Functional Abdominal Pain Disorders
Current Treatment Strategies

Marc Benninga
Emma Children’s Hospital / AMC, Amsterdam
History

- 15 y.o. girl, developmentally normal
- Persistent or recurrent pain or discomfort centered in the upper abdomen (above the umbilicus)
- She experiences fullness and bloating especially after the main meal
- There is intermittent nausea and fatty meals worsen the symptoms
- Not relieved by defecation or associated with the onset of a change in stool frequency or stool form
- Clinical exam is normal
Functional dyspepsia

Must include 1 or more of the following bothersome symptoms at least 4 days per month:

- Postprandial fullness
- Early satiation
- Epigastric pain or burning not associated with defecation

- After appropriate evaluation, the symptoms cannot be fully explained by another medical condition

Within FD, the following subtypes are now adopted:

- **Postprandial distress syndrome**: bothersome postprandial fullness or early satiation that prevents finishing a regular meal
  - Supportive features: upper abdominal bloating, postprandial nausea, or excessive belching

- **Epigastric pain syndrome**, all of the following: bothersome pain or burning localized to the epigastrium
  - Supportive criteria can include (a) burning quality of the pain, without a retrosternal component and (b) pain commonly induced or relieved by ingestion of a meal but may occur while fasting

History

• 10 y.o. boy, developmentally normal
• Periumbilical abdominal pain every day with radiation to the epigastric region for the past 6 months
• Pain wax and weans, most of the time crampy, sometimes wakes him up at night
• Defecation pattern is completely normal
• No influence of meals
• Tried “everything”
• Missing school
Functional Abdominal Pain
Not Otherwise Specified (NOS)

Criteria must be fulfilled at least 4 times per month, at least 2 months before diagnosis and include all of the following:

- Episodic or continuous abdominal pain that does not occur solely during physiologic events (eg, eating, menses)
- Insufficient criteria for IBS, FD, or abdominal migraine

Irritable bowel syndrome

Must include *all* of the following for at least 2 months before diagnosis:

1. Abdominal pain at least 4 days per month associated with one or more of the following:
   a. Related to defecation
   b. A change in frequency of stool
   c. A change in form (appearance) of stool

2. In children with constipation, the pain does not resolve with resolution of the constipation (children in whom the pain resolves have functional constipation, not IBS)

- Pediatric IBS subtypes reflecting predominant stool pattern (IBS-C, IBS-D, IBS with constipation and diarrhea, and unspecified IBS)

Abdominal migraine

Must include all of the following occurring at least twice for at least 6 months:

- Paroxysmal episodes of intense, acute periumbilical, midline or diffuse abdominal pain lasting >1 hour (should be the most severe and distressing symptom)
- Episodes are separated by weeks to months
- The pain is incapacitating and interferes with normal activities
- Stereotypical pattern and symptoms in the individual patient
- The pain is associated with 2 or more of the following:
  - a. anorexia, b. nausea, c. vomiting, d. headache, e. photophobia, f. Pallor

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Volume 150 Number 6 May 2016

Rome IV
Functional Gastrointestinal Disorders:
Disorders of Gut-Brain Interaction

ROME IV
Pediatric Functional Gastrointestinal Disorders
Disorders of Gut-Brain Interaction
FIRST EDITION
Guest Editors
Carlo Di Lorenzo, MD and Samuel Nurko, MD, MPH
and the Rome IV Pediatric Committee

May 2016
Volume 150, Issue 6
Geographic distribution of functional abdominal pain

Distribution of children with chronic pain by age and gender

boys (n=881)
girls (n=1367)
all (n=2248)

Mechanisms Underlying the Irritable Bowel Syndrome (IBS)

Abdominal pain

~ 80%

Organic

Blood
Urine
Feces
Radiology

~ 20%

Functional

Functional dyspepsia
Irritable bowel syndrome
Abdominal Migraine
Functional Abd Pain (NOS)

Treatment
Encourage positive attitude, but realistic expectations

Discuss and reassure

- Prevalence of FGID
- Benign clinical course
- Intermittent symptoms likely
- Often impact on QoL
- Although “cure” unlikely – most patients improve with management
Pain induced by water load test

Parents randomized to using distraction or attention in their interaction with children in pain

All mothers felt distraction was inappropriate response to pain

Nonpharmacologic treatment of functional abdominal pain disorders: a systematic review

- Removal duplicates, n=316
- Exclusion based on abstract, n=210
- Not meeting inclusion criteria, n=29

- 1390 children, aged 3-18 years

- Evaluating fibers, lactose free diet, probiotics, hypnotherapy, cognitive behavior therapy, yoga and written self disclosure

