Crohn’s Disease

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What is Crohn’s Disease?

Crohn’s disease (CD) belongs to a group of diseases collectively called Inflammatory Bowel Disease (IBD) which also includes Ulcerative Colitis (UC). It is a chronic disease that can cause inflammation anywhere from the mouth to the anus anywhere along the lining of the digestive tract. It most commonly affects the small intestine and the colon. The disease can show up along different parts of the digestive tract in a continuous or patchy distribution. It typically involves both the superficial and deep layers of the intestinal wall.

What are the symptoms of CD?

Symptoms of CD depend on the severity and location of the intestinal inflammation and can range from none or mild, to severe. Symptoms may develop gradually or come on suddenly, without warning. Abdominal pain and cramping, persistent diarrhea (loose, watery, numerous bowel movements), blood in the stool and fever are hallmark symptoms of CD. Ulcers of the mouth, a lack of appetite, fatigue, nausea and vomiting and unexplained weight loss may also develop. With severe diarrhea and the digestive tracks’ inability to absorb nutrients, nutritional deficiencies may occur over time.

What causes CD?

We do not yet know an exact cause of CD. Similar to other chronic inflammatory disorders (e.g. asthma, rheumatoid arthritis, psoriasis, multiple sclerosis) there is a complex interaction between an individual’s genetic make-up, their immune system and foreign substances in the environment (including dietary factors and microbes living in our gut) that are responsible for the chronic uncontrolled inflammation in CD. The impact of the various factors (genes, immune system and environment) are different for each individual accounting for the broad spectrum of how patients present with inflammation in different segments of the intestine and in various degrees of severity. Unfortunately, it appears as if once this inflammatory process is set in motion it cannot be regulated or reversed by the body itself.
Who gets CD and how common is it?

CD affects about 500,000 Americans. Men and women appear to be affected equally. Symptoms usually start between the ages of 15-35 but can develop at any time during one's lifetime. It used to be thought that CD predominantly affects Caucasians in North America and Western Europe, however, we now see individuals being diagnosed with CD in populations from South America, Africa and Asia where the disease was unheard of 20 years ago.

CD can run in families and having a sibling or another first degree relative afflicted with the disease can increase the risk of developing the disease by ten to fifteen times as compared to the general population. Some important genetic mutations have been identified in this disease including the NOD2/CARD 15 genes. However, more than 80% of patients with CD do not have a recognized genetic disposition. Given the complex genetic makeup the disease it is not inherited in the classic sense.

Smoking is an important controllable risk factor in CD. People who smoke with this disease tend to have more severe forms of the disease and are at higher risk of needing surgery. People who live in industrialized countries and urban areas are also at elevated risk of having the disease. Some other factors including the use of medications such as non-steroidal anti-inflammatory drugs (aspirin-like drugs) and particular infections have been theorized to exacerbate or cause the disease although none have been shown in a consistent fashion to be the cause.

How is CD diagnosed?

There is no single test to confirm the diagnosis of CD. Instead, multiple tests are usually used in combination to help arrive at the diagnosis depending on the symptoms that lead individuals to seek care. Ultimately, a colonoscopy or flexible sigmoidoscopy must be performed to directly visualize the intestine internally and to obtain small tissue samples (biopsies) for evaluation under the microscope. Other imaging studies can be used in conjunction with a colonoscopy to help in the evaluation including a barium enema, upper gastrointestinal series (UGI series) with small bowel follow through, computerized tomography scans (CT scans or ‘cat scans’), magnetic resonance imaging (MRI) or a pill camera study (capsule endoscopy) but are not mandated. Blood tests which look for antibodies and markers of inflammation along with stool specimen tests for hidden blood and infection may also be used to help confirm or exclude the diagnosis of CD.
What complications should I watch out for in CD?

