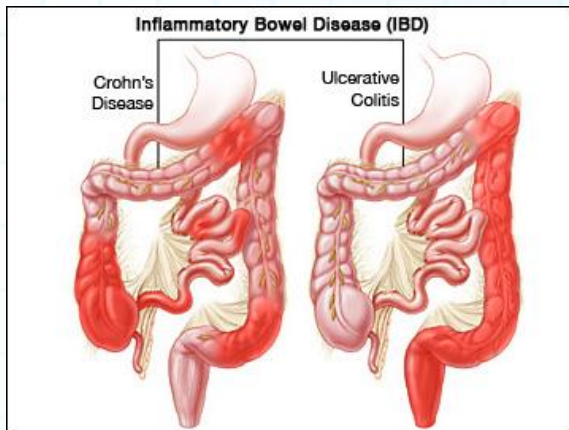


Inflammatory Bowel Disease



Inflammatory bowel disease (IBD) is a group of inflammatory conditions of the colon and small intestine. Crohn's disease and ulcerative colitis are the principal types of inflammatory bowel disease. It is important to note that not only does Crohn's disease affect the small intestine and large intestine, it can also affect the mouth, oesophagus, stomach and the anus whereas ulcerative colitis primarily affects the colon and the rectum

The chief types of inflammatory bowel disease are Crohn's disease and ulcerative colitis (UC). Inflammatory bowel diseases fall into the class of autoimmune diseases, in which the body's own immune system attacks elements of the digestive system.

Accounting for far fewer cases are other forms of IBD, which are not always classified as typical IBD:

- Collagenous colitis
- Lymphocytic colitis
- Diversion colitis
- Behçet's disease
- Indeterminate colitis

Causes of Inflammatory Bowel Disease

IBD is a collection of several diseases. Therefore, it does not have a single cause. However, some IBD has been linked to heredity. It can also be caused by problems with the immune system.

Heredity

If you have a sibling or parent with IBD, you are more likely to develop it yourself. Therefore, scientists think IBD may have a genetic component.

The Immune System

The immune system also plays a role in IBD. Normally, the immune system defends the body from pathogens. A bacterial or viral infection of the digestive tract can trigger an immune response. The digestive tract becomes inflamed as the body tries to fight off the invaders. When the infection is gone, the inflammation recedes. That's a healthy response.

Some people with IBD experience digestive tract inflammation even when there is no infection. The immune system attacks the body's own cells instead. This is known as an autoimmune response.

Another cause of IBD is inflammation not receding after an infection is cured. In people with IBD, such inflammation is prolonged. It may continue for months or years.

Symptoms of Inflammatory Bowel Disease

Inflammatory bowel disease symptoms vary, depending on the severity of inflammation and where it occurs. Symptoms may range from mild to severe. You are likely to have periods of active illness followed by periods of remission.

Signs and symptoms that are common to both Crohn's disease and ulcerative colitis include:

- Diarrhea. Diarrhea is a common problem for people with IBD.
- Fever and fatigue. Many people with IBD experience a low-grade fever. You may also feel tired or have low energy.
- Abdominal pain and cramping. Inflammation and ulceration can affect the normal movement of contents through your digestive tract and may lead to pain and cramping. You may also experience nausea and vomiting.
- Blood in your stool. You might notice bright red blood in the toilet bowl or darker blood mixed with your stool. You can also have bleeding you don't see (occult blood).
- Reduced appetite. Abdominal pain and cramping, as well as inflammation, can affect your appetite.
- Unintended weight loss. You may lose weight and even become malnourished because you cannot properly digest and absorb food.

Types

Ulcerative colitis is classified according to the location of inflammation and severity of symptoms:

- Ulcerative proctitis. Inflammation is confined to the area closest to the anus (rectum), and rectal bleeding may be the only sign of the disease. This form of ulcerative colitis tends to be the mildest.
- Proctosigmoiditis. Inflammation involves the rectum and sigmoid colon (lower end of the colon). Signs and symptoms include bloody diarrhea, abdominal cramps and pain, and an inability to move the bowels in spite of the urge to do so (tenesmus).
- Left-sided colitis. Inflammation extends from the rectum up through the sigmoid and descending colon. Signs and symptoms include bloody diarrhea, abdominal cramping and pain on the left side, and unintended weight loss.