- No studies included on lifestyle, prebiotics, acupuncture, massage, gluten-, histamine-, or carbonic acid–free diets and fluid intake

Systematic Review of RCTs: Fiber Supplements for Abdominal Pain-Related FGIDs in Childhood

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Favor experimental events</th>
<th>Control events</th>
<th>Weight %</th>
<th>RR M-H, random (95% CI)</th>
<th>RR M-H, random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.1 Crushed crispsbread with 66% fiber [ispaghula husk]</td>
<td>7</td>
<td>15</td>
<td>10</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Total events</td>
<td>7</td>
<td>10</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: not applicable</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect: Z = 0.87 (p = 0.39)</td>
<td>0.39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.2 Fiber cookies [corn fiber]</td>
<td>13</td>
<td>26</td>
<td>7</td>
<td>26</td>
<td>24.6</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>26</td>
<td>26</td>
<td>24.6</td>
<td>1.86 (0.89–3.90)</td>
<td>0.89–3.90</td>
</tr>
<tr>
<td>Total events</td>
<td>13</td>
<td>7</td>
<td>26</td>
<td></td>
<td></td>
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<tr>
<td>Heterogeneity: not applicable</td>
<td>7</td>
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</tr>
<tr>
<td>Test for overall effect: Z = 1.64 (p = 0.10)</td>
<td>0.10</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.2.3 Glucomannan</td>
<td>23</td>
<td>41</td>
<td>20</td>
<td>43</td>
<td>46.8</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>41</td>
<td>43</td>
<td>46.8</td>
<td>1.21 (0.79–1.83)</td>
<td>0.79–1.83</td>
</tr>
<tr>
<td>Total events</td>
<td>23</td>
<td>20</td>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: not applicable</td>
<td>20</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Test for overall effect: Z = 0.88 (p = 0.38)</td>
<td>0.38</td>
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<tr>
<td>Total (95% CI)</td>
<td>82</td>
<td>85</td>
<td>100.0</td>
<td>1.17 (0.75–1.81)</td>
<td>0.75–1.81</td>
</tr>
<tr>
<td>Total events</td>
<td>43</td>
<td>37</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: t² = 0.66; χ² = 3.33, d.f. = 2 (p = 0.19); I² = 40%</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Test for overall effect: Z = 0.70 (p = 0.49)</td>
<td>0.49</td>
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</tr>
</tbody>
</table>

FODMAP

- **F**ermentable
- **O**ligosaccharides (fructans, (FOS and GOS))
- **D**isaccharides (lactose)
- **M**onosaccharides (fructose)
- **A**nd
- **P**olyols (sugar alcohols)
  - artificial sweeteners sorbitol, mannitol, maltitol, and xylitol
Breath hydrogen test Typical Australian diet versus Low FODMAP diet

Gastrointestinal symptoms during different diets

RCT: gut microbiome biomarkers are associated with clinical response to a low FODMAP diet in children with IBS

- Less abdominal pain occurred during the low FODMAP diet vs. TACD [1.1 episodes/day vs. 1.7 \( P < 0.05 \)]
- Compared to baseline (1.4 \pm 0.2), children had fewer daily abdominal pain episodes during the low FODMAP diet (\( P < 0.01 \)) more episodes during the TACD (\( P < 0.01 \))
Effect of Lactobacillus GG on responder rates (defined as no pain or a decrease in pain intensity)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Experimental</th>
<th>Control</th>
<th>Risk ratio M-H, Fixed, 95% CI</th>
<th>Risk ratio M-H, Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Total</td>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>1.1.1 Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bausserman 2005</td>
<td>11</td>
<td>25</td>
<td>25 13.4%</td>
<td>1.10 [0.57, 2.11]</td>
</tr>
<tr>
<td>Francavilla 2010</td>
<td>48</td>
<td>67</td>
<td>69 49.0%</td>
<td>1.34 [1.02, 1.74]</td>
</tr>
<tr>
<td>Gawronska 2007</td>
<td>38</td>
<td>52</td>
<td>52 37.6%</td>
<td>1.36 [1.00, 1.83]</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>144</td>
<td>146</td>
<td>146 100.0%</td>
<td>1.31 [1.08, 1.59]</td>
</tr>
<tr>
<td>Total events</td>
<td>97</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: $\chi^2 = 0.95$, df = 2 ($P = 0.84$); $I^2 = 0%$</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Test for overall effect: $Z = 2.77$ ($P = 0.006$)</td>
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</table>

