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### Functional Gastrointestinal Disorders (FGID): Lessons Learned

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- Infant regurgitation
- Infant rumination syndrome
- Cyclic vomiting syndrome
- Abdominal migraine
- Functional abdominal pain
- Irritable bowel
- Aerophagia
- Functional diarrhea
- Infant dyschezia
- Functional constipation
- Functional fecal retention
- Nonretentive fecal soiling

### Functional Bowel Disorders

Pediatric Rome Criteria

- Aerophagia
- Functional diarrhea
- Infant dyschezia
- Functional constipation
- Functional fecal retention
- Nonretentive fecal soiling
### Functional Bowel Disorders
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### Infant Rumination

- Infant rumination seen infrequently today
- 1930s-40s: Seen frequently in institutionalized infants – sometimes fatal

### Infant Regurgitation

- Infant regurgitation; (GER) not (GERD)
- 90% of otherwise “normal” infants respond to traditional management:
  - Elevation of head of bed (30°)
  - Thickening feeds
  - Avoid overfeeding
  - Keep elevated for 30 – 45 minutes after meals
SPIT HAPPENS!

• Problem for the laundry – Not PGI

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Cyclic Vomiting Syndrome

• History all that is needed initially
• If frequency >1 episode/month → propranolol
• < 1 episode/month → early ondansetron-ODT
Abdominal Migraine
- Episodic abdominal pain associated with:
  - Nausea
  - Vomiting
  - Headache
  - Photo-/phonophobia
  - Family history of migraine headaches

CVS/Abdominal Migraine
- Avoid triggers
- Propranolol
- Amitriptyline

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Davidsonian Management Principles
(90% Effective)

• Purgation
• Prevent impaction (mineral oil → PEG 3350)
• Establish a regular bowel pattern

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Recurrent Abdominal Pain: John Apley 1958
(1909 – 1980)

- ≥ 3 episodes of abdominal pain severe enough to interfere with activity
- ≥ 3 months
- 10% of school-aged children
- ~ 10% organic cause
“Little belly-achers grow up to be big belly-achers and big belly-achers beget little belly-achers”.

John Apley

**RAP is a Description**

- IBS, CFAP, functional dyspepsia and abdominal migraine are diagnoses

**What is IBS?**

- A group of symptoms:
  - Abdominal pain
  - Constipation and/or diarrhea
  - Bloating/distention

- A “functional” bowel disorder (a problem with the function of the bowels, not their physical structure)
What IBS is Not

• A problem that is “all in your head”
• A serious or life-threatening illness
• A warning that more serious illness is on the way

How is IBS Diagnosed?

• Symptoms must be continuous or recurrent for at least 2 months*
• Abdominal pain or discomfort that is associated with 2 or more of the ff at least 25% of the time:
  - Relieved by defecation
  - Associated with a change in stool frequency
  - Associated with a change in stool consistency (lumpy/hard or loose/watery)
  - A change in stool passage (straining, urgency, feeling of incomplete evacuation)
  - Bloating or feeling of abdominal distention
• There should be no evidence to suggest organic disease


What is Chronic Functional Abdominal Pain (CFAP)?

• Frequent or continuous pain in the abdomen
• A “functional” gastrointestinal disorder

• CFAP is NOT:
  - A problem with the physical structures in the abdomen
  - Related to events like eating, defecation or menstruation
  - The same thing as irritable bowel syndrome (IBS)
How is CFAP Diagnosed?

• The patient must have:
  - Frequently recurrent or continuous abdominal pain for at least 2 months
  - Incomplete or no relationship of pain with physiologic events (e.g., eating, defecation or menses)
  - Some loss of daily functioning and
  - No evidence of organic disease to explain the pain and insufficient criteria for other functional gastro-intestinal disorders that would explain the abdominal pain

Functional Dyspepsia

• 2 Months of:
  - Persistent or recurrent pain/discomfort (including bloating, nausea but not vomiting) centered in upper abdomen (above the umbilicus)
  - No organic disease to explain symptoms

• Not IBS:
  - Not relieved by defecation
  - No changes in stool frequency or form
Functional Bowel Disorders

Sensitizing Medical Events:
- Inflammation (infection, allergies)
- Distension
- Trauma
- Stress
- Motility disorder

Genetic predisposition

Early life events

Psychosocial Events:
- Coping Style
- Family Stress
- Depression
- Anxiety
- Secondary Gains

Disability

Visceral hyperalgesia

The Role of Serotonin

CNS – 5%

GI tract – 95%

- Enterochromaffin cells
- Neuronal

What is the Role of Serotonin in IBS?

- Plasma 5HT elevated in patients with IBS
- Increased number of 5HT containing enteroendocrine cells in rectal biopsies of post-infectious IBS
- Changes in serotonin reuptake transporter (SERT) mRNA in IBS
- Modulation of serotonergic mechanisms impacts symptoms of IBS
FGID Management

“Building on the physician-patient relationship, treatment is biopsychosocial in concept and multi-component in method”


Management of IBS (80% Successful)

- Nonirritating diet
- Appropriate fiber intake (age + 5 grams)
- Antispasmodic (dicyclomine, hyoscyamine)
- Additional treatment: Low dose SSRI/TCA Serotonergic agents

Management of CFAP

- Nonirritating diet
- Appropriate fiber
- Antidepressant (may take several weeks for maximal benefit)
Management of Functional Dyspepsia

• Nonirritating diet
• Antisecretory medication (PPI)

• Additional consideration: Promotility medication (usually after investigation – EGD; gastric emptying study)

In summary, Apley was correct, i.e., “Big belly-achers do beget little belly-achers”.