SOCIETY GUIDELINES FOR CONSTIPATION: WHAT IS NEW?

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FUNCTIONAL CONSTIPATION

- One of the most common functional GI disorders in children.
- Epidemiological studies conducted throughout the world cite a prevalence as high as 29.6% (Am J Gastroenterol, 2006; 101:2401).
- The results of treatment in children are suboptimal, and up to 30% continue to require treatment after eight years (Gastroenterology, 2003; 125:157).

Guideline development

- To achieve effective care, reduce variability in daily practice, and costs in the treatment of childhood constipation
- To serve as general guideline, not as a substitute for clinical judgment, or as a protocol applicable to all patients

TREATMENT

- Until recently there has been a lack of evidence for the treatment of constipation in children, and much of our current management is based on expert opinion and nonrandomized retrospective studies
**Evaluation and Treatment of Functional Constipation in Infants and Children: Evidence-Based Recommendations From ESPGHAN and NASPGHAN**

GRADE is outcome-centric

**QUESTIONS**

1. What is the definition?
2. What are the alarm signs?
3. What is the diagnostic value of
   - Digital rectal exam, Abdominal X-ray, CTT
4. What other diagnostic tests need to be performed?
   - Celiac, allergy etc
5. What is the value of other tests in intractable constipation?
   - (Colonic manometry, MRI)
QUESTIONS 2

• 6.- What is the effect of non-pharmacologic therapy?
  – Fiber, water, physical activity, behavior.
• 7.- Which is the most effective and safe treatment?
  – Which drugs? How long?
• 8.- Are there novel therapies?
• 9.- What are the prognostic factors?

(1) Based on expert opinion, we recommend the Rome III criteria for the definition of functional constipation for all age groups.
Voting: 9, 9, 9, 9, 9, 9, 9

(2) Based on expert opinion, the diagnosis of functional constipation is based on history and physical examination.
Voting: 9, 9, 9, 9, 9, 9, 9

• Divided in 2 groups: Less than 6 months of age and > 6 months of age

In contrast to the earlier guidelines, one pertains to the infant from birth to 6 months (instead of 1 year) and the other to the older child.

(7,8) This decision was based on the fact that defecation problems in infants <6 months old have different diagnostic considerations compared with older children, given the possibility of congenital problems and the influence of the different feeding and developmental issues.
Oral Disimpaction

Quality of evidence: very low.

(31) The use of PEG with or without electrolytes orally 1.5 g - kg^-1 - day^-1 for 3 to 6 days is recommended as the first-line treatment for children presenting with fecal impaction. Voting: 6, 7, 8, 9, 9, 9

(32) An enema once per day for 3 to 6 days is recommended for children with fecal impaction, if PEG is not available.
**ARE LAXATIVES NEEDED?**

**Question 7: What Is the Most Effective and Safest Pharmacologic Treatment in Children With Functional Constipation?**

Randomized trial of 167 children with encopresis
83 laxatives and behavior mod
86 only behavior mod

This study shows a clear advantage overall for the use of laxative medication

*Cochrane Review 2012*
OTHER LAXATIVES?

(35) The use of lactulose as the first-line maintenance treatment is recommended, if PEG is not available. Voting: 7, 7, 8, 8, 8, 9, 9, 9

(36) Based on expert opinion, the use of milk of magnesia, mineral oil, and stimulant laxatives may be considered as an additional or second-line treatment. Voting: 7, 7, 7, 9, 9, 9

IS THERE AN ADVANTAGE IF ENEMAS ARE ADDED TO ORAL LAXATIVE TREATMENT?

PEG VS PEG AND ENEMAS

Players involved in functional pediatric constipation

WHAT ABOUT BEHAVIOR MODIFICATION?

Response to Treatment

* p < 0.02 between placebo and each group
Behavioral therapy with laxatives has no advantage over conventional treatment. However, when behavior problems are present, behavioral therapy or referral to mental health services should be considered.

### Increasing Oral Fluids in Chronic Constipation in Children

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Week 2</th>
<th>Week 3</th>
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</thead>
<tbody>
<tr>
<td>Stool frequency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>3.45</td>
<td>4.05</td>
<td>3.40</td>
</tr>
<tr>
<td>H₂O</td>
<td>3.52</td>
<td>3.57</td>
<td>3.70</td>
</tr>
<tr>
<td>HiOsm</td>
<td>3.75</td>
<td>4.31</td>
<td>3.44</td>
</tr>
</tbody>
</table>

**R.J. Young, et al Gastroenterol Nurs 1998**

108 children

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**No significant benefit was demonstrated in terms of a reduction in laxative use or increased stool frequency associated with additional fiber intake!!!!!!**

