Irritable Bowel Syndrome

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Irritable Bowel Syndrome

Bowels → Patients

Employers → Irritable

Family → Irritable

Physicians → Irritable

NP/PA → Irritable
Irritable Bowel Syndrome

• Functional GI disorder
• Other terms
  – “spastic colon”, “irritable colon”, “nervous bowel”, “mucous colitis”
• 10-20 % of US population
• ~20-50% of gastroenterology referrals
• Women>>>men
• Symptoms typically begin before 35 years
Earliest descriptions of symptoms defining IBS

• 1849 – W Cumming¹

“The bowels are at one time constipated, at another lax, in the same person. How the disease has two such different symptoms I do not profess to explain. . . .”

Other historical terms

- mucous colitis
- colonic spasm
- neurogenic mucous colitis
- irritable colon
- unstable colon
- nervous colon
- spastic colon
- nervous colitis
- spastic colitis

• 1962 – Chaudhary & Truelove²
  Irritable colon syndrome

• 1966 – CJ DeLor³
  Irritable bowel syndrome

Epidemiology

IBS Referral Pattern

Specialists¹

Primary care¹

~25% Consulters¹

~75% Nonconsulters¹

~70% Female²

~30% Male²

IBS vs other important disease states

- US prevalence up to 20%\(^1\)
- US prevalence rates for other common diseases\(^2\):
  - diabetes 3%
  - asthma 4%
  - heart disease 8%
  - hypertension 11%

Direct medical costs associated with IBS

- IBS results in an estimated $8 billion in direct medical costs annually\(^1\)
- IBS sufferers incur 74% more direct healthcare costs than non-IBS sufferers\(^1\)
- IBS patients have more physician visits for both GI and non-GI complaints\(^2\)

IBS – Burden of disease

Productivity Burden

Absenteeism from work or school
during the last 12 months

Patho-etiologies

• Altered GI motility
  – Abnormal small and large bowel motility

• Visceral hyperalgesia
  – Enhanced percent of normal motility
  – Visceral pain

• Psychopathology
  – Higher prevalence of physical and sexual abuse

• Microscopic Inflammation
Physiological distribution of 5-HT

- CNS – 5%
- GI tract – 95%
  - enterochromaffin cells
  - neuronal

Pain produced by rectosigmoid balloon distension

% Reporting Pain

Rectosigmoid balloon volume (mL)

Signs & Symptoms

• Altered bowel habits
  – Constipation
  – Diarrhea
  – Postprandial urgency

• Abdominal pain
  – Diffuse or left lower quadrant
  – Meals may precipitate pain
  – Defecation improves pain

• Abdominal distention
Signs & Symptoms

- Clear or white mucus
- Nausea
- Dyspareunia and poor libido
- Worsening symptoms in the perimenstrual period
- Comorbid fibromyalgia
- Stress triggered
Rethink the diagnosis of IBS

- Onset in middle are or older
- Acute symptoms
- Progressive symptoms
- Nocturnal symptoms
- Weight loss
- Fever
- Rectal bleeding
Rome III criteria

• Recurrent abdominal pain at 3 days/month during the previous 3 months

• Associated with 2 or more of the following
  – Relieved by defecation
  – Onset associated with change in stool frequency
  – Onset associated with change in stool form
  – Mucorrhea
  – Abdominal bloating
IBS Patterns

• IBS-D
  – Diarrhea predominant

• IBS-C
  – Constipation predominant

• IBS-M
  – Mixed diarrhea and constipation

• IBS-A
  – Alternating diarrhea and constipation
Diagnostic tests

• Complete blood count (CBC)
• Comprehensive metabolic panel (CMP)
• Stool examination
  – Ova and parasites, enteric pathogens, fecal leukocytes, c.diff
Other Diagnostic Test

• Hydrogen breath testing
  – Small intestine bacterial overgrowth
  – Lactose and/or fructose intolerance

• Tissue transglutaminase or duodenal biopsies to exclude celiac disease

• Thyroid function tests

• Sedimentation rate and C-reactive Protein
SIBO Provides a Framework for Understanding IBS

- 92% of IBS patients have bloating
- 84% of IBS patients have SIBO confirmed via lactulose breath test
  - Methane excretion associated predominantly with constipation
- With normalized breath test, IBS patients achieved 75% symptom improvement with antibiotic therapy
- Treatment: Rifaximin 550 mg po TID x 14 days

Management

• Diet
• Lifestyle
• Psychological interventions
• Herbal Therapy and Probiotics
• Pharmacologic agents
Food and IBS

• Large proportion of patients with IBS associate with development of sxs
• Multiple mechanisms
  – Cephalic phase, gut mechanoreceptors, ingestion of poorly absorbed molecules, chemostimulation of the gut receptors
• Foods may alter the microbiota
Diet

