Updates on the Management of Irritable Bowel Syndrome Management

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According to the International Foundation for Functional Gastrointestinal Disorders irritable bowel syndrome (IBS) is the most common functional gastrointestinal disorder worldwide with an estimated prevalence rate of 10-15%. While most patients do not recognize the symptoms as IBS it is the most common disorder seen and diagnosed by gastroenterologists. In the United States between 2.4-3.5 million physician visits take place annually for symptoms related to IBS. While IBS appears to be more common among females approximately 35-40% of males may experience symptoms related to IBS as well. There are different types of IBS resulting in varying symptoms and treatments. This knowledge-based activity will educate pharmacists on the diagnosis and management of IBS, as well as the importance of counseling patients to adhere to lifestyle modifications and their treatment.

Learning Objectives

Pharmacist
1. Define Irritable Bowel Syndrome (IBS) and its diagnostic criteria
2. Recognize the pathophysiology and symptomatology of IBS
3. Determine the risk factors and comorbidities related to IBS
4. Identify effective elements of an appropriate drug therapy evaluation for IBS
5. Recommend nonpharmacological measures to manage the symptoms of IBS when counseling patients

Pharmacy Technician
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5. Recommend nonpharmacological measures to manage the symptoms of IBS when counseling patients

Nurse
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5. Recommend nonpharmacological measures to manage the symptoms of IBS when counseling patients
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Target Audience

Pharmacists, Pharmacist Technician, Nurse

Universal Activity Number

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Credit Hours

1.5 Hour

Activity Type

Knowledge-Based

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LEARNING OBJECTIVES

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TYPES OF GASTROINTESTINAL (GI) DISORDERS

- Structural
  - I.e., Peptic ulcer and inflammatory bowel disease
  - Classified based on organ morphology
- Motility
  - I.e., Esophageal spasm, gastroparesis, GERD
  - Classified based on organ function and altered motility
- Functional
  - I.e., Constipation, Irritable bowel syndrome (IBS)
  - Classified based on the symptoms reported by the patient

FUNCTIONAL GI DISORDERS (FGID) DEFINITION

“Functional GI disorders are disorders of gut-brain interaction. It is a group of disorders classified by GI symptoms related to any combination of the following: motility disturbance, visceral hypersensitivity, altered mucosal and immune function, altered gut microbiota, and altered central nervous system processing.”

- Motility disturbance- movement of food and waste through GI tract
- Visceral hypersensitivity- heightened experience of pain
- Altered immune function- changes in the gut’s immune defense
- Altered gut microbiota- changes in gut bacteria
- Altered CNS processing- changes in the signaling of messages between the gut and brain

“Syndrome based on symptoms that cluster together and the diagnosis is based on Rome criteria”

ROME IV

- History of Rome Foundation
  - Mission is to improve the lives of people with FGIDs
  - Input from 117 experts representing 23 countries
- Rome IV defines 33 adult and 20 pediatric FGIDs
- Bowel Disorders
  - IBS with predominant constipation (IBS-C)
  - IBS with predominant diarrhea (IBS-D)
  - IBS with mixed bowel habits (IBS-M)
  - IBS unclassified (IBS-U)
DEFINITION

• A relapsing disorder of the bowel function resulting in constipation and/or diarrhea plus abdominal pain
• A gut-brain disorder due to disturbances of the large and small intestine (gut) motility which are regulated by the brain
• Patients with IBS may experience additional symptoms or comorbidities
• Once referred to as spastic colon, nervous colon and spastic bowel

BACKGROUND

• Most common FGID worldwide ranging between 10-15%
• Estimated 2.4-3.5 million annual physician visits in the US related to IBS symptoms
• Direct (medical) and indirect (loss of work days) costs approximately $21 billion annually
• Twice as many days off from work for people with IBS
• Second most common reason for loss of work days after the common cold
• More commonly reported in female than male population (60-65% vs. 35-40%)
• Can occur at any age but peak ages are 25-54 years

