IBD (Inflammatory bowel disease) pathophysiology

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Prevalence of IBD

Up to 1 million Americans are thought to have IBD, which occurs most often in ages 15 to 30, but can affect younger kids and older people. Most cases are reported in western Europe and North America.

http://kidshealth.org/parent/medical/digestive/ibd.html
IBD definition

Inflammatory bowel disease (which is not the same thing as irritable bowel syndrome, or IBS) refers to two chronic diseases that cause inflammation of the intestines:

1. ulcerative colitis and
2. Crohn's disease.

Although the diseases have some features in common, there are some important differences
IBS

• Irritable bowel syndrome (IBS) is a disorder that leads to abdominal pain and cramping, changes in bowel movements, and other symptoms.

• IBS is not the same as inflammatory bowel disease (IBD), which includes Crohn's disease and ulcerative colitis. In IBS, the structure of the bowel is not abnormal.
Signs and symptoms-IBD

• Common symptoms of both ulcerative colitis and Crohn's disease are diarrhea and abdominal pain. Diarrhea can range from mild to severe (as many as 20 or more trips to the bathroom a day). If the diarrhea is extreme, it can lead to dehydration, rapid heartbeat, and a drop in blood pressure.

• And continued loss of small amounts of blood in the stool can lead to anemia.

• The loss of fluid and nutrients from diarrhea and chronic inflammation of the bowel can also cause fever, fatigue, weight loss, and malnutrition.

•
Signs and symptoms

- **Pain** is usually from the abdominal cramping, which is caused by irritation of the nerves and muscles that control intestinal contractions.
- At times, those with IBD may also be *constipated*.
- Crohn's disease, this can happen as a result of a partial obstruction (called stricture) in the intestines.
- Ulcerative colitis, constipation may be a symptom of inflammation of the rectum (known as proctitis).
Signs and symptoms

• IBD can cause other health problems that occur outside the digestive system.

• IBD can show signs of inflammation elsewhere in the body, including the joints, eyes, skin, and liver.

• Skin tags that look like hemorrhoids or abscesses may also develop around the anus.

• IBD might delay puberty or cause growth problems for some children because it can interfere with them getting nutrients from food.
Multifactorial etiopathogenesis of CD

- Genetic predisposition
- Triggering event infectious
- Gut microflora

Abnormal mucosal immune response

- Cytokines
- Eicosanoids
- Reactive oxygen metabolites
- Neuropeptides
- Growth factors
- chemokines, adhesion molecules
- nitrous oxide
- Acute phase reaction
- intestinal permeability

Intestinal inflammation

Normal homeostasis

Immune down regulation

Chronic IBD

Lack of immune down-regulation
Environmental influences

- Specific microbial trigger
- Mycobacteria
- Viruses
- Role of enteric flora
- Role of diet
- Risk factors-early life exposures

Other modulating factors

- Smoking
- Oral contraceptives

Host environment interactions

- Defective mucosal barrier
- Immunoregulatory abnormalities
- Defective innate immunity- \textit{NOD2/CARD15}
- Adaptive immune response
- Control of mucosal immune response
Anatomy and frequency of area involved
CD-Pathology – anatomic distribution

• Panenteric inflammatory process
• Endoscopy with biopsy identifies histologic abnormalities GIT
• CD is characteristically segmental, with spared areas in the intestinal tract
• Terminal ileum is the most common affected area
• Colonoscopy and small bowel radiography
• Upper EGD with biopsy- microscopic involvement of esophagus/stomac and duodenum
• Gastroduodenal disease-only rarely the sole or predominant site of crohns disease
Data of hospital for sick children Toronto 1990-1999 and

*Gastroenterol clin north am 2002;31:307-27*

<table>
<thead>
<tr>
<th>%</th>
<th>Intestinal involvement (by colonoscopy and small bowel radiography)</th>
</tr>
</thead>
<tbody>
<tr>
<td>29%</td>
<td>terminal ileum with or without cecal disease</td>
</tr>
<tr>
<td>38%</td>
<td>Small intestine alone</td>
</tr>
<tr>
<td>9%</td>
<td>More isolated proximal (ileal or jejunal) disease</td>
</tr>
<tr>
<td>42%</td>
<td>Ileocolonic inflammation</td>
</tr>
<tr>
<td>38%</td>
<td>In combination with colon</td>
</tr>
<tr>
<td>20%</td>
<td>Colon involvement</td>
</tr>
<tr>
<td>20%</td>
<td>Colon alone</td>
</tr>
</tbody>
</table>

