Gastroesophageal Reflux (GER)

Nationwide Children's
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Partners For Kids℠

Prescribing for Gastroesophageal Reflux

Prescribing medications to treat Gastroesophageal Reflux (GER) or symptoms of heartburn has become increasingly common and there is an array of options available. To address the chronic use and varying costs of these medications, Partners For Kids, in collaboration with Nationwide Children's Division of Pediatric Gastroenterology, have created this tool.

1. Maximize feeding changes and positional therapy in infants and dietary/lifestyle modifications in children/adolescents.
2. Trial Histamine-2 Receptor Antagonist (H2RA) such as ranitidine or famotidine. If improvement after 2 weeks, can continue for a maximum of 6 weeks. Chronic use (>6 weeks) of H2RAs not recommended due to potential for tachyphylaxis.

Histamine-2 Receptor Antagonist (H2RA)					
Drug	**Formulation**	**Strength**	**FDA Approved**	**Dosing**	**Cost/Month**
Ranitidine (Zantac®)	Tablet	75mg, 150mg, 300mg	≥ 1 month	5–10 mg/kg/d, divided in 2 to 3 doses[i]	$15
	Syrup	15mg/mL			$28
Famotidine (Pepcid®)	Tablet	10mg, 20mg, 40mg	≥ 1 year	1 mg/kg/d, divided in 2 doses[ii]	$19
	Suspension	40mg/5mL			$58
Proton Pump Inhibitors (PPI)					
Drug	**Formulation**	**Strength**	**FDA Approved**	**Dosing**	**Cost**
Omeprazole (Prilosec®)	Capsule	10mg, 20mg, 40mg	≥ 1 year	0.7–3.3 mg/kg/day[iii]	$18
Nexium 24HR® (OTC)		20mg			$20
Esomeprazole (Nexium®)		20mg, 40mg			$33
Lansoprazole (Prevacid®)		15mg, 30mg			$25
Compounded Omeprazole	Suspension	2mg/mL			$72
First® Omeprazole		2mg/mL			$72
First® Lansoprazole		3mg/mL			$83
Prevacid SoluTab®	Orally disintegrating tablet	15mg, 30mg			$498

3. If patient fails dietary/lifestyle modifications and a long term gastric antisecretory is required, begin a Proton Pump Inhibitor (PPI) once daily. Can increase to twice daily if needed.

    - If patient can take solid dosage forms, consider omeprazole (Prilosec®) or Nexium 24HR® (OTC) first line over esomeprazole (Nexium®) or lansoprazole (Prevacid®). However, these can also be opened and sprinkled on soft foods.
    - If liquid/dissolvable formulation is required, try compounded omeprazole suspension or First® Omeprazole/ Lansoprazole before Prevacid Solutab®.
    - Consider discontinuation of PPI treatment after 8-12 weeks. If patient relapses consider consult to gastroenterologist.
    - Reassess need for chronic PPI use every 6 months.

4. Things to consider with long term PPI use:

    - Chronic acid suppression can minimize the effectiveness of any medication that requires acid for absorption. These medications include: antifungals (ketoconazole, voriconazole, itraconazole), atazanavir, calcium, and iron salts.
    - In 2012, the FDA issued a Safety Alert that PPIs may be associated with an increased risk of Clostridium-associated diarrhea (CDAD). The FDA recommends using the lowest dose and shortest duration of PPI therapy possible and advising patients to seek medical attention if they develop symptoms of CDAD (abdominal pain, fever, and watery stools).[iv]
    - A prospective study performed in pediatric patients from 2006 showed that the use of gastric activity (GA) inhibitors was associated with an increased risk of acute gastroenteritis and community-acquired pneumonia in GERD-affected children.[v] A possible explanation for infectious complications may be due to gastric bacterial overgrowth.
    - Candidemia and necrotizing enterocolitis can be seen in preterm infants[vi, vii]

[i] Lightdale JR, Gremse DA. Gastroesophageal reflux: management guidance for the pediatrician. Pediatrics. 2013;131(5):e1684-95.

[ii] Lightdale JR, Gremse DA. Gastroesophageal reflux: management guidance for the pediatrician. Pediatrics. 2013;131(5):e1684-95.

[iii] Lightdale JR, Gremse DA. Gastroesophageal reflux: management guidance for the pediatrician. Pediatrics. 2013;131(5):e1684-95.

[iv] Freedberg DE, Lamousé-Smith ES, Lightdale JR, et. al. 2015. Use of acid suppression medication is associated with risk for C. difficile infection in infants and children: a population-based study. Clinical Infectious Diseases, civ432.

[v] Canani RB, Cirillo P, Rogger P et. al. Therapy with gastric acidity inhibitors increases the risk of acute gastroenteritis and community acquired pneumonia in children. Pediatrics 2006; 117(5), pp.e817-e820.

[vi] Guillet R, Stoll BJ, Cotten CM, et al. Association of H2-blocker therapy and higher incidence of necrotizing enterocolitis in very low birth weight infants. Pediatrics 2006; 117:e137–e142.

[vii] Gastroesophageal reflux in premature infants. In: UpToDate Online.

Referrals and Consultations

Online: **NationwideChildrens.org**
Phone: **(614) 722-6600** or **(877) 722-6220** | Fax: **(614) 722-4000**
Physician Direct Connect Line for 24-hour urgent physician consultations:
(614) 355-0221 or **(877) 355-0221**.
Pharmacy Consultations/Assistance: **PFKPharmacy@NationwideChildrens.org**

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