PATHOPHYSIOLOGY

• The exact cause of IBS is not completely understood
• Possibilities:
  • Alteration of intestinal muscle contraction
  • Abnormalities with the nerves in the gut
  • Intestinal inflammation
  • Recent bacterial or viral infection
  • Psychological (anxiety, stress, depression)
  • Genetic disposition
  • Immune changes
  • Diet
  • Hormones
  • Visceral hypersensitivity
  • Alteration in gut serotonin
  • Gut-brain dysregulation
  • Changes in gut microbiota (gut flora)

• Communication or biochemical signaling between the gut and the central nervous system is known as the gut-brain axis
• Recent research shows that the gut microbiota plays an important role in the signaling pathways which led to the concept of the microbiota-gut-brain (MGB) axis
• Bidirectional signaling (i.e., gut microbiota can affect brain activity and brain activity can alter the development of gut microbiota composition)
• Gut microbiota is made up of more than 1000 species of bacteria
• The number and types of species is determined by the individual person, diet, genetics, environmental factors and the specific area of the GI tract
• Appropriate balance or eubiosis of gut microbiota influences immune function, nutrition, metabolism and the body's physiology
• Disruption or dysbiosis may be linked to bowel disorders, obesity, cancer, psychological disorders and pain
• Gut microbiota composition can be altered due to changes in lifestyle, diet, stress, medical procedures, medications
MICROBIOTA-GUT-BRAIN AXIS

Healthy status
- Normal gut physiology
- Physiological levels of enteric nervous system function
- Normal gut microbiota

Stress/disease
- Abnormal gut physiology
- Altered gut microbiota
- Increased levels of inflammatory cytokines and mediators

Chronic disease
- Healthy brain

GUT MICROBIOTA AND IBS

<table>
<thead>
<tr>
<th>Condition</th>
<th>Microbial association*</th>
<th>References†</th>
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<tbody>
<tr>
<td>IBS</td>
<td>Increased Akkermansia ratio, Faecalibacterium, Butyrosphaera, Alistipes, Endospirillum</td>
<td>Ghoshal et al. (2015), Jefferies et al. (2017), Talley et al. (2015), Skurnik et al. (2011)</td>
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BRAIN-GUT-SEROTONIN PATHOPHYSIOLOGY

- The gut is comprised of the enteric nervous system which can perform functions independent of the brain
- The enterochromaffin cells in the gut lining produces 95% of serotonin (5-HT) in the body
- Certain gut microbes stimulate gut cells to produce more serotonin or may produce serotonin on their own
- Alterations in serotonin signaling can result in increased serotonin levels and changes in bowel motility, fluid secretion by the intestines and heightened sensitivity to pain
- Seven 5-HT subtypes with 5-HT_2, 5-HT_3, and 5-HT_4 found in the CNS and gut

VISCERAL HYPERSENSITIVITY

- The enteric nervous system releases a number of neuropeptides including serotonin and opioid peptides
- Opioid peptides interact with opioid receptors in the gut controlling motility and secretion
- Principle opioid receptors include the mu, kappa and delta opioid receptors
- Animal studies show that these opioid receptors directly inhibit intestinal muscle activity and also affect the brain which can impact GI function

SYMPTOMS

- Abdominal pain
- Change in bowel habits (i.e., diarrhea and/or constipation)
- Relief of pain with bowel movement
- Symptomatic flares or periods of remission
- Bloating
- Urgency
- Sensation of incomplete passing of stools
- Increase in symptoms during women's menstrual cycle
- Other GI symptoms (i.e., acid reflux, belching, dysphagia, fullness after eating, nausea)

“RED FLAG” SYMPTOMS

- Weight loss
- Nighttime symptoms
- Rectal bleeding
- Anemia
- Fever
- Elevated white blood count
- Unexplained vomiting
- Difficulty swallowing
- Persistent pain not relieved by flatulence or bowel movement
- Family history of colon cancer, IBD, etc
**COMORBIDITIES**

- Fibromyalgia
  - As many as 60% of patients with IBS have FM and 70% of patients with FM have IBS
  - Both associated with chronic pain, stress, anxiety and depression
- Chronic fatigue syndrome
  - Both share similar pathophysiology
- GERD
  - Similar trigger foods
  - Mental health disorders
  - 60% of patients have anxiety, 20% of patients have depression and 20% have other psychological disorders

**RISK FACTORS**

- Female gender
- Age <50 years
- Family history
- Eating habits
- Smoking
- Mental health issues
- History of abuse
- Medications