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Macroscopic appearance

• Crohn's often involves the small intestine, the colon, or both.
• Internal tissues may develop shallow, crater-like areas or deeper sores and a cobblestone pattern, as seen here.
Microscopic appearance- Endoscopic biopsy showing granulomatous inflammation of the colon in a case of Crohn's disease. H&E stain

http://wikimediafoundation.org/wiki/Home

<table>
<thead>
<tr>
<th>symptom</th>
<th>Toronto pediatric IBD database N = 386</th>
<th>UK and Ireland surveillance N = 379</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal pain</td>
<td>86</td>
<td>72</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>78</td>
<td>56</td>
</tr>
<tr>
<td>Blood in the stool</td>
<td>49</td>
<td>22</td>
</tr>
<tr>
<td>Weight loss</td>
<td>80</td>
<td>58</td>
</tr>
<tr>
<td>fevers</td>
<td>38</td>
<td>Not stated</td>
</tr>
<tr>
<td>Perianal lesions</td>
<td>8 fistula or abscess, 19 tags, 22 fissures</td>
<td>7 fistula or abscess</td>
</tr>
<tr>
<td>Arthralgias/arthritis</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>Mouth ulcers</td>
<td>28</td>
<td>Not stated</td>
</tr>
<tr>
<td>Skin lesions</td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>
## Modes of presentation of CD

**The hospital for sick children, Toronto 1980-89**

<table>
<thead>
<tr>
<th>Mode</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classic presentation (abdominal pain, diarrhea, weight loss ± extra intestinal manifestations)</td>
<td>235 (78.6)</td>
</tr>
<tr>
<td>Growth failure predomination</td>
<td>10 (3.3)</td>
</tr>
<tr>
<td>Extraintestinal manifestation predominating</td>
<td></td>
</tr>
<tr>
<td>• Arthritis</td>
<td>25 (8.4)</td>
</tr>
<tr>
<td>• Recurrent fevers</td>
<td>13</td>
</tr>
<tr>
<td>• Recurrent oral ulcers</td>
<td>8</td>
</tr>
<tr>
<td>• Oral chelitis</td>
<td>1</td>
</tr>
<tr>
<td>• Pyoderma gangrenosum</td>
<td>1</td>
</tr>
<tr>
<td>• Recurrent acute pancreatitis</td>
<td>1</td>
</tr>
<tr>
<td>Anemia as the major complaint</td>
<td>8 (2.7)</td>
</tr>
<tr>
<td>Perianal disease predominating</td>
<td>11 (3.7)</td>
</tr>
<tr>
<td>Anorexia, weight loss predominating</td>
<td>6 (2)</td>
</tr>
<tr>
<td>Laparotomy for acute abdominal pain</td>
<td>4 (1.3)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>299</td>
</tr>
</tbody>
</table>
### Crohns Disease complications - malnutrition and growth impairment

<table>
<thead>
<tr>
<th>Factor</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cytokines produced by chronically inflamed intestine</td>
<td>Direct role of inflammatory cytokines in linear growth inhibition (IGF-I) inhibition: interference in kinetics of bone growth</td>
</tr>
<tr>
<td>Insufficient caloric intake</td>
<td>Food avoidance because of exacerbation of Gi symptoms by eating: cytokine mediated anorexia</td>
</tr>
<tr>
<td>Stool losses</td>
<td>Mucosal inflammation leading to protein loosing enteropathy; steatorrhoea if extensive</td>
</tr>
<tr>
<td>Increased nutritional needs</td>
<td>Fever, chronic deficits</td>
</tr>
<tr>
<td>Cortico steroid treatment</td>
<td>Inhibition of IGF-1 (insulin like growth factor)</td>
</tr>
</tbody>
</table>

### EXTRA INTESTINAL MANIFESTATIONS

- JOINTS
- SKIN
- EYE
- HEPATOBILIARY
- PANCREAS
- RENAL
- VASCULAR
- BONE

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Inflammatory Bowel Disease: Crohn’s Disease

What is Inflammatory Bowel Disease (IBD)?

IBD refers to a chronic inflammation of the intestines, not due to infections or other identifiable causes. There are two main types of IBD: ulcerative colitis and Crohn’s disease. Ulcerative colitis affects only the lining of the large intestine (the colon), while Crohn’s disease can involve any part of the intestine, small or large, and irritate not only the lining, but also deeper layers.