CD may cause symptoms outside the digestive tract including: inflammation of the eye (conjunctivitis, episcleritis, uveitis, iritis), inflammation of joints (arthritis), weakening of bones (osteoporosis), skin rashes (erythema nodosum, pyoderma gangrenosum), inflammation of the liver or bile ducts (primary sclerosing cholangitis), kidney stones, gallstones and in children, delayed growth or sexual development due to the use of steroids, malnutrition and malabsorption.

Crohn’s disease may also lead to several complications over time which may be related to the disease or due to the effects of medications used to treat the disease. Listed below are some of the common complications:

1. **Anal fissure.** A crack, or cleft, in or around the skin of the anus which lead to painful bowel movements, blood in the stool and sometimes drainage around the anal canal.

2. **Ulcers.** Chronic inflammation can lead to open sores (ulcers) anywhere in the digestive tract, including the mouth, genital area (perineum) and anus.

3. **Fistulas.** Sometimes ulcers can extend completely through the intestinal wall, creating a fistula — an abnormal tunnel between different parts of the intestine, between the intestine and skin or other organs, such as the bladder or vagina. These abnormal connections affect up to a third of patients with CD. Internal connections lead to diversion of food contents while external connections can lead to drainage and infections. When a course of medical therapy fails, surgery may be necessary to fix these abnormal connections.

4. **Bowel obstruction.** Due to inflammation over time, parts of the bowel could form scar tissue resulting in a thickening and narrowing of the bowel, which may block the flow of digestive contents through the affected part of the intestine. Medications may be of help in decreasing the inflammation and opening up the narrowed areas but some cases require surgery to remove the diseased portion of the bowel.

5. **Malnutrition.** Symptoms of diarrhea, pain and cramping may make it difficult to eat. In addition, inflammation of the intestine can decrease absorption of vital nutrients needed to maintain nourishment. Deficiencies of proteins, calories and vitamins may occur over a prolonged period of time. Vitamin B-12 and iron deficiency frequently lead to anemia in patients with malnutrition.
6. **Colon cancer.** Patients with Crohn’s disease that involves the colon do have an increased risk of colon cancer depending upon the amount of the colon that is affected and the duration of disease. Less than 5% of patients develop colon cancer although this is higher than the general population. Therefore, after approximately 8 years from the start of symptoms a colonoscopy is performed every 1 to 2 years to look for precancerous changes called dysplasia. Identifying dysplasia allows the potential to remove dysplastic growths (polyps) prior to the development of cancer.

**What are different types of treatment for CD?**

Currently, there is no cure for CD and the goal of treatment is to alleviate symptoms, prevent complications and improve quality of life. This can be achieved through suppression of the body’s immune response which is paramount to allow the intestinal tissue to heal and retain its normal function. Initially, the goal is to induce remission, which is to bring the symptoms under control. Once this step is achieved, medical therapy is used to maintain remission with the goal of decreasing the frequency of disease flares. Several groups of drugs are used to treat Crohn’s disease and are listed below:

1. **Aminosalicylates (5-ASA):** This class of anti-inflammatory drugs is often used to treat mild to moderate symptoms in the colon and includes oral formulations of sulfasalazine and mesalamine (Apriso®, Asacol®, Colazal®, Dipentum®, Pentasa®, or Lialda®) and drugs that may be administered rectally (Canasa® or Rowasa®).

2. **Corticosteroids:** This class of medications has a general, nonspecific effect of suppressing the entire immune system and is used to treat moderate to severe forms of the disease. Prednisone, budesonide and methylprednisolone are most commonly used. These are drugs that are best utilized short-term to alleviate major flares of the disease and due to side effects, these should not be used for maintenance therapy. Owing to a significantly increased risk of osteoporosis with the use of corticosteroids, a baseline DEXA scan should be performed at the initiation of therapy. Supplementation of calcium and vitamin D, and consideration of a bisphosphonate are also warranted.

3. **Immune modifiers:** Azathioprine (Imuran®), 6-MP (Purinethol®), cyclosporine A and methotrexate alter the immune system and are also referred to as immunomodulators, used to help decrease exposure to corticosteroids, maintain disease remission and to help heal fistulas.