**COMPLICATIONS**

- No increase in mortality
- Poor quality of life
- Mental health issues
- Hemorrhoids

**IBS CLASSIFICATIONS**

<table>
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<th>Subtype</th>
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<th>Rome IV</th>
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<td>IBS-C</td>
<td>Type 1, 2</td>
<td>Type 6 and 7</td>
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<td>IBS-D</td>
<td>&gt;25%</td>
<td>&gt;25%</td>
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<tr>
<td>IBS-M</td>
<td>&gt;25%</td>
<td>&gt;25%</td>
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<tr>
<td>IBS-U</td>
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*Meets diagnostic criteria for IBS but bowel habits cannot be categorized into the 3 subtypes.
DIAGNOSIS

- Diagnosis is based on clinical symptoms/diagnostic criteria and classification is based on bowel habits
- Testing is not warranted for patients who meet diagnostic criteria and <50 years of age
- There is limited diagnostic testing to distinguish IBS from other GI conditions
- No clinical biomarker to confirm or rule out IBS
- Patient demographics and “red flag” symptoms may guide additional testing
  - CBC, C-reactive protein, celiac disease, colonoscopy for patients ≥ 50 years of age, stool sample, psychological assessment

IBSDetex™ which confirms post-infectious IBS-D and IBS-M to determine treatment with antibiotics

PATIENT ASSESSMENT

- Identify triggers such as diet, stress or hormones
- Assess for physical comorbidities (fibromyalgia)
- Assess for psychological comorbidities (stress, anxiety, depression)
- How symptoms impact quality of life
- Pain scale

VALIDATED MEASURES OF IBS SYMPTOMS

- Functional Bowel Disorder Severity Index (FBDSI)
  - Amount of pain present at visit today
  - A diagnosis of functional abdominal pain syndrome
  - Number of physician visits in the previous 6 months
  - ≥6 mild; 7-11 moderate; ≥12 severe
- IBS Symptom Severity Scale (IBS-SSS)
  - Evaluates the intensity of IBS symptoms during a 10-day period
  - Abdominal pain, distension, stool frequency, stool consistency and impact on daily activities
  - Scored on a visual analog scale 0-100 on each 5 areas

SEVERITY OF IBS

- 2014 ACG Guidelines on the Management of IBS (currently being updated with the Rome IV criteria)
- Education
- Nonpharmacological
  - Exercise
  - Dietary changes
  - Psychological management
- Pharmacological
  - Nonprescription and prescription
  - Treatment determined by IBS classification
- Follow-up

MANAGEMENT CONSIDERATIONS

- Severity
- Symptoms
- Classification of IBS
- Impact on quality of life
  - No cure but goal is to improve quality of life and symptoms
  - Management needs to be individualized

IBS: MANAGEMENT

- Patient preference on treatment
- Patient goals and expectations
- Previous treatment
- Psychological comorbidities

Updates on the Management of Irritable Bowel Syndrome Management
**EDUCATION**

- Use lay language
- Twelve steps for an effective patient-physician relationship (Rome IV)
- Patient friendly references
  - [www.mayoclinic.com](http://www.mayoclinic.com)
  - [www.irritablebowelsyndrome.net](http://www.irritablebowelsyndrome.net)
  - [www.patient.gi.org](http://www.patient.gi.org)
  - [www.niddk.nih.gov](http://www.niddk.nih.gov)

**EXERCISE**

- First-line approach regardless of classification
- Limited research on IBS and exercise but studies show moderate exercise (30 min 5 days/week) decreases stress
- Maintains overall health, helps with IBS-C and stress-induced IBS
- Increased physical activity
  - Cardiovascular exercise, yoga, Tai chi, meditation, walking
- Avoid exercise within an hour before or after eating
- Choose exercise you enjoy
- Choose a time of day you can stick to
- Avoid intense exercise if IBS-D

**DIETARY MANAGEMENT**

- Foods do not cause IBS but they can trigger an IBS flare
- Dietary plan needs to individualized based on trigger foods and IBS classification
- Design a well-balanced diet
- Maintain appropriate amount of fluid intake
- Key tips
  - Eat smaller meals more frequently
  - Avoid individual trigger foods (gassy, greasy, fried, spicy, high fat)
  - Avoid individual trigger beverages (milk, alcohol, soda)
  - Keep a food and symptom journal