How common is Inflammatory Bowel Disease?

It is estimated that about 1,000,000 Americans suffer from IBD. Males and females are affected equally. Crohn’s disease may occur at any age, including young children but occurs most often in young adults. Most cases of Crohn’s disease are diagnosed before age 30. Crohn’s disease tends to occur in families and in certain ethnic groups, such as Eastern European Jews. About 5-6% of patients may have a family member with IBD and about 20-25% of patients may have a close relative with the condition. However, it can occur in any ethnic group and in members of families where no one else is suffering from these diseases.

What causes Crohn’s disease?

It is currently believed that Crohn’s disease occurs in individuals as a result of genetic and environmental factors. For unknown reasons, the immune system becomes abnormally active against the individual’s own system. It targets not only the intestine, but sometimes other organs like the skin, the eyes, or the liver.

What are the symptoms of Crohn’s disease?

The most common symptoms are:
- Diarrhea, sometimes with blood and mucus
- Abdominal pains
- Loss of appetite and weight loss
- Unexplained fevers and tiredness
- Delayed growth and maturation

How is Crohn’s disease diagnosed?

The diagnosis of Crohn’s disease may be suspected on the basis of the medical history, but the final determination depends on the results from the required diagnostic tests. The work-up usually includes:
- Blood tests
- X-rays and CT scans of the intestine
- Endoscopy and biopsies of the upper and lower intestine and parasites

How is Crohn’s disease treated?

The aim of treatment is to decrease the inflammation causing the damage to the intestines. Even though a cure is not yet possible, control of symptoms can be very effective in most patients. The number of medications available continues to increase, and new treatments can be expected in the future. The medications most commonly used to treat Crohn’s disease are:
- Antibiotics, such as metronidazole, ciprofloxacin and amoxicillin
- ASA anti-inflammatory drugs, such as Azulfidine®, Colazal®, Asacol® and Pentasa®
- Steroids, such as prednisone, prednisolone or budesonide
- Immuno-modulators, such as Purinethol®, Imuran® or methotrexate
- Biologicals, such as Remicade®
- Nutritional treatments with supplemental liquid formulas. This can be particularly applicable to children who eat poorly and are not growing normally.

Is there a role for surgery?

Because there is high risk of recurrence after surgery, this option is reserved for complications such as an obstruction from a narrowed area of the intestine, chronic pain, bleeding, or when using all other medicine does not work.

For more information or to locate a pediatric gastroenterologist in your area please visit our website at: www.naspghan.org

IMPORTANT REMINDER: This information from the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPghan) is intended only to provide general information and not as a definitive basis for diagnosis or treatment in any particular case. It is very important that you consult your doctor about your specific condition.
UC-Ulcerative colitis
Ulcerative colitis

• Is an inflammatory disease of the large intestine, or colon.

• Inner lining (mucosa) of the intestine becomes inflamed (red and swollen) and develops ulcers (open, painful wounds).

• Severe in the rectal area, which can cause frequent diarrhea. Mucus and blood often appear in the stool (feces or poop) if the lining of the colon is damaged.
## Comparison of pathological features of UC & CD

<table>
<thead>
<tr>
<th>Feature</th>
<th>Ulcerative colitis</th>
<th>Crohns disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross/endoscopic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Colonic involvement</td>
<td>Typically diffuse, continuous, extending proximally from the rectum</td>
<td>Focal disease characterized by skip lesions</td>
</tr>
<tr>
<td>• Rectal involvement</td>
<td>Almost always involved</td>
<td>Frequently spared</td>
</tr>
<tr>
<td>• Ileal involvement</td>
<td>Non-specific “backwash ileitis”</td>
<td>Typically involved with ulceration and nodularity</td>
</tr>
<tr>
<td>• Ulceration</td>
<td>Broad and shallow</td>
<td>Early aphthous lesions, ulcer knife-like and fissuring, intervening areas of oedema may give cobblestone appearance</td>
</tr>
<tr>
<td>Microscopic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depth of inflammation</td>
<td>Mucosal, except in severe disease</td>
<td>Typically transmural</td>
</tr>
<tr>
<td>Granulomas</td>
<td>Absent except for occ. Giant cell reaction to damagedcrypts</td>
<td>Non-caseating granulomas seen</td>
</tr>
<tr>
<td>Fibrosis</td>
<td>unusual</td>
<td>typical</td>
</tr>
</tbody>
</table>
Etiologic factors in the pathogenesis of UC