1.1.2 Irritable bowel syndrome

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Experimental</th>
<th>Control</th>
<th>Risk ratio M-H, Fixed, 95% CI</th>
<th>Risk ratio M-H, Fixed, 95% CI</th>
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<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Total</td>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Bausserman 2005</td>
<td>11</td>
<td>25</td>
<td>25 28.9%</td>
<td>1.10 [0.57, 2.11]</td>
</tr>
<tr>
<td>Francavilla 2010</td>
<td>33</td>
<td>42</td>
<td>47 51.5%</td>
<td>1.76 [1.19, 2.59]</td>
</tr>
<tr>
<td>Gawronska 2007</td>
<td>16</td>
<td>18</td>
<td>19 19.6%</td>
<td>2.41 [1.31, 4.44]</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>85</td>
<td>82</td>
<td>82 100.0%</td>
<td>1.70 [1.27, 2.27]</td>
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<tr>
<td>Total events</td>
<td>60</td>
<td>34</td>
<td></td>
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<tr>
<td>Heterogeneity: $\chi^2 = 3.00$, df = 2 ($P = 0.22$); $I^2 = 93%$</td>
<td></td>
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<tr>
<td>Test for overall effect: $Z = 3.56$ ($P = 0.0004$)</td>
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</table>

1.1.3 Functional abdominal pain

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Experimental</th>
<th>Control</th>
<th>Risk ratio M-H, Fixed, 95% CI</th>
<th>Risk ratio M-H, Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Total</td>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Francavilla 2010</td>
<td>12</td>
<td>25</td>
<td>25 44.9%</td>
<td>1.06 [0.61, 1.87]</td>
</tr>
<tr>
<td>Gawronska 2007</td>
<td>17</td>
<td>24</td>
<td>23 55.1%</td>
<td>1.09 [0.73, 1.61]</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>49</td>
<td>54</td>
<td>54 100.0%</td>
<td>1.08 [0.77, 1.50]</td>
</tr>
<tr>
<td>Total events</td>
<td>29</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: $\chi^2 = 0.00$, df = 1 ($P = 0.95$); $I^2 = 0%$</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect: $Z = 0.43$ ($P = 0.67$)</td>
<td></td>
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</tbody>
</table>

1.1.4 Functional dyspepsia

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Experimental</th>
<th>Control</th>
<th>Risk ratio M-H, Fixed, 95% CI</th>
<th>Risk ratio M-H, Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Total</td>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Gawronska 2007</td>
<td>5</td>
<td>10</td>
<td>10 100.0%</td>
<td>0.83 [0.37, 1.85]</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>10</td>
<td>10</td>
<td>10 100.0%</td>
<td>0.83 [0.37, 1.85]</td>
</tr>
<tr>
<td>Total events</td>
<td>5</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: Not applicable</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect: $Z = 0.45$ ($P = 0.66$)</td>
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</tbody>
</table>

Lactobacillus reuteri DSM 17938 for the Management of Functional Abdominal Pain: A RDBPCT

- L reuteri DSM 17938, stimulates gastrointestinal motility and reduction of pain perception
- 101 children, aged 6-15 years, Rome III criteria for FAP
- Randomly assigned to receive either L reuteri DSM 17938 or placebo (tablets) for 4 weeks, with further follow-up of additional 4 weeks

Lactobacillus reuteri DSM 17938 for the Management of Functional Abdominal Pain in Childhood: A RDBPCT

VSL#3 Improves Symptoms in Children with IBS: A Multicenter, DBRP cross-over Study

Abdominal pain

59 children (5-18 yrs)

Guandalini S, et al. JPGN 2010
A Mixture of 3 Bifidobacteria Decreases Abdominal Pain and Improves the QoL in Children With IBS. A Multicenter, RDB Placebo-Controlled, Crossover Trial

Pharmacologic treatment of functional abdominal pain disorders: a systematic review

- Removal duplicates, n=247
- Exclusion based on abstract, n=246
- Not meeting inclusion criteria, n=58

- 275 children, aged 4.5-18 years

- Evaluating antispasmodic, antidepressant, antireflux, antihistaminic, and laxative agents

- No studies included on antidiarrheal agents, antibiotics, pain medication, anti-emetics, and antimigraine agents

# Antispasmodics

<table>
<thead>
<tr>
<th>Kline 2001</th>
<th>N=50, 8-17y IBS</th>
<th>2 weeks pepermint oil vs. placebo</th>
<th>GRADE: very low</th>
</tr>
</thead>
</table>

- Improvement in severity of symptoms: 71% vs. 19% (p<0.001)
- No adverse effects reported
- Quality:
  - No concealment of allocation
  - Attrition bias
  - Small sample size

