



When Bacteria in your Gastrointestinal Tract is a Problem (H.pylori, C.diff, SIBO)

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Growth or overgrowth of certain bacteria in your gastrointestinal (GI) tract can lead to various health issues. Three common bacterial problems are:

1. *Clostridioides difficile* or *C. difficile* is a microbe that can infect the large bowel (or colon), causing infectious colitis. Infectious colitis is redness, swelling, and inflammation of the colon that usually results in abdominal pain and diarrhea.
2. Small intestinal bacterial overgrowth or SIBO occurs when there is an excessive growth of bacteria in the small intestine, where bacterial concentrations are significantly lower than the large bowel. This can lead to symptoms such as abdominal pain, bloating, diarrhea, and malabsorption of nutrients.
3. *Helicobacter pylori* or *H. pylori* infection is a type of bacteria that infects the stomach lining. It is a common cause of gastritis (inflammation of the stomach lining) and peptic ulcers. *H. pylori* infection is usually acquired during childhood and can persist for years if left untreated.

Clostridioides difficile infection (CDI)

What are the symptoms of *Clostridioides difficile* infection (CDI)?

The symptoms of CDI can vary in severity. Classically it is broken into three categories: non-severe, severe and fulminant.

- Non-severe CDI is the most common with the main symptom being diarrhea. The stools are usually watery, containing mucus but generally non-bloody.
- Severe CDI occurs when a patient has very bad diarrhea and dehydration usually requiring hospitalization. The true definition of severe CDI is based upon abnormal lab tests.

- Fulminant CDI is the most serious type since it can lead to very significant complications. This can be life-threatening and occurs in about 3% of patients. Patients experience severe lower abdominal pain, diarrhea, high fever with chills, and rapid heartbeat. They usually have abnormal blood tests and can have low blood pressure.

Who is at risk for CDI?

The main risk factors for CDI are recent hospitalization and the use of antibiotics. Long-term antibiotic treatments or taking multiple antibiotics at the same time can further increase the risk for CDI. There are also some patient characteristics that put someone at increased risk, including advanced age (over 65 years old), having inflammatory bowel disease, liver cirrhosis, chronic kidney disease, being a transplant recipient or any illness where the immune system is compromised.

How to diagnose and treat CDI?

Diagnosis of *C. difficile* infection is usually confirmed through a stool test that detects the presence of *C. difficile* toxins. Treatment involves specific antibiotics, such as vancomycin or fidaxomicin, which are effective against CDI. In some cases, if the infection is recurrent or severe, fecal microbiota transplantation (FMT) may be considered. FMT involves transplanting stool from a healthy donor into the patient's colon to restore a healthy balance of gut bacteria.

Small intestinal bacterial overgrowth (SIBO)

What are the symptoms of SIBO?

SIBO can present with a variety of symptoms. Common symptoms of SIBO include abdominal bloating, distension, early satiety, or fullness, altered bowel habits, eructation or burping, flatulence (gas), and brain fog.

Who is at risk for SIBO?

Any condition that can lead to inactivity in the small intestine can increase the risk for SIBO. This includes patients with

- altered bowel anatomy due to surgeries
- small bowel diverticula
- strictures from inflammatory bowel disease or prior surgeries
- systemic rheumatologic disease affecting the intestinal tract
- diabetes
- intraabdominal scar tissue from prior surgery

Small bowel motility can also be affected by certain medications as well as a prior history of food poisoning.

How to diagnose and treat SIBO?

One method is to aspirate (draw out) fluid from the proximal small intestine (either duodenum or jejunum) during an upper endoscopy. This fluid is then cultured, and if more than 1000 colony-forming units per milliliter (CFU/mL) are seen, this is diagnostic for SIBO.

SIBO can also be diagnosed using breath testing which measures gases produced by bacteria in the exhaled breath after consuming glucose or lactulose. This is the most common way of diagnosing SIBO. The mainstay of treatment for SIBO is with antibiotics. Gut-specific antibiotics such as rifaximin are commonly used, however there are several other antibiotics, as well as combination of antibiotics, that may also be used. Elemental diet has also been used successfully to treat SIBO.

Helicobacter pylori or H. pylori infection

What are the symptoms of H. Pylori?

Some individuals may experience abdominal pain, bloating, nausea, vomiting, loss of appetite, and unintentional weight loss. However, many people infected with *H. pylori* may not have any symptoms at all.

Who is at risk for H. pylori?

H. pylori is spread by consuming food or water contaminated with the organism that is excreted in fecal matter of infected individuals, typically within families. Both children and adults can become infected

with *H. pylori* bacteria; however, children are at a greater risk of getting an *H. pylori* infection. Individuals who live in crowded conditions, lack clean water, or have unsanitary living conditions are at a greater risk for getting *H. pylori*.

How to diagnose and treat H. pylori?

Diagnosis of *H. pylori* infection is typically done through a breath, blood, or stool test to detect the presence of the bacterium or specific antibodies. Treatment involves a combination of antibiotics (commonly clarithromycin, amoxicillin, or metronidazole) and acid-suppressing medications like proton pump inhibitors (PPIs) or H2 blockers. This combination therapy helps eradicate the bacteria and allows the stomach lining to heal.

Conclusion

In all cases, seeking the opinion of a healthcare professional is crucial in order to acquire an accurate diagnosis and appropriate treatment. They will review your medical history, symptoms, and do any necessary testing to guide the therapy of bacterial infections in the GI tract.

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