Hyperemesis Gravidarum Management Protocol

**REHYDRATE METHODICALLY**
- Banana Bag + Vit B6 + Vit B1
- Myer’s Cocktail + 1 ampule MVI
- D5NS or D5LR + 1 ampule MVI + Vit B6 + Vit B1
  *Add as needed: Vit K, Vit D, zinc, selenium, iron, magnesium and calcium*

**IMPLEMENT COMPASSIONATE CARE**
Women with HG are miserable for months and their concerns and requests should be taken seriously. Every possible comfort should be taken to minimize unnecessary suffering. Compassionate and effective treatment prevents therapeutic termination, and influences if mother and baby will suffer from physical and psychological complications (e.g. organ damage, trauma) during pregnancy and long-term.

**PRESCRIBE ANTIEMETIC MEDICATIONS**
Start with a drug targeting the main triggers (e.g. motion). If numerous triggers, and/or more severe symptoms, consider serotonin antagonists. Multiple meds may be needed simultaneously throughout pregnancy. Be proactive and aggressive early in pregnancy if she has a history of HG. See tiered medication list below.

**PREVENT OR TREAT ADDITIONAL ISSUES**
Issues: ptyalism, GERD, encephalopathy, gastroparesis, UTI, insomnia, h-pylori, cholestasis, debility, embolus
Medication side effects: severe constipation, serotonin syndrome, anxiety, headache, extrapyramidal symptoms

**UTILIZE HER FOUNDATION RESOURCES**
Share HER Foundation brochures & information (hyperemesis.org/info). Support email: help@hyperemesis.org. Utilize HELP Score and HER HG Assessment & Management Clinical Tools (hyperemesis.org/tools).

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**INPATIENT CARE**
- Weigh every 1-2 days
- Use comfort measures
- Rehydrate: LR or NS + MVI + B1/thiamin IV + B complex IV + electrolytes (treat mild deficiency)
- Consider midline OR central/PICC line
- Begin Enteral/Parenteral Nutrition
- Labs: Nutritional panel, CMP, electrolytes, urinalysis
- Consults: Nutrition, PT, GI, home health, IV team
- D/C: Intake >1 meal/day + adequate fluid intake OR nutritional therapy + no ketones & maintaining or gaining weight. Goal: HELP Score ≤20

**HOME CARE**
- Weigh Monday/Wednesday/Friday
- Complete HELP Score daily
- Nutrition/Fluids: Enteral (NG/NJ or PEG/J) or Parenteral Nutrition (TPN/TPPN) or PICC/midline + LR or NS + MVI + vit B1 IV + B complex IV
- Weekly labs if on TPN: CMP, electrolytes
- D/C: Intake ≥2 meals/day + adequate oral fluids + no ketones + weight gain. Goal: HELP Score ≤20

**OUTPATIENT CARE**

**FIRST VISIT**
- Establish compassionate rapport
- R/O: hydatiform mole (GTD), gall bladder & pancreatic disease, helicobacter pylori, hyperthyroidism
- Labs: Urinalysis, hormone levels, comprehensive metabolic panel (CMP), thyroid panel

**EACH VISIT**
- Assess with HELP Score & HER Clinical Tools
- Try prenatal with food or iron-free as tolerated
- Weigh at least weekly & trend % weight loss
- Labs prn dehydration: electrolytes, CMP, u/a, ketones
- Encourage active oral care (e.g. water flosser) & eval
- Evaluate & treat additional symptoms (see above)
- Check WE signs (esp. if infusing dextrose)
- Refer for consults & adjunctive care
- Diet: Encourage healthiest food tolerated, increase thiamin to 100 mg PO TID if high carbohydrate diet
- Review medications for tolerance/side-effects
- Monitor thiamin & vitamin K & electrolyte needs

**2nd & 3rd TRIMESTER**
- Labs: thyroid panel, iron, CMP
- PT consult: weakness/atrophy, birth prep
- Use alternate for Glucola (GTT), e.g. jelly beans, juice

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**Is patient: Eating ≤ 1 meal per day? Dehydrated? Losing ≥2lbs (1 kg)/week? Not responding to Rx?**

**YES**

**NO**

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see page two for more detailed information

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**ANTEIEMETIC ESSENTIALS**
- 1st: Δ dose/frequency
- 2nd: Δ route (SubQ, TD, compound)
- 3rd: Add/replace a medication
- Avoid abrupt Δ’s in 1st trimester
- Wean over 2+ weeks if asymptomatic
- Prevent/proactively treat side-effects
- Cocktail: 1st level meds + 5HT3 antagonist + Reglan or Phenergan