**PROBIOTICS**
Probiotics for functional constipation
RCTs in children - summary

<table>
<thead>
<tr>
<th>Reference</th>
<th>Probiotic</th>
<th>Constipation Criteria</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banaszewicz &amp; Szajewska 2005</td>
<td>LGG</td>
<td>&lt;3 BM per wk for at least 12 wk</td>
<td>60</td>
</tr>
<tr>
<td>Bu et al. 2007</td>
<td>L casei rhamnosus Lcr35</td>
<td>&lt;3 BM per wk for &gt;2 mo</td>
<td>27</td>
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<tr>
<td>Coccorullo et al. 2010</td>
<td>L reuteri DSM 17938</td>
<td>Rome III criteria</td>
<td>44</td>
</tr>
<tr>
<td>Tabbers et al. 2011</td>
<td>B lactis DN 173010</td>
<td>Rome III criteria</td>
<td>160</td>
</tr>
<tr>
<td>Guerra et al. 2011</td>
<td>B longum</td>
<td>Rome III criteria</td>
<td>59</td>
</tr>
</tbody>
</table>

Total 350

7.3 How Long Should Children Receive Medical Therapy?

Based on expert opinion, maintenance treatment should continue for at least 2 months. All symptoms of constipation should be resolved for at least 1 month before discontinuation of treatment. Treatment should be decreased gradually. Voting: 7, 7, 8, 8, 8, 9, 9.
Cost per constipated patient for screening tests: $597
Cost of finding 1 Celiac disease patient: $68,000
Cost of finding 1 Hypothyroid patient: $80,000
Cost of finding 1 patient with selective IgA deficiency and Celiac disease: $255,000

This analysis does not include child care, work days lost for additional appointments and transportation costs.

Results

- Cost per constipated patient for screening tests: $597
- Cost of finding 1 Celiac disease patient: $68,000
- Cost of finding 1 Hypothyroid patient: $80,000
- Cost of finding 1 patient with selective IgA deficiency and Celiac disease: $255,000
Abdominal x-ray

Quality of evidence: very low

(6) The routine use of an abdominal radiographs to diagnose functional constipation is not indicated.
Voting: 6, 7, 7, 7, 8, 8, 9, 9

(7) Based on expert opinion, a plain abdominal radiography may be used in a child in whom fecal impaction is suspected but in whom physical examination is unreliable/not possible.
Voting: 6, 7, 7, 7, 8, 8, 9, 9

Because x-ray findings are usually nonspecific, they should not be employed to “rule-in” constipation.

J Peds 2013

In conclusion, evidence supports not using an abdominal radiography to diagnose functional constipation. (JPGN 2014)

The clinical and prognostic value of colonic transit studies

- Good correlation between symptoms and CTT
- The diagnostic and prognostic role of CTT is limited


The clinical and prognostic value of colonic transit studies

(8) Colonic transit studies are not recommended to diagnose functional constipation.
Voting: 7, 8, 9, 9, 9, 9, 9, 9

(9) Based on expert opinion, a colonic transit study may be useful to discriminate between functional constipation and functional nonretentive fecal incontinence and in situations in which the diagnosis is not clear.
Voting: 8, 8, 8, 8, 8, 9, 9, 9
NEW TESTS
SMART PILL

Defined as a lack of response after 3 months of treatment

Players involved in functional pediatric constipation

behavioral

nutrition
Question 5: Which of the Following Examinations Should Be Performed in Children With Intractable Constipation to Evaluate Pathophysiology and Diagnose an Underlying Abnormality?

(17) Based on expert opinion, colonic manometry may be indicated in patients with intractable constipation before considering surgical intervention.
Voting: 7, 7, 9, 9, 9, 9, 9

(18) The routine use of MRI of the spine is not recommended in patients with intractable constipation without other neurologic abnormalities.
Voting: 7, 7, 9, 9, 9, 9, 9

(19) Based on expert opinion, we do not recommend obtaining full-thickness colonic biopsies to diagnose colonic neuromuscular disorders in children with intractable constipation.
Voting: 7, 8, 8, 8, 9, 9, 9

(20) Based on expert opinion we do not recommend routine use of colonic scintigraphy studies in children with intractable constipation.
Voting: 9, 9, 9, 9, 9, 9, 9
Conclusion: "Antegrade continence enemas were successful in 34 (81%) of 42 children with STC, contradicting views that ACE are less effective in patients with colonic dysmotility."


Effect of Antegrade Continence Enemas on Children with Severe Constipation

Before After

Decreased Soiling Frequency
Achieved Complete Continence
Reduced Abdominal Pain Severity and Frequency
Ceased Use of Appendicostomy Symptoms
Families Felt Their Aspirations were Met
Successful Antegrade Continence Enemas

Other treatment options??

LINACLOIDTE
PRICALOPRINE
LUBIPROSTONE
TRANSCUTANEOUS STIMULATION

LUBIPROSTONE
PRICALOPRINE

Umbus and ParotidLINACLOIDTE

Gastro 2014
LINACLOTIDE
GUT 2011
TRANSCUTANEOUS STIMULATION
CONCLUSIONS

• New advances will allow a better definition of constipation subtypes
• Treatment of constipation in children is evolving from expert recommendations to evidence based treatments
• PEG based solutions have become the mainstay of therapy
• Oral disimpaction is equivalent to rectal disimpaction
• New treatments are effective