**DIETARY MANAGEMENT**

- Low-FODMAP diet
  - Fermentable, Oligo-saccharides, Di-saccharides, Mono-saccharides And Polyols
  - Focuses on carbohydrates that can exacerbate IBS symptoms
  - Reduce over 6-8 weeks and then slowly introduce them back to see which foods are triggers
  - Gluten free diet
    - Beneficial for those with IBS and wheat allergy or celiac disease
  - Lactose free diet
    - For those with IBS and lactose intolerance

**FODMAP CLINICAL STUDIES**

  - 41 patients with IBS randomized to a low- FODMAP diet vs. regular diet; 68% of FODMAP group reported control of IBS symptoms vs 21% in regular diet group (p<0.005)
  - Meta-analysis of 6 RCTs and 14 NonRCTs included; low-FODMAP groups showed improvement in IBS SS5 scores, QOL scores, abdominal pain, bloating and overall symptoms
- Schumann. Nutrition 2018
  - Meta-analysis of 9 RCTs and a total of 995 subjects; the FODMAP diet improved GI symptoms (p=0.0001), abdominal pain (p=0.008) and QOL (p=0.001)
- ACG recommendations (weak)
  - FODMAP diets have promise but require more long-term research

**PSYCHOLOGICAL MANAGEMENT**

- Choice of therapy based on patient needs and therapist expertise
  - Cognitive behavioral therapy (CBT)
  - Relaxation therapy
  - Hypnotherapy
  - Biofeedback
- Although exact mechanism is unclear 20 clinical trials showed benefit in relieving IBS symptoms
- ACO recommendations (weak)
  - CBT and hypnotherapy can be recommended for some patients
  - Can be time intensive and expensive for patients and require a skilled therapist
PROBIOTICS, PREBIOTICS AND SYNBIOTICS

• **Probiotics** are foods or supplements that contain living microorganisms intended to maintain or improve the "good" bacteria (gut microbiota) in the body.

• **Prebiotics** are foods that act as food for the microbiota with the intention of improving the balance of the microorganisms

• **Synbiotics** are foods or supplements that combine the probiotic and the prebiotic

IBS studies have shown a decrease in certain gut species including Bifidobacteria, Lactobacilli, Bacteroids and Faecalibacterium

Alterations in gut microbiota may be linked to anxiety, depression, bloating, pain, abnormality in intestinal motility (diarrhea and/or constipation) symptoms of IBS

Literature shows some specific probiotics may help with abdominal pain, bloating, reduce constipation, improve frequency and/or consistency of bowel movements and improve QOL

ACG recommendations (weak)

While the studies are small and there are variations in study design, dosage, species and strains, probiotics are well tolerated and pose minimal to no serious side effects

May be beneficial for some patients but cannot recommend specific species, preparations or strains due to conflicting evidence

PROBIOTICS

Prebiotic

- Provide nutrients for mainly bifidobacteria and lactobacilli

- Belong to the group of non-digestible carbohydrates (FODMAPs)

Few studies have evaluated prebiotics in IBS

- Possible cause more bloating and flatulence

Synbiotic

- Limited experience in the management of IBS

According to ACG there is insufficient evidence to recommend prebiotics or synbiotics in IBS

PHARMACOLOGICAL MANAGEMENT OF IBS

**IBS-D**

- Fiber supplements
- Loperamide
- Alosetron
- Rifaximin
- Eluxadoline

**IBS-C**

- Fiber supplements
- Laxatives
- Tegaserod
- Lubiprostone
- Linclotide
- Plecanatide

IBS-D AND IBS-C: FIBER SUPPLEMENTS

- May be more beneficial for IBS-C
- Most studies utilizing fiber did not state which IBS subtype
- Can cause bloating and abdominal pain
- Gradually increase dietary fiber to 21-38 grams per day (depending on age and gender) plus water
- Trial and error depending on improvement or worsening of symptoms
- Although weak, ACG recommends psyllium as first line

