



Parkinson's Disease and Small intestinal bacterial overgrowth (SIBO)



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Definitions

Parkinson's disease (PD) is a movement disorder that occurs when the brain does not produce enough dopamine. Symptoms usually develop slowly and get worse over time. Typically, PD starts on one side of the body and overtime affects both sides. As symptoms continue to develop, people living with PD may have trouble walking, talking, or doing simple tasks. There is no specific test to diagnose PD. A healthcare provider carefully reviews a person's medical history and does an exam to check balance and coordination. This will then allow the healthcare provider to give a correct diagnosis.

Dopamine is a chemical that is used by the nervous system to send messages between nerve cells.

Small intestinal bacterial overgrowth (SIBO) is a disease identified by a high number of bacteria in the small intestine. The imbalance of bacteria does not allow nutrients to be absorbed well by the small intestines. This is often the result of slow or altered gastrointestinal (GI) motility. This slow transit of digested food through the small intestine can allow bacteria to grow and thrive.

Parkinson's disease (PD) and Small intestinal bacterial overgrowth (SIBO) Occurring Together

Changes in muscle movements are common throughout many parts of the body for people with PD, including the GI tract. SIBO is often the result of food and liquids moving too slowly through the small intestines. For people with both PD and SIBO, this change frequently happens when muscles in the GI tract do not properly work together. Some medicines that are used to treat PD can also further slow movements of the GI tract. Regardless of the cause, this leads to food emptying the GI tract slower than normal.

A diagnosis of SIBO is more common in people with PD than the general population. One study showed that 54% of people with PD also had SIBO, while only 8% of the people without PD studied had SIBO. SIBO symptoms may cause major issues for patients with PD by interfering with how well medications are absorbed by the body. Most medications require normal movement through the GI tract for them to be fully effective. These medications often need to be absorbed by the small intestines. The slowed emptying and high number of bacteria can limit the body's ability to absorb

medicine. Proper treatment of SIBO in people with PD is needed to give each person the best quality of life possible.

SIBO Symptoms

The following symptoms can be seen in all patients who are affected by SIBO, including those with PD. People can feel a combination of one or more of these symptoms. For patients with both PD and SIBO, bloating is the most common symptom experienced.

- **Bloating** – a buildup of gas or swollen feeling in the abdomen (belly)
- **Flatulence** – passing of intestinal gas
- **Abdominal pain** – dull to sharp pain that occurs inside the belly, often in the stomach or intestines
- **Nausea** – a feeling of sickness and feeling the need to vomit
- **Dyspepsia** – a burning feeling in the chest and/or upper abdominal discomfort, often in the stomach and chest
- **Fatigue** – feeling low energy, overly tired
- **Diarrhea** – loose, watery bowel movements that occur more frequently

- **Constipation** – having 3 or fewer bowel movements a week, and/or difficulty passing bowel movements

SIBO Risk Factors

Many risk factors can lead to someone developing SIBO. Many of these conditions can also occur with PD, which increases the chances of someone developing SIBO. The risk factors listed below are relevant to all people not only PD patients.

- Older age
- Small bowel dysmotility (slowed or changed speed, strength, and/or contractions of GI muscles)
- Small intestinal diverticulosis (tiny pockets within the inside wall of the small intestine)
- High or low levels of hydrochloric acid in the GI tract. Hydrochloric acid is secreted by the stomach to help break down foods.
- Celiac disease – This is an autoimmune disease where the lining of the intestines is damaged from eating gluten.
- Irritable bowel syndrome (IBS) – IBS is a common GI condition with abdominal pain and changes in bowel habits that cannot be explained by other tests or diagnoses.
- Inflammatory bowel disease (IBD) – IBD refers to two conditions (Crohn’s disease and ulcerative colitis) that are recognized by chronic inflammation of the gastrointestinal (GI) tract.
- Changes to organs after surgery (such as a gastric bypass surgery)
- Medications that slow gut motility, common examples of these include.
 - Opioids – This is a class of highly controlled prescription drugs that are used to reduce pain.
 - Atropine (Atropen®) – This medication is used to treat low heart rate and to dilate pupils.
 - Loperamide (Imodium®) – This medication is used to treat diarrhea by slowing the movements of the lower GI tract.

