Bread and Butter GI: Updates on Management of Constipation and GERD

Sona Sehgal
June 10, 2015
Evaluation and Treatment of Functional Constipation in Infants and Children: Evidence-Based Recommendations From ESPGHAN and NASPghan

M.M. Tabbers, C. DiLorenzo, M.Y. Berger, C. Faure, M.W. Langendam, S. Nurko, A. Staiano, Y. Vandenplas, and M.A. Benninga
Scope of the Problem

• 3% prevalence worldwide

• In 17-40% of children, constipation starts in the first year

• Majority have functional constipation
Rome III Diagnostic Criteria for Functional Constipation

In the absence of organic pathology ≥2 of the following

1. ≤2 defections per week
2. At least 1 incontinence/week
3. History of excessive stool retention
4. History of hard or painful bowel movements
5. Presence of a large fecal mass in rectum
6. History of large diameter stools that obstruct the toilet

Accompanying irritability, decreased appetite, early satiety, which may disappear following passage of a large stool.
Alarm Signs or Symptoms

• Passage of meconium- 50% of HD patients pass meconium in 48hrs
• Fear of passing stools
• Toilet training
• Growth
• Abdominal distention
• Rectal bleeding
• Vomiting and nausea
• Urinary issues
## Differential Diagnosis for Constipation

<table>
<thead>
<tr>
<th>Condition</th>
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<tbody>
<tr>
<td>Celiac disease</td>
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<tr>
<td>Hypothyroidism, hypercalcemia</td>
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<tr>
<td>Dietary protein allergy</td>
</tr>
<tr>
<td>Drugs: anticholinergic, lead</td>
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<tr>
<td>Vitamin D intoxication</td>
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<tr>
<td>Botulism</td>
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<tr>
<td>Cystic Fibrosis</td>
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<tr>
<td>Hirschsprung Disease</td>
</tr>
<tr>
<td>Imperforate anus</td>
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<tr>
<td>Pelvic mass</td>
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<tr>
<td>Spinal cord abnormality</td>
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</tbody>
</table>
Physical Exam

• Abdominal mass, stool

• Location of anus

• Spinal dimple, mass, hair

• Rectal-presence of large, hard stool
Testing

• Routine testing for celiac disease, hypothyroidism, hypercalcemia and milk protein allergy - not recommended.

• Empiric 2-4 week trial of CMP free diet is recommended

• Routine MRI not recommended without neurological signs
Management

- Normal amount of fluid, fiber and activity is recommended
- Prebiotics and probiotics not very helpful
- Biofeedback not helpful
<table>
<thead>
<tr>
<th>Oral Laxative</th>
<th>Dosage</th>
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<tbody>
<tr>
<td><strong>Osmotic laxatives</strong></td>
<td></td>
</tr>
<tr>
<td>Lactulose</td>
<td>1-2 g/kg, once or twice/day</td>
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<tr>
<td>PEG 3350</td>
<td>Maintenance: 0.2-0.8 g/kg/day</td>
</tr>
<tr>
<td>PEG 4000</td>
<td>Fecal disimpaction: 1-1.5 g/kg/day (with a max of 6 consecutive days)</td>
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<tr>
<td>Milk of Magnesia (MgOH)</td>
<td></td>
</tr>
<tr>
<td>2-5 y: 0.4-1.2 g/day, once or divided</td>
<td></td>
</tr>
<tr>
<td>6-11 y: 1.2-2.4 g/day, once or divided</td>
<td></td>
</tr>
<tr>
<td>12-18 y: 2.4-4.8 g/day, once or divided</td>
<td></td>
</tr>
<tr>
<td><strong>Fecal softners</strong></td>
<td></td>
</tr>
<tr>
<td>Mineral oil</td>
<td>1-18 y: 1-3 ml/kg/day once or divided, max 90 ml/day</td>
</tr>
<tr>
<td><strong>Stimulant laxatives</strong></td>
<td></td>
</tr>
<tr>
<td>Bisacodyl</td>
<td>2-10 y: 5 mg once a day</td>
</tr>
<tr>
<td></td>
<td>&gt;10 y: 5-10 mg once/day</td>
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<tr>
<td>Senna</td>
<td>2-6 y: 2.5-5 mg once or twice a day</td>
</tr>
<tr>
<td></td>
<td>6-12 y: 7.5-10 mg/day</td>
</tr>
<tr>
<td></td>
<td>&gt;12 y: 15-20 mg/day</td>
</tr>
<tr>
<td>Sodium picosulfate</td>
<td>1mo-4 y: 2.5=10 mg once/day</td>
</tr>
<tr>
<td></td>
<td>4-18 y: 2.5-20 mg once/day</td>
</tr>
</tbody>
</table>
### Medications

<table>
<thead>
<tr>
<th>Rectal Laxatives/enemas</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisacodyl</td>
<td>2-10 y: 5 mg once/day</td>
</tr>
<tr>
<td></td>
<td>&gt;10 y: 5-10 mg once/day</td>
</tr>
<tr>
<td>Sodium docusate</td>
<td>&lt;6 y: 60 ml</td>
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<tr>
<td></td>
<td>&gt;6 y: 120 ml</td>
</tr>
<tr>
<td>Sodium phosphate</td>
<td>1-18 y: 2.5ml/kg, max 133ml/dose</td>
</tr>
<tr>
<td>NaCl</td>
<td>Neonate &lt;1 kg: 5ml, &gt;1 kg: 10ml</td>
</tr>
<tr>
<td></td>
<td>&gt;1 y: 6ml/kg once or twice a day</td>
</tr>
<tr>
<td>Mineral oil</td>
<td>2-11 y: 30-60 ml once/day</td>
</tr>
<tr>
<td></td>
<td>&gt;11: 60-150 ml once/day</td>
</tr>
</tbody>
</table>

Routine use of lubiprostone, linaclotide, and prucalopride in children with intractable constipation is not recommended.
Black Box Warning for Phosphate Based laxatives
Scrutiny for Laxatives as a Childhood Remedy

By CATHERINE SAINT LOUIS  JAN. 5, 2015

The Food and Drug Administration has raised new questions about the safety of an adult laxative routinely given to constipated children, sometimes daily for years.