Laxatives

Khoshoo 2006  
N=29, 4.5-12y FAP  
4 weeks PEG 3350 vs PEG 3350 + tegaserod  
GRADE: very low

- Adequate pain reduction (66.7% vs 18.5%; P < 0.05) (RR 3.60: 95% CI 1.54-8.40)
- Associated with serious cardiovascular ischemic events
- Quality:
  - No blinding
  - Not placebo controlled
  - Small sample size

Khoshoo V, et al. AP&T 2006
Sites of actions of current medications and novel agents in development for treatment of IBS-D

- μ opioid agonist
- Serotonergic (5-HT₃) antagonist
- Serotonin synthesis inhibitor
- Bile acid sequestrants
- AST-120

- Antipsychotics
- 2,3-Benzodiazepine-modulator
- κ opioid agonist

Central pain perception

Vagal nuclei

Sympathetic

Altered motility/secretion

Probiotics/antibiotics
- Mast cell stabilizer
- 5-ASA compounds

Camilleri M, Expert Opin Pharmacother 2013
Amitriptyline vs placebo

- Significant decrease in pain (p<0.0001)
- No difference in trend between groups (p=0.90)

90 children, 5 centers, 4 wks rx, 5 years to complete it
Overall assessment
Intention to treat

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Placebo</th>
<th>Amitriptyline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failed</td>
<td>16%</td>
<td>16 %</td>
<td>15 %</td>
</tr>
<tr>
<td>Poor</td>
<td>11%</td>
<td>7 %</td>
<td>15 %</td>
</tr>
<tr>
<td>Fair</td>
<td>18 %</td>
<td>23 %</td>
<td>13 %</td>
</tr>
<tr>
<td>Good</td>
<td>37 %</td>
<td>39 %</td>
<td>46 %</td>
</tr>
<tr>
<td>Excellent</td>
<td>11 %</td>
<td>7 %</td>
<td>46 %</td>
</tr>
</tbody>
</table>

Citalopram (SSRI) for pediatric functional abdominal pain: a randomized, placebo-controlled trial

- 115 children with FAP (Rome III criteria), aged 6–18 yrs
- Citalopram 20 mg/day or placebo for 4 weeks
- Treatment response: ≥2 point reduction in the 6-point Faces pain rating scale or ‘no pain’

Citalopram 20mg/d for pediatric functional abdominal pain a placebo controlled trial (n =115)

Social learning CBT vs Education support: parents-children

- 200 children (7-17) with Apley criteria for abdominal pain for at least 3 months
- 3-session intervention of cognitive-behavioral treatment targeting parents' responses to their children's pain complaints and children's coping responses
  - Relaxation training
  - Working with parent and child to modify family responses
  - Cognitive restructuring

Social learning CBT vs Education support: parents-children

p<0.05 for SLCBT

Internet-Delivered Cognitive Behavior Therapy for Adolescents With Irritable Bowel Syndrome: A RCT

• 101 adolescents (13-17) fulfilling Rome III criteria
• Internet-CBT 10-week intervention, main component exposure to IBS symptoms by reduction of avoidance of abdominal symptoms and instead stepwise provocation of symptoms
• Wait-list
• Primary outcome total score on Gastroint Sympt Rating
• Secondary outcomes adolescent- and parent-rated QoL and parent-rated gastrointestinal symptoms

Internet-CBT

Adolescent treatment

Week 1: Psychoeducation
Week 2: Behavior analysis and behavioral experiment
Week 3: Schedule and postpone toilet visits
Week 4–9: Exposure exercises
Week 10: Relapse prevention
Internet-CBT

**Adolescent treatment**
- Week 1: Psychoeducation
- Week 2: Behavior analysis and behavioral experiment
- Week 3: Schedule and postpone toilet visits
- Week 4–9: Exposure exercises
- Week 10: Relapse prevention

**Parent treatment**
- Week 1: Time together—refocus from abdominal symptoms
- Week 3: Encourage and support exposure
- Week 5: Communication skills and dealing with frustration
- Week 7: Problem solving
- Week 9: Relapse prevention
Primary outcome gastrointestinal symptoms

Hypnotherapy

- Hypnotherapy (HT):
  Six sessions according to Manchester protocol
  - general relaxation (e.g. breathing exercises)
  - control of abdominal pain and gut functioning
  - ego strengthening suggestions

Child is in control!