• Keep it Simple
  – Food diary

• FODMAP
  – Low fermentable oligosaccharides, disaccharides, monosaccharides and polyols

• Gluten Free
  – Improvement in symptoms (IBS-D)
  – HLA-DQ 2/8 positive
Diet Recommendations

- Increase water intake (IBSc)
- Limit caffeine
- Limit Legumes
- Avoid artificial sweeteners
- Avoid Lactose and/or fructose
Low FODMAP Diet for IBS

• FODMAP –Fermentable Oligosaccharids, Disaccharides, monosaccharides and Polyols
  – Poorly absorbed and rapid fermentation short-chained carbohydrates
  – Fermentation = inc carbon dioxide, hydrogen and methane gas
  – Excessive fluid and gas accumulation
  – Sx: bloating, abdominal pain and distention
  – Found in a wide variety foods:

Shepherd, Clin Gastro Hep 2008;6: 765
Gluten Free Diet and IBS

• Prevalence of celiac disease in IBS is similar to healthy controls
• Nonceliac IBS-D patients HLA-DQ2/8 positive have improvement of symptoms on GFD
• 4 week RCT in 45 patients with IBS-d, fewer bowel movements/day on GFD
• Gluten alters bowel barrier function in IBS-d

Vazquez-Roque, Gastro 2013;144:903
Exercise
- 102 patient randomized to physical activity vs control
  - Physical activity-3x/wk, 20-60 mins of mod-vigorous activity for 12 weeks
  - Control- maintain current lifestyle
- 75 % women
- Primary endpoint was a change in IBS Symptom severity score IBS-SSS
- $p=0.003$

Johannesson E, Am JG 2011;106:915
Psychological Interventions

• Referral to clinical psychologist
  – Cognitive-behavioral therapy
    • Cognitive techniques teach strategies for using the mind to deal with the world in a healthier manner
      – Visualization, “thought stopping”
    • Behavioral techniques teach a person specific strategies for handling and reacting to situations
      – Deep breathing exercises, progressive muscle relaxation
  – Psychotherapy
  – Hypnotherapy
Fiber Supplementation

• Absorbs excess water & stimulation of bowel elimination
  – Constipation and mild diarrhea

• Psyllium (Metamucil)
  – Natural product
  – Plantago species of plant

• Polycarbophil compounds (Citracel, Fiberon)
  – Synthetic
  – Less fatulence

• Dose 1 to 3 times a day
  – Start low to avoid cramps, bloating and flatus
Herbal therapy

• Peppermint
  – Improves abdominal cramps and intestinal gas
  – Usually taken as a capsule

• 74 patients with IBS-d (Bangladesh) RCT x 6 weeks
  – Improvement of abdominal pain (p>.001)
  – QOL no difference
  – Diarrhea no difference

Ford AC, BMJ 2008;337
IBGard

- IBSm/IBSd
- 1 to 2 capsules TID
- Improved symptoms in majority of patients

DDW abstract Su #1372 and 1373
Bovine Immunoglobulin

• EnteraGam
  – IBSd
  – 1 packet twice daily for 2 to 4 weeks
  – Maintenance: 1 packet daily
  – Improved the symptoms during a 6 week period

Wilson D, Clin Med Insights Gastro 2013;49-60
Probiotics

• Activia
  – Bifidobacterium Regularis
  – Several studies in normal healthy subjects
  – 41 women with IBS-c
  – 1 container twice daily x 4 weeks

– Results
  • Decreased abdominal distention
  • Acceleration of orocecal and colonic transit

Agrawal A. APT 2009;29-104-114
Probiotics

• Do they work?
• Should you recommend?
• What is the best probiotic?
Probiotics

- Align
- VSL#3
- Florastor
Align

• Bifidobacterium infantis
  – 77 IBS patients randomized x 8 weeks
    • Lactobacillus salivarius
    • Bifidobacterium infantis
    • Placebo
  – Endpoints: abdominal pain/discomfort, bloating/distention, BM consistency/frequency
  – B.infantis group decrease in pain and bloating
    • No change in stool frequency and consistency

O’Mahony L. Gastro 2005;128:541-551
VSL#3

• 8 different strains:
  – B.breve, B.longum, B.infantis, L.acidophilus, L.plantarum, L.paracasei, L.bulgaricus, S.thermophilis

• 59 children with IBS
  – Randomized, double blind, placebo controlled crossover trial x 6 week
  – Primary endpoint
    • Relief of symptoms
  – Secondary endpoints
    • Improvement of bloating and gas
    • No change in stool consistency and frequency