Diagnosis of SIBO

The tests performed to diagnose SIBO are consistent regardless of a patient having PD or not.

- **Lactulose or glucose hydrogen breath tests** – These test the levels of hydrogen and methane gas that is produced by the body when food is digested. Higher levels of these gasses occur in people who have

SIBO. This test is non-invasive and commonly used. A test is considered non-invasive if it does not involve cutting into the skin or require any tools that go into the body.

- **Esophagogastroduodenoscopy (EGD)** – Testing the bacteria count in the small intestine can be done by taking a sample of fluid through a needle during a test called an EGD. This is considered the most accurate test for SIBO. This test is very invasive, it is less commonly used. This test is considered invasive because a scope (long flexible tube with a camera on the end) is put into the mouth and down the throat to look inside the GI tract. People who get this test are given anesthesia to sleep through the test.

Treatment of SIBO

The following treatment options are commonly used for SIBO, and for patients with both SIBO and PD. The medications a healthcare provider may recommend for SIBO in people with PD can be limited. The severity of PD and SIBO symptoms must be considered as well as any other medications being used to treat their PD.

- **Antibiotics** can be used to eliminate the bacterial overgrowth.
 - Rifaximin (Xifaxan®) is the only FDA approved medication to treat people with SIBO who test positive for high levels of. A breath test (see diagnosis section above) is done to determine if a case of SIBO is methane positive.
 - Other antibiotics may be recommended by your healthcare provider.
- **Prokinetics** (such as erythromycin and prucalopride) are medications that improve motility by increasing the strength and number of contractions produced

The Food and Drug Administration (FDA) is one of the U.S. government's regulatory agencies. This agency oversees a broad range of topics that pertain to food, drugs and other products used on a daily basis.

The FDA works to protect public health by assuring that foods and drugs for humans and animals are safe and properly labeled. The FDA also ensures that vaccines, other biological products, and medical devices intended for human use are safe and effective.

Products approved by the FDA have been deemed safe, with benefits that are worth the possible risks. This is done after reviewing studies and tests that have been done on a product.

by muscles of the GI tract. These will move the bacteria through the small intestine, lessening the chance for bacteria to grow and multiply. However, no prokinetics have been approved for treatment of SIBO by the Food and Drug Administration (FDA). Some studies have shown these medications can be helpful for some patients. A healthcare provider may consider this a safe and effective treatment option for people on a case-by-case basis.

- **Probiotics** may improve the intestines' ability to respond to sensing food entering, helping to move it through. With the wide variety of probiotics on the market, a healthcare provider will help decide if this is a good treatment option. Not all probiotics have been researched to see if they are effective. Your healthcare provider will help decide which probiotic may work best for you. However, probiotics have shown to have an increased risk of negative side effects in some people with severe illness.

Conclusion

It is important that patients with Parkinson's Disease (PD) are aware of all the symptoms of Small intestinal bacterial overgrowth (SIBO), as many risk factors for SIBO are common symptoms of PD. The occurrence of SIBO with PD can lead to a significant impact on daily life and decrease overall quality of life for patients. Nearly all patients with PD are impacted by some degree of GI symptoms since PD can lead to symptoms in all areas of the GI tract (i.e., esophagus, stomach, small bowel, colon, and rectum). These symptoms must be evaluated and treated to help people live the best quality of life possible while managing their disease. It is important to always discuss symptoms and concerns with your healthcare provider.

For more information on common gastrointestinal concerns with Parkinson's disease please view the following fact sheets available on these conditions in IFFGD's publication library:

- Parkinson's Disease and GI Motility (401)
- Parkinson's Disease and Constipation (402)
- Parkinson's Disease and Gastroparesis (404)
- Parkinson's Disease and Dysphagia (405)

About IFFGD

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