- Pancolitis. Pancolitis often affects the entire colon and causes bouts of bloody diarrhea that may be severe, abdominal cramps and pain, fatigue, and significant weight loss.
- Acute severe ulcerative colitis. Previously called fulminant colitis, this rare form of colitis affects the entire colon and causes severe pain, profuse diarrhea, bleeding, fever and inability to eat.

Crohn's disease may involve inflammation in different parts of the digestive tract in different people. The most common areas affected are the last part of the small intestine (ileum) and the colon. Inflammation may be confined to the bowel wall, which can lead to narrowing from inflammation or scarring or both (fibrostenosis), or may tunnel through the bowel wall (fistula). Narrowing may lead to a blockage (obstruction). Obstructions, stenosis and fistulas are not associated with ulcerative colitis.

Diagnosis of Inflammatory Bowel Disease

The first step in diagnosing IBD is a thorough medical history. This will include questions about family history as well as information about bowel habits. A physical exam may then be followed by one or more diagnostic tests.

Stool Sample and Blood Tests

These tests can be used to look for infections and other diseases. Blood tests can also sometimes be used to distinguish between Crohn's disease and ulcerative colitis. However, blood tests alone cannot be used to diagnose IBD.

Barium Enema

Barium enemas are used to make the colon and small intestine visible by X-ray. Although they used to be done frequently, other tests have largely replaced them.

Flexible Sigmoidoscopy and Colonoscopy

These procedures use a camera on the end of a thin, flexible probe to look at the colon. The camera is inserted through the anus. It allows your doctor to look for ulcers, fistulas, and other damage. Colonoscopy can examine the entire length of the large intestine. Sigmoidoscopy examines only its last third, the sigmoid colon.

Sometimes during these tests a small sample of bowel wall will be taken. This is called a biopsy. Examining this biopsy under the microscope can be used to diagnose IBD.

Capsule Endoscopy

The small intestine is much harder to examine than the large intestine. For this test, you swallow a small capsule containing a camera. As it moves through your intestine, it takes

pictures. Once you have passed the camera in your stool, the pictures can be seen on a computer.

This test is only used when other tests have failed to find the cause of Crohn's disease symptoms.

Plain Film or X-Ray

A plain abdominal X-ray is useful in emergency situations when intestine rupture is suspected.

Computer Tomography (CT) and Magnetic Resonance Imaging (MRI)

CT scans are basically computerized X-rays. They create a more detailed image than a standard X-ray. This makes them useful for examining the small intestine. They can also detect complications of IBD.

MRIs use magnetic fields to form images of the body. They are safer than x-rays. MRIs are good for examining soft tissues. They are especially useful in detecting fistulas.

Both MRIs and CT scans can be used to determine how much of the intestine is affected by IBD.

Treatment of Inflammatory Bowel Disease

The goal of inflammatory bowel disease treatment is to reduce the inflammation that triggers your signs and symptoms. In the best cases, this may lead not only to symptom relief but also to long-term remission and reduced risks of complications. IBD treatment usually involves either drug therapy or surgery. There is no cure for IBD.

Doctors use one of two approaches to treatment: "step-up," which starts with milder drugs first, versus "top-down," which gives people stronger drugs earlier in the treatment process. Researchers are actively exploring new approaches to treatment for IBD, especially as new technology becomes available. Investigators suggest links between diet, the immune system and bacteria in the digestive tract (microbiome).

Anti-inflammatory drugs

Anti-inflammatory drugs are often the first step in the treatment of inflammatory bowel disease. They include:

- Aminosalicylates. Sulfasalazine (Azulfidine) can be effective in reducing symptoms of ulcerative colitis and for some people with Crohn's disease confined to the colon, but it has a number of side effects, including digestive distress and headache. Certain 5-aminosalicylates — including mesalamine (Asacol, Lialda, Rowasa, Canasa, others), balsalazide (Colazal) and olsalazine (Dipentum) — are available in both oral and enema or

suppository forms. Which form you take depends on the area of your colon that's affected. Rarely, these medications have been associated with kidney and pancreas problems.