Effect of therapy on pain intensity scores

- Standard medical therapy
- Hypnotherapy

Results – Clinical remission

Audio-recorded Guided Imagery
Success

## Baseline characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>CD Group (n = 126)</th>
<th>iHT Group (n = 124)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD), y</td>
<td>13.4 (2.9)</td>
<td>13.3 (2.8)</td>
</tr>
<tr>
<td>Female</td>
<td>94 (74.6)</td>
<td>85 (68.5)</td>
</tr>
<tr>
<td>IBS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBS-C</td>
<td>39 (60.0)</td>
<td>35 (57.4)</td>
</tr>
<tr>
<td>IBS-D</td>
<td>10 (15.4)</td>
<td>3 (4.9)</td>
</tr>
<tr>
<td>IBS-M</td>
<td>14 (21.5)</td>
<td>20 (32.8)</td>
</tr>
<tr>
<td>IBS-U</td>
<td>2 (3.1)</td>
<td>3 (4.9)</td>
</tr>
<tr>
<td>Total IBS</td>
<td>65 (51.6)</td>
<td>61 (49.2)</td>
</tr>
<tr>
<td>FAP(S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAP</td>
<td>22 (36.1)</td>
<td>29 (46.0)</td>
</tr>
<tr>
<td>FAPS</td>
<td>39 (63.9)</td>
<td>34 (54.0)</td>
</tr>
<tr>
<td>Total FAP(S)</td>
<td>61 (48.4)</td>
<td>63 (50.8)</td>
</tr>
<tr>
<td>Duration of symptoms, median (IQR), y</td>
<td>2.3 (1.2-5.1)</td>
<td>2.7 (1.1-5.3)</td>
</tr>
<tr>
<td>School absenteeism</td>
<td>86 (68.3)</td>
<td>100 (80.6)</td>
</tr>
<tr>
<td>No. of school days missed in prior 6 mo, median (IQR)</td>
<td>14.0 (5.0-30.0)</td>
<td>21.1 (4.0-24.5)</td>
</tr>
<tr>
<td>Positive family history of abdominal pain</td>
<td>60 (47.6)</td>
<td>56 (45.2)</td>
</tr>
<tr>
<td>Prior psychological treatment</td>
<td>19 (15.2)</td>
<td>24 (19.4)</td>
</tr>
</tbody>
</table>

Pain frequency and intensity scores during treatment and follow up

Pain frequency score

Pain intensity score

RESULTS

82.1% vs. 71.3% (p=0.07)

Functional abdominal pain disorders; my approach

Subtypes!

Diagnosis (exclusion of organic pathology)

Laxative Fiber Probiotics FODMAP Loperamide Rifaximin

Spasmolytic

Hypnotherapy CBT Yoga?

Amitriptyline Imipramine
The Placebo Response in Pediatric Abdominal Pain-Related Functional Gastrointestinal Disorders: A Systematic Review and Meta-Analysis

Daniël R. Hoekman, MD1,*, Judith Zeevenhooven, BSc1,*, Faridi S. van Etten-Jamaludin, BSc2, Luke Douwes Dekker, MD3, Marc A. Benninga, MD, PhD1, Merit M. Tabbers, MD, PhD1, and Arine M. Vlieger, MD, PhD1

Objective To investigate the magnitude and determinants of the placebo response in studies with pediatric abdominal pain-related functional gastrointestinal disorders.

Study design The Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, and CINAHL were searched for systematic reviews and randomized placebo-controlled trials concerning children 4-18 years of age with an abdominal pain-related functional gastrointestinal disorder. The primary outcome was the pooled proportion of subjects assigned to placebo with improvement as defined by the authors. The effect of trial characteristics on the magnitude of the placebo response was investigated using univariate meta-regression analysis.

Results Twenty-one trials were identified. The pooled proportion of subjects with improvement was 41% (95% CI, 34%-49%; 17 studies) and with no pain was 17% (95% CI, 8%-32%; 7 studies). The pooled standardized mean difference on the Faces Pain Scales compared with baseline was −0.73 (95% CI, −1.04 to −0.42; 8 studies). There was significant heterogeneity across studies with respect to both outcomes. Lower dosing frequency (P = .04), positive study (P = .03), longer duration of treatment (P < .001), and higher placebo dropout (P < .001) were associated with higher placebo effect. Perception on Faces Pain Scales was greater in studies conducted in the Middle East (P = .002) with abdominal pain-related functional gastrointestinal disorders improve

Conclusions

Do children just grow out of IBS?

- Spontaneous resolution over 2 years FU
- Treatment with..... not associated with treatment success

Conclusion

• Successful management of patients with functional pain disorders with a trusting, positive, patient-physician relationship
• Fibers and probiotics only play a minor role
• The role of the FODMAP diet should be established in future larger trials
• Cognitive behavior therapy and hypnotherapy are effective treatment strategies
• Placebo??