4. **Antibiotics:** These are classically used to treat perianal disease, abscesses and sometimes acute flares of the disease. Metronidazole and ciprofloxacin are the most commonly used.
5. Biologic therapies. This newer group of medications was first approved in 1998 for moderate to severe CD that did not respond to conventional therapy or to treat fistulae. These medications work by blocking specific chemical messages between immune cells. Infliximab (Remicade®) was the first biologic therapy to treat inflammatory bowel disease and since 2007, adalimumab (Humira®), Natalizumab (Tysabri®) and Certolizumab pegol (Cimzia®) have all been approved by the FDA to treat patients with CD. These medications primarily differ in their composition and schedule of administration. They are all given through infusion or injection therapy. These medications are more costly than conventional agents and also suppress the immune system leading to a small, but significant increased risk of infections and, rarely, to lymphomas.

Is there a role for surgery in CD?

Surgery does not cure CD but is currently required at some point in the course of a majority of patients (up to 80%) with CD over their lifetime. Common indications for surgery include presence of an intestinal obstruction, formation of an abscess or fistula. Surgery also becomes necessary in CD when medications can no longer control the symptoms. Usually, the severely affected part of the intestine is removed and the two ends are reconnected. If there is extensive disease of the colon in CD, the entire colon may be removed and an end-ileostomy (end of the small intestine attached to the skin with an external bag to collect the contents) may be performed. The overall goal of surgery in CD is to conserve bowel and maintain the best possible quality of life. Most patients who require surgery will have marked improvements in their symptoms, reduction in their medications and an improvement in their quality of life.

What is the clinical course and prognosis in CD?

Most people with CD with the proper medical care tend to live healthy, productive lives with a normal life span. Maintenance of remission and surveillance for complications are the major goals which lead to maintaining quality of life in patients with CD. Regular visits with a gastroenterologist and developing a longstanding relationship are vital to managing this disease.

Can women with CD have children?

A healthy pregnancy, childbirth and baby are possible in women with CD. Well controlled CD does not increase the risk of miscarriages, stillbirths or congenital abnormalities. The goal during pregnancy is to prevent and treat flares aggressively to decrease any increased risk to the fetus during a flare.
What can I do to improve my health in CD?

Diet, nutrition, stress and lifestyle modifications can all lead to improved quality of life in patients with CD. Unfortunately, there is no single diet that is appropriate for all patients with CD and dietary advice will depend upon the location of intestinal inflammation and the associated symptoms. There is no factor in the diet that we know causes inflammation, but dietary components can certainly cause or worsen symptoms. Healthy diets (avoiding fatty and fried foods), and adequate intake of protein improve symptoms and maintain nutrition. Some patients will not tolerate milk products (containing the milk sugar – lactose) or other concentrated sugars such as fructose (corn syrup). Taking multivitamins and speaking to a dietician also can be of great benefit. Exercise and stress management can decrease flares and help moderate the disease. Smoking should be stopped by all who have CD or are at increased risk of developing CD. A group of medications, known as NSAIDS (aspirin, ibuprofen, naproxen), should also be avoided as they can worsen CD in some patients.

What are the chances my child will have CD if I do?

Children who have one parent with CD have approximately a 7-10% lifetime risk of developing this disease. If both parents have the disease then the lifetime risk increases to 35%.

Do complementary and alternative therapies work in CD?

Many alternative therapies have been tried in CD due to either the lack of effectiveness of primary medical therapies or side effects of common therapies. Acupuncture, hypnosis, herbal supplements, fish oil, probiotics and other home remedies have been reported. Unfortunately, most of these remedies have shown no significant benefit, have never been rigorously studied and are not regulated by the FDA.

Where can I get more information on CD?

Many organizations exist which provide support and information for patients with CD. The ACG website (www.acg.gi.org) has additional information. The Crohn’s and Colitis Foundation of America (www.ccfa.org) has extensive patient information along with links to various different social, financial, and medical support groups. Other sources of information include the individual drug company websites, and, most importantly, a personal physician.