IBS Symptom | Fiber Treatment
---|---
Lower abdominal pain | Methylcellulose or Psyllium
Upper abdominal pain | Oatmeal, Oat bran, or Psyllium
Constipation | Methylcellulose or Psyllium
Incomplete evacuation | Methylcellulose or Psyllium
Diarrhea | Psyllium or Polyethylene glycol
Defecatory grip | Methylcellulose or Polyethylene glycol

TREATMENT OF IBS-D

- Fiber supplements
- Psyllium to firm loose stools
- Drink with at least 8oz of water
- Do not take for more than 7 days
- Imodium® (Loperamide)

- μ-opioid receptor agonist that decreases peristalsis, prolongs gut transit time and reduces fluid secretion in the intestine

- An effective antidiarrheal but insufficient evidence for its use in IBS-D or improvement of overall IBS symptoms

- Used frequently as first-line therapy as treatment and prevention

- 4mg after first bowel movement then 2mg after each loose stool. No more than 8mg/day

- Do not take for more than 2 days
IBS-D: LOTRONEX® (ALOSETRON) FEBRUARY 2000

• A selective serotonin 5-HT3 antagonist that inhibits serotonin from binding to 5-HT3 receptors to decrease GI motility and abdominal pain
• Approved only for women with severe IBS-D who have symptoms lasting longer than 6 months, rule out abnormalities of the GI tract and no response to conventional therapy
• Starting dose is 0.5mg twice a day and may increase to 1mg twice a day after 4 weeks
• Discontinue medication if no response after 4 weeks
• BBW of ischemic colitis and severe complications of constipation
• Was removed from the market November 2000 and reintroduced in 2002

IBS-D: XIFAXAN® (RIFAXIMIN) 2004

• Antibacterial indicated for the treatment of IBS-D in adults
• 550mg three times a day with or without food for 14 days and can retreat up to two times if symptoms recur
• Studies show benefit in relieving symptoms of bloating, diarrhea and abdominal pain although symptoms may resume
• ACG provides a strong recommendation for minimally absorbed antibiotics for short term use
• Long term use rifaximin is unknown

IBS-D: VIBERZI® (ELUXADOLINE) 2015

• A mu-opioid receptor agonist (and delta opioid receptor antagonist and a kappa opioid receptor agonist) which reduces abdominal pain and reduces diarrhea
• Indicated for adults in the treatment of IBS-D
• 100mg twice a day with food
• 75mg twice a day with food in patients who cannot tolerate 100mg, mild/moderate hepatic impairment and taking OATP1B1 inhibitors (gemfibrozil, cyclosporine, some statins, some antibiotics and some antiretrovirals)
• Contraindicated in patients without a gallbladder or known or suspected biliary duct obstruction, or sphincter of Oddi disease or dysfunction

IBS-C: LAXATIVES

• Stimulant laxatives
  • Works to produce a bowel movement by inducing fluid secretion and peristalsis by the large intestine
  • Bisacodyl (Dulcolax®) and sennosides (Senna®)
• Osmotic laxatives
  • Increase the amount of water that is secreted by the intestines helping to pass stool
  • PEG (Miralax®)
• Key points
  • 7 day time limit without supervision of provider
  • Can cause cramping, abdominal pain and diarrhea
  • Does not appear to help abdominal pain
  • Weak recommendation by ACG

IBS-C: ZELNORM® (TEGASEROD) 2002

• A 5-HT4 agonist approved in 2002 for IBS-C to enhance GI secretion and increase GI motility
• Removed from the market in March 2007 due to increase risk of cardiovascular events, stroke, heart attack and unstable angina
• July 2007 FDA allows restricted use of tegaserod for life-threatening situations only or situations requiring hospitalization
• Authorization denial if
  • History of CV disease
  • Diabetes
  • Hypertension
  • >55 years of age
  • Smoking
  • Obesity
  • Mental health issues
• Contraindicated in patients with mechanical GI obstruction
• May cause hypotension and dyspnea after first dose
• ACG provides a strong recommendation for lubiprostone and recommends additional studies in men