- Corticosteroids. These drugs, which include prednisone and hydrocortisone, are generally reserved for moderate to severe ulcerative colitis or Crohn's disease that doesn't respond to other treatments. They are given orally, intravenously, or by enema or suppository, depending on the part of the digestive tract affected.

Corticosteroids have numerous side effects, including a puffy face, excessive facial hair, night sweats, insomnia and hyperactivity. More-serious side effects include high blood pressure, diabetes, osteoporosis, bone fractures, cataracts, glaucoma and increased chance of infection. They are not usually given long term.

Immune system suppressors

These drugs also reduce inflammation, but they target your immune system rather than directly treating inflammation. Instead, they suppress the immune response that releases inflammation-inducing chemicals in the intestinal lining. For some people, a combination of these drugs works better than one drug alone. Immunosuppressant drugs include:

- Azathioprine (Azasan, Imuran) and mercaptopurine (Purinethol, Purixan). These are the most widely used immunosuppressants for treatment of inflammatory bowel disease. Taking them requires that you follow up closely with your doctor and have your blood checked regularly to look for side effects, including effects on the liver and pancreas. Additional side effects include lowered resistance to infection and a rare chance of developing cancers such as lymphoma and skin cancers. A blood test to determine the ability of your body to break down the medication should be done before starting. This will help identify the risk of suppression of the bone marrow and help with dosing.

- Cyclosporine (Gengraf, Neoral, Sandimmune). This drug is normally reserved for people who haven't responded well to other medications. Its use is generally confined to ulcerative colitis. Cyclosporine has the potential for serious side effects — such as kidney and liver damage, seizures and fatal infections — and is not for long-term use. There's also a small risk of cancer, so let your doctor know if you've previously had cancer. It is now used much less often because safer alternatives are available.

- Infliximab (Remicade), adalimumab (Humira) and golimumab (Simponi). These drugs, called tumor necrosis factor (TNF)-alpha inhibitors, or "biologics," work by neutralizing a protein produced by your immune system. They are for people with moderate to severe Crohn's disease or ulcerative colitis who don't respond to or can't tolerate other treatments. Infliximab is given by intravenous injection and the others by subcutaneous injection. They may be combined with other immunosuppressant medications such as azathioprine or mercaptopurine.

People with certain conditions can't take TNF-alpha inhibitors. If you have a history of tuberculosis, fungal infections or hepatitis B, you may experience a reactivation of your disease while on therapy. Your doctor will test you for previous exposure to tuberculosis and hepatitis B and may test you for possible fungal infection as well.

These drugs also are associated with a rare risk of developing certain cancers such as lymphoma and skin cancers.

- Methotrexate (Rheumatrex). This drug — which is used mainly to treat cancer, psoriasis and rheumatoid arthritis — is sometimes used for people with Crohn's disease who don't respond well to other medications. It is given by injection. Short-term side effects include nausea, fatigue and diarrhea, and rarely, it can cause potentially life-threatening pneumonia. Long-term use can lead to bone marrow suppression, scarring of the liver and sometimes cancer. You will need to be followed closely for side effects.

- Natalizumab (Tysabri) and vedolizumab (Entyvio). These drugs work by stopping certain immune cell molecules — integrins — from binding to other cells in your intestinal lining. These drugs are approved for people with moderate to severe Crohn's disease and ulcerative colitis with evidence of inflammation who aren't responding well to any other medications.

Because natalizumab is associated with a rare but serious risk of progressive multifocal leukoencephalopathy — a brain infection that usually leads to death or severe disability — you must be enrolled in a special restricted distribution program to use it.

Vedolizumab recently was approved for Crohn's disease. It works like natalizumab but appears not to have a risk of brain infection.

- Ustekinumab (Stelara). This drug is used to treat psoriasis. Studies have shown it's useful in treating Crohn's disease as well and may be used when other medical treatments fail.

Antibiotics

People with ulcerative colitis who run fevers will likely be given antibiotics to help prevent or control infection. Antibiotics can reduce the amount of drainage and sometimes heal fistulas and abscesses in people with Crohn's disease.

