

Pediatric gastroesophageal reflux disease (GERD)

Pathophysiology

1. Incidence/prevalence
 - GERD: 10%–20% children¹
 - Peak incidence at 4 months; usually self-resolves by 12–18 months¹
2. Risk factors
 - Preterm
 - Obesity
 - Chronic lung disease
 - Achalasia, hiatal hernia
 - Neurological impairment

Diagnostics

1. History
 - Infants
 - Spitting up, irritability, failure to thrive, stridor/wheezing/recurrent pneumonia¹
 - Toddlers/preschool age
 - Vomiting/abdominal pain
 - Poor appetite/feeding refusal¹
 - Children/adolescents
 - Abdominal/chest pain
 - Sour burps²
 - Wheezing/recurrent pneumonia/sinusitis²
2. Physical exam
 - Coughing/wheezing¹
 - Apnea and bradycardia
3. Diagnostic testing
 - Endoscopy (SOR: **C**)^{1,2}
 - Esophageal pH meter or manometry¹
4. Laboratory evaluation
 - CBC, UA, electrolytes, urea/creatinine, celiac screening (SOR: **C**)²
5. Diagnostic imaging
 - Barium or Tc99 swallow (SOR: **B**)^{1,2}

Therapeutics

1. Therapeutic lifestyle changes (TLC)
 - 59% with clinical improvement by 2 weeks³
 - Avoid tobacco smoke¹
 - Infant
 - Position
 - Upright after feeding¹
 - No prone sleeping (SIDS risk) (SOR: **A**)²

- Diet
 - Small, frequent feeds
 - Thicken feedings (cereal)/anti-regurgitant formula (SOR: **A**)^{1,2}
- Children and adolescents
 - Weight loss
 - Elevate head of bed (SOR: **B**)²
 - Avoid caffeine, chocolate, spicy food
- 2. Medical therapy
 - TLC failure¹
 - Medicate early if heartburn/asthma (SOR: **B**)²
 - Proton pump inhibitors (PPIs) first line¹
 - Not recommended if primary infant symptoms are cough/crying/irritability (SOR: **A**)^{2,3}
 - Adolescents: 4-week trial, then 3-month course if symptoms resolve (SOR: **D**)²
 - No PPI proven superior⁴
 - Omeprazole
 - 2–16 years
 - Esomeprazole/lansoprazole
 - 1–17 years
 - H2 blockers
 - Less effective than PPI (SOR: **A**)^{1,2}
 - Prokinetic medications¹
 - Adverse effects outweigh benefit (SOR: **C**)^{1,2}
- 3. Surgical treatment
 - Only if failed medical therapy or high aspiration risk (SOR: **C**)^{1,2}

Jason Domagalski, MD, FAAFP

UC Riverside FMR
Palm Springs, CA

Hillery Bavani, DO

Fort Benning FMR Martin Army Medical Center
Fort Benning, GA

Editor: Robert Marshall, MD, MPH

Madigan Army Medical Center
Tacoma, WA

REFERENCES

1. Lightdale JR, et al. *Pediatrics*. 2013; 131(5):e1684–e1695. [STEP 1]
2. Vandenplas Y, et al. *J Pediatr Gastroenterol Nutr*. 2009; 49(4):498–547. [STEP 1]
3. Orenstein S, et al. *J Pediatr*. 2009; 154(4):514–520.e4. [STEP 2]
4. Van der Pol RJ, et al. *Pediatrics*. 2011; 127(5):925–935. [STEP 1]