Mixed Probiotic

  – 50 Korean patient with IBSd
    • L.acidophilus, L. plantarium, L.rhamnosus, B.breve, B.lactis, B.longom, S.thermophilus
  – Primary endpoint
    • Adequate Relief (AR)
  – Secondary endpoint
    • Improvement in individual symptoms.
Adequate Response

P = 0.01

AR

probiotic
placebo
Saccharomyces boulardii

• J Clinical Gastro 2011;45:679
  – 67 Korean patients with IBSd or IBSm
    • S. boulardii vs placebo x 4 weeks
    • IBS QOL better in S. boulardii group
    • No difference in individual symptoms

• Mymensigh Med J 2011;20:397
  – 70 Bangladeshi patients with IBSd x 4 weeks
  – No difference in treatment or placebo group
Pharmacologic Therapy

• Anticholinergics/Antispasmodics
  – dicyclomine, hyoscyamine
  – Most commonly prescribed medication

• Antidiarrheals
  – Diphenoxylate, loperamide

• Serotonin receptor antagonist

• Chloride channel activators

• Guanylate cyclase C

• Antidepressants
Alosetron

• 5-HT3 antagonist
• Brand name: Lotronex
• Indication: severe IBS-D in females not responding to other therapies
• Dose: 0.5 to 1 mg po bid
  – Must be enrolled in prescriber program
• Side effects
  – Constipation (1/3 pts), ischemic colitis, rectal bleeding and nausea
  – Ischemic colitis 2-3/1000 pts over 6 months
• Pregnancy category B
Lubiprostone

• Activation of CIC-2 chloride channels
• Brand name: Amitiza
• Indication: IBSc and CIC
• Dose: 8 mcg po bid
  – Should be taken with food
• Side effects
  – diarrhea, nausea, headache, flatulence
• Pregnancy category C
Linaclotide

• Agonist guanylate cyclase 2 C
• Brand name: Linzess
• Indications: IBSc and CIC in adults
• Dose: 290 mcg once daily
  – 30 mins before meal
• Side effects
  – Diarrhea, bloating, abdominal pain
• Pregnancy category C
Antidepressants

• Moderate to severe IBS symptoms
• Low doses
• 4 to 6 weeks before improvement of symptoms
• Considerations
  – TCAs for IBSd
  – SSRI for IBSc
  – SSRI/SRNI for anxiety
Tricyclic Antidepressants (TCA)

• Amitriptyline (elavil)
  – Starting dose 10-20 mg
• Imipramine
• Desipramine
  – 50 mg/d
• Nortriptyline
• Duration: at least 6 months
• Side effects
  – dry mouth, dizziness, nervousness, constipation
Selective Serotonin Reuptake Inhibitors (SSRI)

- Citalopram (Celexa) 10 -20 mg/d
- Escitalopram (Lexapro) 10 -20 mg/d
- Paroxetine (Paxil) 20mg /d
  - More likely withdrawal effects
- Sertraline (Zoloft) 25-150 mg/d
  - Requires dose ranging
- Fluoxetine (Prozac) 20 mg/d

Side effects
  - Nervousness, diarrhea, vivid dreams
Serotonin-Norepinephrine Reuptake Inhibitor (SNRI)

• Similar pain relief as with TCA but fewer side effects

• Venlafaxine (Effexor)
  – 25 to 37.5 mg q day starting dose

• Duloxetine

• Side effects
  – Nausea, constipation, dizziness, dry mouth or blurred vision
Pharmacologic Treatments

**Bloating**
- Peppermint
- Probiotics
- Antibiotics
- Antispasmodics
- Antidepressants

**Diarrhea**
- Iloperamide
- Alosetron
- Antibiotics

**Constipation**
- Psyllium
- Lubiprostone
- Linaclotide
- Osmotic laxatives

**Pain**
- Peppermint
- Antispasmodics
- Antidepressants

**Symptoms**
- Bloating
- Diarrhea
- Pain
- Constipation
Treatment Approach

- Diet, lifestyle
  - Educate and reassure
  - Fiber, probiotics, neutraceuticals

Subsequent visits

Follow up visit

First visit

Psych rx

Pharmacology

MILD

MODERATE

SEVERE
IBS Algorithm

Review Diet History

Yes

<50 yr  >50yr

Constipation

Therapeutic Trial

Fiber supplementation, Miralax or MOM lubiprostone or Linaclotide

Additional Tests

cscope

Symptom Features

Diarrhea

Breath test

<50 yr  >50yr

lubiprostone or Linaclotide

Imodium, lomotil Alosetron

Pain/Gas/Bloat

Antispasmodic Antidepressants Probiotics

Cscope

EGD

Cscope

EGD