults: GI, nutrition, home health, mental health (PTSD/PMAD), perinatology/MFM

Adjunctive care: hypnosis, acupuncture, homeopathy, osteopathic manipulation

SELECTED REFERENCES:

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