The agency has asked a team of scientists in Philadelphia to look more closely at the active ingredient in Miralax and similar generic products, called polyethylene glycol 3350, or PEG 3350. While outlining the scope of the research, the agency also disclosed that its scientists had discovered trace amounts of two potential toxins in batches of Miralax tested six years ago.

The news is likely to surprise parents and some doctors.

“Every pediatric GI physician, I would guarantee you, has told a family this is a safe product,” said Dr. Kent C. Williams, a gastroenterologist at Nationwide Children’s Hospital in Columbus, Ohio. Now, he worries, “it may not be true.”
NASPghan Defends Use of PEG

Polyethylene Glycol 3350 (PEG 3350) Frequently Asked Questions

NASPghan Neurogastroenterology and Motility Committee
January 2015

1. What is PEG 3350?
Polyethylene glycol (PEG) is a water-soluble, inactive ingredient of which only a very small amount is absorbed in the gut or gastrointestinal tract, the rest moves through the body. PEG is non-toxic and has no effect on the body. It is used in many products including medications such as ointments and pills to allow them to be more easily dissolved in water. PEG can also be found in common household products such as certain brands of skin creams and tooth paste. purified form of PEG in the United States and Canada is the focus of discussion in this FAQ. Commonly used the United States and Canada are MiraLax, Glyco 

2. How does PEG 3350 work in the treatment of constipation?
PEG 3350 helps constipation by holding more water and easier to pass. The effect of PEG 3350 is not to work.

3. Is PEG 3350 approved for use in children?
No, PEG 3350 is not currently approved by the U.S. Food and Drug Administration for children.

To the Editor:

Re: “Scrutiny for Laxatives as a Childhood Remedy,” Jan. 5

Constipation affects about five percent of all children and can be associated with significant distress to the child and family. In most cases, constipation can be treated effectively with behavioral and dietary changes. Many times, however, constipation becomes a chronic problem that, when untreated, can cause severe long-term physical and psychological consequences.

For children with chronic constipation, medications aimed at softening stools are often needed for months or years to achieve regular bowel movements. Your article “Scrutiny for Laxatives as Childhood Remedy” is likely to provoke questions by any parent or caregiver, whose child has suffered from constipation and benefited from the use of stool softeners or laxatives, including PEG 3350. Parents with questions about their child’s current treatment for constipation are encouraged to consult a pediatrician or pediatric gastroenterologist.

The North American Society of Pediatric Gastroenterology, Hepatology and Nutrition and the American Academy of Pediatrics are committed to advancing the understanding of disease and the safety of treatment through data and research and welcome the study of prolonged use of PEG 3350.
Disimpaction

• PEG orally 1-1.5 g/kg/day for 3 to 6 days: first line treatment
• An enema once per day for 3 to 6 days
How long should treatment continue

- For at least 2 months
- All symptoms resolved for at least 1 month
- Child should be toilet trained
Prognosis

• Delay in treatment >3 months do worse

• 50% doing well without laxatives at 6-12 months

• 50% and 80% doing well at 5 and 10 years
GI Resources

Digestive Topics A-Z

GIKids has compiled this pediatric digestive disorders glossary to help you find information about a variety of conditions, symptoms, medical procedures and other terms. Fact sheets on many topics are available in English, Spanish and French.

FEATURED RESOURCES:

A
- Abnormal gas
- Functional abdominal pain
- Anorectal malformations

B
- Abdominal pain
- Bleeding - Lower GI
- Bleeding - Upper GI
- Blood in stool

C

The Poo in You

Children's Hospital Colorado
Summary

• Recognize and treat constipation early

• Disimpaction before maintenance therapy

• Short term treatment is not helpful
GERD in Infancy
Estimated Incidence Rates of GERD in Children and Adolescents from 2000-2005

Natural History of GER in Children Up to Two Years of Age

Signs of Complicated GERD

- Poor weight gain
- Excessive crying or irritability
- Respiratory problems, including:
  - Wheezing
  - Stridor
  - Recurrent pneumonia
  - Choking
  - Respiratory problems
- Sandifer’s syndrome
Evaluation: Upper GI series

Advantages
Useful for detecting anatomic abnormalities such as malrotation, pyloric stenosis.

Disadvantages
Cannot discriminate between physiologic and nonphysiologic GER episodes
Management: Positioning and feeding

Sitting
Supine
Prone

Thickening
1 Tablespoon of cereal/oz of milk
Management: Role of Acid Suppression

- If using PPI use the smallest, most effective dose (0.5-1mg/kg/day)
- Wean after planned course of therapy
- Taper dose
Prokinetics

• Insufficient support to justify the routine use of motility agents (metoclopramide, erthromycin, bethanechol, or domperidone) for GERD.

• Metclopamid - **Black box** warning (Extrapyramidal symptoms)
Summary

• GER is common in healthy infants and usually resolves by 18 months of age

• Good history and clinical judgment are important for optimal evaluation and management

• Do not overuse PPI

• Be cautious when using prokinetics