Irritable Bowel Syndrome: A Post-infectious Syndrome

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DISCLOSURE: Conflicts of Interest

• None
IBS, a Post-infectious Syndrome

- Perspectives Setting: FGIDs
- Pathophysiology of IBS
- Epidemiology of IBS and PI-IBS
- Risk Factors for PI-IBS
- Clinical Manifestations
- Diagnostic Approach
- Management Strategies
Irritable Bowel Syndrome (H2b)

• Rome IV Functional GI Disorders

Legend: FD – Functional Dyspepsia  
IBS – Irritable Bowel Syndrome
IBS Pathophysiology: Disorder of Brain-Gut Axis

Pediatric IBS: Epidemiology

• Data from meta-analysis
  o Affects 8.8% (6–12%) of population worldwide

• Philippine data:
  o 2.7% of 779 subjects (Rome III criteria)
  o 5.6% of 2,146 subjects (Rome II criteria)

Post-infectious IBS (PI-IBS): Epidemiology

• Prevalence
  o 14.7% of pediatric patients with infectious enteritis (IE)*
  o 11.1% of adult patients with IE*

• Relative Risk of PI-IBS
  o 4.1 times higher compared to age- and sex-matched controls (pediatric cases)
    ▪ 95% CI: 2.05,8.15; $I^2=0$
  o 3.8 times higher (overall) compared to age- and sex-matched controls

*significant heterogeneity [$I^2=79\%$ (P) and $I^2=98\%$ (A)]

PI-IBS: Risk Factors

- Infectious enteritis
  - Bacteria (C. jejuni, Salmonella enterica, Shigella sonnei, E. coli O157:H7)
  - Virus (norovirus)
  - Protozoa (G. lamblia)
- Age: younger
- Gender
- Bloody stools
- Prolonged diarrhea

PI-IBS: Risk Factors

- Infectious enteritis (IE)
  - **Viral IE rates**
    - Within 12 mos of IE (Prevalence = 19.4; 95% CI: 13.2–27.7)
    - > 12 mos of occurrence (Prevalence = 4.4; 95% CI: 0.3–39.9)
  - **Protozoal/parasitic rates**
    - Stable over time
  - **Bacterial IE rates**
    - RR = 4.2 (within 12 mos) vs. 2.2 (> 12 mos); p=0.01

- Gender
  - **Female:**
    - OR = 2.19; 95% CI: 1.57–3.07; I²=72%

- **Abdominal pain**
  - OR = 3.26; 95% CI: 1.3–8.14; I²=86%

- **Prolonged diarrhea (>7 days)**
  - OR = 2.62; 95% CI: 1.48–4.61; I²=86%

- **Bloody diarrhea**
  - OR = 1.86; 95% CI: 1.14–3.03; I²=65%

- **Antibiotic intake**
  - OR = 1.69; 95% CI: 1.20–2.37; I²=32%

IBS: Clinical Manifestations

- Abdominal pain at least 4 days per month for at least 2 months associated with erratic bowel habit or variable changes in stool form and frequency
  - Pain unresolved with resolution of constipation
  - Symptoms not fully explained by another medical condition

Spiller R. F1000 Research 2016; 5(F1000 Faculty Rev); 780.
Post-infectious IBS: Prevalence of Subtypes

- IBS-M (most common)
  - 46%; 95% CI: 31–62%
- IBS-D
  - 40%; 95% CI: 25–57%
- IBS-C
  - 15%; 95% CI: 10–21%

Diagnostic Approach in IBS

• History
  o Dietary, family, social, educational history
  o Other historical cues
    ▪ Endemicity of infections/parasitic infestations
    ▪ Malabsorption syndromes (CHO)

• Physical examination
  o Based on the Rome IV criteria and subtype classification using Bristol Stool Form Scale
  o Focus on growth and development
  o Look for alarm signals
Alarm Signals in Pediatric Chronic Abdominal Pain

• Unexplained fever
• Persistent vomiting
• Dysphagia, odynophagia
• Persistent RUQ or RLQ pain
• GI bleeding
• Nocturnal diarrhea

• Poor growth and development
  o Involuntary weight loss
  o Deceleration of linear growth
  o Delayed puberty
• Family history of IBD and peptic ulcer disease
• Arthritis

Diagnostic Approach in IBS

- **Basic diagnostics**
  - CBC, liver and renal function test
  - Inflammatory markers
  - Amylase, lipase (as indicated)
  - Stool culture and reducing sugars (diarrhea)

- **Special investigations**
  - Abdominal ultrasound
  - GI endoscopy
  - MRI abdomen
  - Fecal calprotectin
    - May help differentiate IBS from IBD
    - Values < 50 mg/g stool less likely to be IBD
Management in Pediatric IBS

- Few double-blind, randomized trials
- No universally proven therapy
Management Strategies

• Dietary interventions
  o Fiber supplements
  o Lactose-free diet
  o Low fermentable oligo-, di-, monosaccharides and polyols (FODMAP) diet
  o Partially hydrolyzed guar gum
  o Probiotics (LGG, multi-strain VSL#3)
    ▪ Inhibition of pathogen binding; modulation of gut inflammation; reduction in visceral hypersensitivity)
Management Strategies

• Pharmacologic treatment
  o Peppermint oil (antispasmodic, anti-flatulent)
  o Antispasmodics
  o Antibiotics

• Biopsychotherapy
  o Cognitive behavioral therapy
  o Hypnotherapy, yoga, acupuncture
Do Children Grow Out of IBS?

Distribution of IBS subtypes at diagnosis and after 24 months of follow-up (83 children, aged 4–16.6 yrs, Naples, Italy)

Summary Points: PI-IBS

• Recognition of infectious enteritis as a cause of Functional GI Disorder (IBS)
  o Usually presenting as abdominal pain and erratic bowel frequency and consistency

• Risk factors for IBS
  o Related to the etiologic agent, gender, clinical presentation (abdominal pain, prolonged and bloody diarrhea)
  o Increased with antibiotic intake

• Treatment
  o Mainly supportive