IBS-C: AMITIZA® (LUBIPROSTONE) 2006

• Chloride channel activator indicated for the treatment of IBS-C in women ≥ 18 years of age
• Works by increasing intestinal fluid secretion and intestinal motility
• 8mcg twice a day with food and water and if severe hepatic impairment the dose is 8mcg once daily
• Contraindicated in patients with mechanical GI obstruction
• Discontinue if patient experiences severe diarrhea
• May cause hypotension and dyspnea after first dose
• ACG provides a strong recommendation for lubiprostone and recommends additional studies in men
**IBS-C: LINZESS® (LINACLOTIDE) 2012**

- A guanylate cyclase-C agonist that works locally on the intestinal tissue to accelerate GI transit time, increase intestinal fluid and reduce abdominal pain.
- Indicated for the treatment of IBS-C in adults ≥ 18 years of age.
- BBW for patients <6 years old and between 6-18 years of age; animal studies showed deaths related to dehydration within 24 hours of administration.
- 290 mcg once daily given on an empty stomach at least 30 minutes before the first meal.
- If patient experiences severe diarrhea discontinue medication and hydrate.

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**IBS-C: TRULANCE® (PLECANATIDE) 2017**

- A guanylate cyclase-C agonist indicated for IBS-C in adults ≥ 18 years of age.
- Same mechanism and BBW as Linzess®.
- 3mg once daily with or without food.
- If patient experiences severe diarrhea discontinue medication and hydrate.

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**TREATMENT OF IBS-M AND IBS-U**

- Target individual and most bothersome symptoms.
- Continue to re-evaluate based on symptoms.
- Limited literature on mixed IBS subtype.
- ‘pseudo’ IBS-M due to use of laxatives, antidiarrheals or side effects of medications.
- Implement changes to diet and exercise habits.
- Psychological management, if applicable.

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**ABDOMINAL PAIN**

- May be add on therapy for all subtypes.
- Antispasmodics
- Antidepressants
- Peppermint oil

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**ANTISPASMODICS**

- Hyoscyamine, dicyclomine, phenobarbital/roxycaine/atropine/scopolamine.
- Short-term relief only and long-term efficacy is unknown.
- Limited by anticholinergic side effects.
- Variations in results among the studies.
- ACG provides a weak recommendation due to low level of evidence.

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**ANTIDEPRESSANTS**

- SSRIs (fluoxetine, citalopram, paroxetine).
- Literature search showed conflicting data among the 3 SSRIs with most studies lasting only 12 weeks.
- Tricyclic antidepressants (amitriptyline, desipramine).
- More evidence available with TCAs.
- Metaanalysis of 7 RCTs showed TCAs to significantly (p<0.0001) improve abdominal pain scores.
- Low dose of antidepressants is suggested.
- ACG provides a weak recommendation and does not provide guidance on which antidepressant.

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**Updates on the Management of Irritable Bowel Syndrome Management**
PEPPERMINT OIL

- Data suggest benefit for relaxing smooth muscle and improving pain sensations in IBS
- Dosing range from 187-225mg three times a day
- Studies did not differentiate IBS subtype
- Minimal adverse events with heartburn being most common
- Long-term efficacy is unknown
- Symptoms of abdominal pain resumed after peppermint oil was discontinued
- ACG provides weak recommendation due to limited evidence

TREATMENT OF BLOATING

- Simethicone (i.e., Gas-X, Mylcon)
- Alpha-galactosidase enzyme (i.e., Beano)
- Limited evidence available for strong recommendations
- Dietary changes should be first-line
- Managing overall symptoms of all IBS subtypes can help to alleviate bloating

CLINICAL TRIALS

- Elobixibat
  - Approved in Japan in January 2018 for CIC
  - Inhibitor of the ileal bile acid transporter (IBAT)
  - Works to inhibit uptake of bile acids thereby accelerating intestinal passage and softening stool
  - Ongoing clinical trials for use in IBS-C
- Ondansetron
  - 5-HT₃ receptor antagonist
  - Clinical trials ongoing for use in IBS-D
  - Preliminary results showed relief of IBS symptoms, reduced bowel movement frequency and urgency and reduced symptoms of bloating