**1ST LINE MEDS**
- Antihistamine
- Acid reducer
- Vitamins B1 & B6 50-150 mg/day
- Rx’s successful in previous pg

**2ND LINE MEDS**
- Prokinetics (Reglan* 2.5-10 mg QID)
- Proton pump inhibitors (PPI)
- Serotonin antagonists (ondansetron 8 mg QID, granisetron 2 mg BID or TD)
- Promethazine* (Phenergan 25mg QID)
- Methylprednisolone (after 8 weeks)
- IV fluids/Nutritional therapy

**3RD LINE MEDS/EXPERIMENTAL**
**USE CAUTIOUSLY; SAFETY UNKNOWN**
- Phenothiazines* (e.g. chlorpromazine, prochlorperazine)
- Benzodiazepine (e.g. Diazepam)
- Neuroleptic (e.g. Inapsine)*
- Remeron (mirtazapine)
- Anticonvulsants (e.g. neurtontin)
- THC/marijuana (or Dronabinol Rx)
- Clonidine (Transdermal)

Δ = Change  
* Avoid combining. Prophylax w/antihistamines for anxiety; monitor for extrapyramidal symptoms & neuroleptic malignant syndrome.

**WERNICKE’S ESSENTIALS**
- Causes: Thiamin & electrolyte deficiency/shifts, infection, diuretics
- Signs: Δ in vision or speech or gait or mental status, abdominal pain, headache, cardiac symptoms, somnolence, dizziness, weakness, aphasia, tremor, irritability, spastic paresis, seizure, myalgia, myoclonus, anorexia, dysphagia, elevated transaminase
- Prevention: oral/IV thiamin ≥ 100 mg daily or TID; continue postpartum
- Acute Care: Thiamin 500 mg IV TID x7 days or until asymptomatic
- Diagnosis: MRI or response to B1 IV (MRI may be negative in early WE.)
- Result: Maternal & fetal morbidity or mortality (e.g. pre-eclampsia, SIDS)
- Onset: Acute (e.g. IV dextrose) or can be gradual/chronic mild signs

WE=Wernicke’s encephalopathy

**TPN/TPPN ESSENTIALS**
- Prevent Refeeding Syndrome
- Add MVI + B complex + extra B1 + Phosphorus + Mg + Vit D & K + Ca
- Labs: CMP weekly
- Strictly adhere to aseptic insertion technique & management protocols
- Red flags: chest pain, shortness of breath, temp ≥ 101 F (38.3 C) or ≤ 96.8 F (36 C), redness/swelling/rash

**ENTERAL ESSENTIALS**
- Prevent Refeeding Syndrome
- Check vitamin K & thiamin dose
- NJ: Small bore w/anesthesia
- May need extra IV or fluid boluses

Kimber’s RULE OF 2’S
Wean medications for HG:

- Wean each medication in 2nd trimester or later
- After 2 weeks with minimal symptoms
- Over 2+ weeks

**COMFORT MEASURES**
- Private room (avoid stimuli)
- Avoid IM injections (atrophy)
- Warm IV fluids/blankets
- Use anesthetic before IVs
- Midline/PICC vs. peripheral IV’s
- Offer preferred foods when least ill

**CONSULTS/ADJUNCTIVE CARE**
- Consults: GI, nutrition, home health, mental health (PTSD), MFM, PT
- Adjunctive care: hypnosis, acupuncture, osteopathic manipulation

**PATIENT/FAMILY EDUCATION**
- Daily: HELP Score
- Call if significant Δ in HELP Score
- Coping for psychosocial & debility
- Red flag signs: hematemesis, rapid weight loss, Δ in breathing or gait or vision or mental status, fever, chills, chest pain/arrhythmia, somnolence, oliguria, fainting, severe pain

**POSTPARTUM SUPPORT**
- Psych: Trauma/PPD support
- Nutrition: Thiamin + prenatal
- Evals: PT, thyroid, ND, nutrition, GI

**HG FACTS**
- Genetic links to IGFBP7 & GDF15 & RYR2 (cyclic vomiting syndrome)
- Diagnosis: dehydration, poor nutrition, weight loss, debility
- Fetal loss rate: 34%
- Termination rate: 15%
- Maternal Complications: atrophy, esophageal tear/rupture, organ rupture/failure, preeclampsia, sepsis, pneumomediastinum, gall bladder dysfunction, cardiac or liver disorders, neurological disease, hemorrhage, GI ulcer or infection, preterm labor & delivery, PTSD, rhabdomyolysis, severe dental damage, death
- Child Outcome Risks: IUGR, sensory & emotional & neurodevelopmental & behavioral disorders, vitamin K deficient embryopathy, stillbirth

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