Small Intestinal Bacterial Overgrowth

DEFINED:

Small intestinal bacterial overgrowth or SIBO is the presence of excessive bacteria and archaea in the small intestine. Often these bacteria are commensal bacteria that would, in a healthy individual, be found in the large intestine, the small intestine or orally but in the right numbers and in balance. SIBO is thought to be a common cause of irritable bowel syndrome or IBS. In one study, as high as 84% of IBS patients tested using breath analysis were diagnosed with SIBO. Treatment of this overgrowth leads to an average 75% resolution of IBS symptoms. It is estimated that as many as 20% of Americans suffer from IBS. This excessive overgrowth of organisms in the small intestine causes excess production of hydrogen, methane or hydrogen sulfide gas. These gases are produced as a result of carbohydrate fermentation in the small intestine. This is why many SIBO sufferers report a worsening of their symptoms if they eat carbohydrate rich foods. Additionally, many of these organisms feed on fiber and prebiotics, and patients will often complain that fiber supplements, fiber rich foods and prebiotics/probiotics are a symptom trigger. Many individuals with undiagnosed SIBO report that if they did not eat a very restricted diet and take supplements to support GI health and normal bowel movements they would have GI distress.

SYMPTOMS:

- Bloating and abdominal gas
- Flatulence and belching
- Abdominal pain, discomfort or cramps
- Nausea and sensation of food sitting in stomach
- Constipation, diarrhea or a mixed pattern of both.
- Heartburn
- Nausea
- Malabsorption causing malnutrition - potentially leading to anemia and osteoporosis.
- Low iron levels
- Fatty stools
- Fatigue
- Brain fog
- Headaches
- Anxiety/Depression
- Acid reflux
- Joint and muscle pains
- Skin issues
- Leaky gut/Food sensitivities

RISK FACTORS:

- Antibiotic use
- The use of antacids including proton pump inhibitors
- Endometriosis
- Abdominal and reproductive surgery with the potential for adhesions
- A history of acute gastroenteritis (food poisoning/stomach flu)
- Opiate use
- Absent/Inefficient Ileocecal Valve
- Redundant Bowel
- Long term constipation
- Celiac Disease
- Inflammatory Bowel Disease (Crohn's/Ulcerative Colitis)
- Abdominal tumors or bowel strictures

ASSOCIATED CONDITIONS:

Acne Vulgaris
Atrophic Gastritis
Autism
GI Cancer
Celiac Disease
Chronic Fatigue Syndrome
COPD
Crohn's Disease
Cystic Fibrosis
Depression
Diabetes
Diverticulitis
Dyspepsia
Ehlers-Danlos Syndrome and other hyper-mobility conditions
Erosive Esophagitis
Gallstones
Fibromyalgia
GERD
Hepatic Injury

H-Pylori Infection
Low Stomach Acid
Hypothyroidism
IBS
Interstitial Cystitis
Metabolic Syndrome
NASH
Osteoporosis
Obesity
Parasites
Prostatitis
Rheumatoid Arthritis
Restless Leg Syndrome
Rosacea
Ulcerative Colitis
Visceral Fat

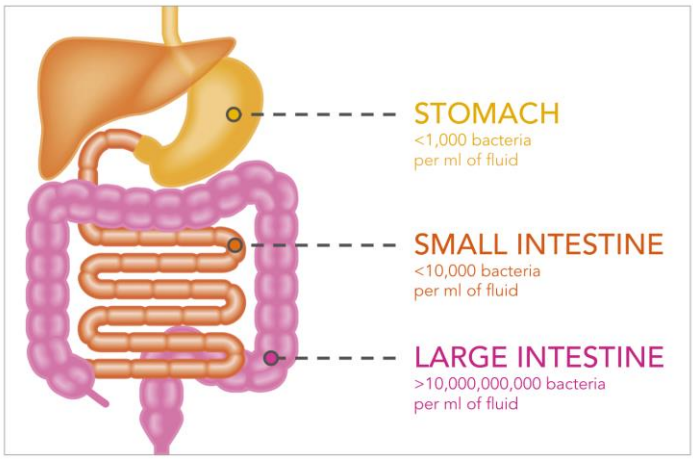
DIAGNOSIS:

Diagnosis is accomplished with a three hour breath test following a 24 hour prep diet. During this 3 hours breath test, samples are collected every 20 to 30 minutes. These samples are later analyzed for gas composition. It should be noted here that diagnosis CANNOT be made from a stool sample. Stool simply reflects what is growing in the large intestine NOT the small intestine.

TYPES:

SIBO can be broken down into four variants based upon the types of gas that the bacteria produce. Differentiation between the types is important as the treatment protocols for each differ.

1. Methane dominant
2. Hydrogen dominant
3. Mixed methane and hydrogen
4. Hydrogen sulfide



Source: Gorbach SL. Microbiology of the Gastrointestinal Tract. Medical Microbiology. 4th edition. University of Texas; 1996

TREATMENT:

Antibiotic – This is typically a two week course of various antibiotics depending upon the type of bacteria that the individual presents with. Immediately following treatment, a follow up breath test is often performed to insure that the bacteria have been cleared. If not, additional treatments may be needed.

Herbal treatment – Various herbal protocols exist depending upon the type of SIBO diagnosed. These treatments are usually four weeks in duration. Some of the herbs used include berberine, oregano, neem and allicin. As with the antibiotic treatment, a follow-up breath test is often performed to insure that the bacteria have been cleared from the small intestine.

Diet - This plays a role in the healing process and one treatment includes the elemental diet. This is a liquid diet that works by starving out the bacteria. This is good option for people with resistant, hard to treat SIBO who have failed both herbal and antibiotic treatment.

Die Off – many patients experience a transient worsening of their symptoms upon treatment as they experience die off of bacteria and fungus. Various protocols exist to help patients navigate this transition.

FOLLOW-UP AND LONG TERM MANAGEMENT:

Ongoing wise dietary choices and often fungal treatment may occur both during and after treatment for SIBO. Additionally, individuals need long term management with a prokinetic. Here, both pharmaceutical and herbal options exist. If no prokinetic is used following treatment, most individuals relapse in very short order. A prokinetic is responsible for insuring that the migrating motor complex in the small intestine remains active and strong preventing any stasis of chyme, the partially digested food in the small intestine. A prokinetic is NOT a laxative and should not be confused with one. It mediates its action in the small intestine not the large intestine. Stasis of this partially digested food from a lack of the migrating motor complex is a major factor in creating the conditions which allow SIBO to occur.