GENERAL MANAGEMENT GUIDELINES BASED ON SEVERITY

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<th>Mild IBS</th>
<th>Moderate IBS</th>
<th>Severe IBS</th>
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<td>- Dietary and lifestyle changes&lt;br&gt;- Medication changes, if applicable&lt;br&gt;- Monitoring of symptoms</td>
<td>- See Mild IBS recommendations PLUS&lt;br&gt;- Pharmacotherapy during flares for moderate&lt;br&gt;- Daily use for moderate to severe&lt;br&gt;- Psychological management</td>
<td>- See Mild IBS recommendations PLUS&lt;br&gt;- Regular medication use focused on managing specific symptoms&lt;br&gt;- FGID treatment centers (multidisciplinary approach)</td>
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ROLE OF THE PHARMACIST

- Be aware of patients frequently purchasing antidiarrheals or laxatives
- Counsel on time frames for use of products 2 days for antidiarrheals and 7 days for laxatives
- When assessing the patient ask about abdominal pain, change in bowel habits, time frame of symptoms, dietary habits and medical history
- Identify patients with warning signs and refer to PCP when necessary
- Counsel on appropriate use of all prescription and nonprescription medications
- Educate on dietary and exercise modifications
- Provide recommendations on psychological management if applicable

TAKE HOME POINTS

- IBS is a relapsing condition that is associated with abdominal pain and changes in bowel movements based on the 2016 Rome IV criteria
- Diagnosis is based on patient assessment, physical examination and testing only when ruling out other GI disorders
- Knowing the warning signs will help determine patient referral from community to their PCP or specialist
- Multidisciplinary treatment approach
  - Diet, exercise, psychological management, nonprescription medications and prescription medications
- Treatment is based on IBS subtype and bothersome symptoms
TAKE HOME POINTS

- For all subtypes can consider probiotics, dietary or supplemental fiber, exercise, dietary changes or psychological management
- IBS-D
  - Loperamide (μ-opioid receptor agonist), alosetron (5-HT₃ antagonist), rifaximin (antibacterial), eluxadoline (μ and kappa opioid receptor agonist and delta opioid receptor antagonist)
- IBS-C
  - Laxatives, tegaserod (5-HT₄ agonist), lubiprostone (chloride channel activator), linacolide and plecanatide (guanylate cyclase-C agonists)
- IBS-M and IBS-U treatment is based on individual symptoms
  - Assess other bothersome symptoms and treat as necessary (antispasmodics, antidepressants, peppermint oil, simethicone)

REFERENCES

1. Irritable Bowel Syndrome is categorized as what type of gastrointestinal disorder?
   a. Motility
   b. Structural
   c. Functional
   d. Biochemical

2. Which of the following may play a role in the pathophysiology of irritable bowel syndrome?
   a. Alteration in serotonin levels
   b. Opioid peptides
   c. Gut microbiota
   d. All of the above

3. Which of the following is a complication of irritable bowel syndrome?
   a. Poor quality of life
   b. Increased mortality
   c. Colon cancer
   d. Bowel obstruction

4. A “red flag” syndrome of irritable bowel syndrome includes which of the following?
   a. Unexplained weight loss
   b. Bloating
   c. Rectal bleeding
   d. A and C

5. All of the following are common comorbidities of irritable bowel syndrome EXCEPT
   a. GERD
   b. Rheumatoid arthritis
   c. Depression
   d. Fibromyalgia

6. Which of the following medications is approved for diarrhea predominant irritable bowel syndrome?
   a. Linaclotide
   b. Eluxadoline
   c. Plecanatide
   d. Lubiprostone
7. Which of the following medications works as an antibacterial in the management of irritable bowel syndrome?
   a. Alosetron
   b. Hyoscyamine
   c. Rifaximin
   d. Linaclotide

8. Which of the following statements is TRUE regarding lubiprostone?
   a. It may cause shortness of breath after the first dose
   b. It is approved for the management of IBS-C in men and women
   c. It has a BBW for ischemic colitis
   d. It is a serotonin subtype-4 receptor agonist

9. Which of the following medications has restricted use due increase risk of cardiovascular events?
   a. Linaclotide
   b. Lubiprostone
   c. Tegaserod
   d. Eluxadoline

10. Which medications may be considered additional therapy for the management of abdominal pain associated with IBS?
    a. Dicyclomine
    b. Amitriptyline
    c. Peppermint oil
    d. All of the above