Researchers also believe antibiotics help reduce harmful intestinal bacteria and suppress the intestine's immune system. They may be used in addition to other medications or when infection is a concern — in cases of perianal Crohn's disease, for example. However, there's no strong evidence that antibiotics are effective for Crohn's disease.

Frequently prescribed antibiotics include:

- Metronidazole (Flagyl). At one time, metronidazole was the most commonly used antibiotic for Crohn's disease. It can cause serious side effects, including numbness and

tingling in your hands and feet and, occasionally, muscle pain or weakness. If these effects occur, stop the medication and call your doctor. You should also not drink alcohol while taking this medication because of severe side effects — including nausea, vomiting and tremor — due to the interaction of the drug with alcohol.

- Ciprofloxacin (Cipro). This drug, which improves symptoms in some people with Crohn's disease, is now generally preferred to metronidazole. A rare side effect is tendon rupture, which is an increased risk if you're also taking corticosteroids.

Other medications

In addition to controlling inflammation, some medications may help relieve your signs and symptoms, but always talk to your doctor before taking any over-the-counter medications. Depending on the severity of your Crohn's disease, your doctor may recommend one or more of the following:

- Anti-diarrheal medications. A fiber supplement — such as psyllium powder (Metamucil) or methylcellulose (Citrucel) — can help relieve mild to moderate diarrhea by adding bulk to your stool. For more severe diarrhea, loperamide (Imodium) may be effective. Anti-diarrheal medications should only be used after discussion with your doctor.

- Pain relievers. For mild pain, your doctor may recommend acetaminophen (Tylenol, others). However, ibuprofen (Advil, Motrin IB, others), naproxen sodium (Aleve, Anaprox) and diclofenac sodium (Voltaren, Solaraze) likely will make your symptoms worse and can make your disease worse as well.

- Iron supplements. If you have chronic intestinal bleeding, you may develop iron deficiency anemia and need to take iron supplements.

- Vitamin B-12 shots. Crohn's disease can cause vitamin B-12 deficiency. Vitamin B-12 helps prevent anemia, promotes normal growth and development, and is essential for proper nerve function.

- Calcium and vitamin D supplements. Crohn's disease and steroids used to treat it can increase your risk of osteoporosis, so you may need to take a calcium supplement with added vitamin D.

- Nutrition. Your doctor may recommend a special diet given via a feeding tube (enteral nutrition) or nutrients injected into a vein (parenteral nutrition) to treat your Crohn's disease. This can improve your overall nutrition and allow the bowel to rest. Bowel rest can reduce inflammation in the short term. If you have a stenosis or stricture in the bowel, your doctor may recommend a low-residue diet. This will help to minimize the chance that undigested food will get stuck in the narrowed part of the bowel and lead to a blockage.

Surgery

If diet and lifestyle changes, drug therapy, or other treatments don't relieve your IBD signs and symptoms, your doctor may recommend surgery.

- Surgery for ulcerative colitis. Surgery can often eliminate ulcerative colitis, but that usually means removing your entire colon and rectum (proctocolectomy). In most cases, this involves a procedure called ileoanal anastomosis that eliminates the need to wear a bag to collect stool. Your surgeon constructs a pouch from the end of your small intestine. The pouch is then attached directly to your anus, allowing you to expel waste relatively normally.

In some cases, a pouch is not possible. Instead, surgeons create a permanent opening in your abdomen (ileal stoma) through which stool is passed for collection in an attached bag.

- Surgery for Crohn's disease. Up to one-half of people with Crohn's disease will require at least one surgery. However, surgery does not cure Crohn's disease.

During surgery, the doctor removes a damaged portion of your digestive tract and then reconnects the healthy sections. Surgery may also be used to close fistulas and drain abscesses. A common procedure for Crohn's disease is strictureplasty, which widens a segment of the intestine that has become too narrow.

The benefits of surgery for Crohn's disease are usually temporary. The disease often recurs, frequently near the reconnected tissue. The best approach is to follow surgery with medication to minimize the risk of recurrence. If you have had surgery on your colon or where your small intestine and colon meet, your doctor may recommend a repeat colonoscopy in six to 12 months to look for signs of disease and help with correct treatment.

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