• **Genetic predisposition**
Frequent positive F/H (15-25%)
Higher rates of concordance in monozygotic twins than in dizygotic twins
Association with specific HLA class II genes
Association with other genetic disorders e.g. Turners syndrome

• **Environmental factors**
Early childhood events e.g. diarrheal illness; may increase risk
Appendectomy at an early age: may decrease risk
Psychological stress; may cause exacerbations
Smoking tobacco; decreases risk

• **Drugs**
NSAID may cause exacerbations
Oral contraceptives; conflicting data

• **Microbial factors;** important in pathogenesis
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bloody stools</td>
<td>≥ 6 per day</td>
<td>≥ 5 per day</td>
</tr>
<tr>
<td>Fever</td>
<td>Mean evening temperature &gt; 37.3°C or temperature ≥ 37.8°C at least 2 of 4 d</td>
<td>&gt;100° during the first hospital day</td>
</tr>
<tr>
<td>Tachycardia</td>
<td>&gt; 90 bpm</td>
<td>≥ 90 bpm</td>
</tr>
<tr>
<td>Anemia</td>
<td>Hb ≤ 75% of normal value</td>
<td>Hct ≤ 30%</td>
</tr>
<tr>
<td>ESR</td>
<td>&gt; 30 mm/h</td>
<td>s. Albumin ≤ 3.0 g/dL</td>
</tr>
</tbody>
</table>
Extra intestinal manifestation of UC

• **Musculoskeletal**
  - Peripheral arthopathy
  - Ankylosing spondylitis/sacroilitis
  - Enthesopathy
  - Hypertrophic osteoarthropathy
  - Decreased bone density

• **Skin**
  - Pyoderma gangrenosum
  - Erythema nodosum
  - Acne
  - Alopecia

• **Ophthalmologic**
  - Episcleritis
  - Uveitis
  - Cataracts
  - Increased intracranial pressure
Extra intestinal manifestation of UC

- Hepatobiliary
  - Fatty liver disease
  - Sclerosing cholangitis
  - Autoimmune hepatitis
  - Cholelithiasis

- Hematologic
  - Coagulation abnormalities
  - Iron deficiency anemia
  - Autoimmune hemolytic anemia
  - Neutropenia
  - Thrombocytosis
  - Immune thrombocytopenic purpura

- Renal
  - Nephrolithiasis

- Pancreas
  - Pancreatitis

- Cardiorespiratory
  - Pericarditis
  - Pneumonitis

- Growth and development
  - Delayed growth
  - Delayed puberty
Complications

- IBD > 8 yrs risk of colon cancer.
- risk greater when inflammation affects the entire colon.
- regular screening -- colorectal cancer is easiest to treat when it is found early.
- more than 90% of people with IBD do NOT get colon cancer
colonoscopy
Endoscopic findings in moderate-to-severe ulcerative colitis of circumferential mucosal inflammation, with ulcerations.
Conclusion- UC

- Complex interplay between genetic and environmental factors
- Diagnosis and management is a challenge
- Esp. in children- who must complete their physical and emotional development
- Colectomy with ileoanal anastomosis – in patients failing medical therapy
- Patients may develop chronic IBD
- True cure awaits further study of the genetic basis of UC and its pathogenesis
What is pediatric ulcerative colitis?

Ulcerative Colitis (UC) is an autoimmune process that results in chronic inflammation of the large intestine. UC involves only the mucosa and extends proximally from the rectum. In children and adolescents, the area of involvement often extends beyond the splenic flexure. The extent of involvement does not correlate well with clinical disease activity. The mucosal depth and continuous distribution of the inflammation distinguishes UC from Crohn’s disease in most cases.

Most researchers believe that UC is caused by a combination of genetic and environmental factors. Although UC may occur at any pediatric age, it is most often diagnosed in early adolescence. It affects males and females equally.

How does ulcerative colitis present?

The most common presentation of a patient with UC is bloody diarrhea and abdominal cramping. Extraintestinal symptoms may also be present such as fever, skin rash, joint symptoms including frank arthritis, and liver disease.

What evaluation should be offered by the primary health care provider?

Cultures for bacterial pathogens (Salmonella, Shigella, Campylobacter, Yersinia, E. Coli including 0157:H7, Clostridium difficile toxins A & B) should be completed. Lab testing for parasites including serology for Entamoeba histolytica should be considered. Additional testing (Complete blood counts with differential, sedation rate, Creactive protein and serum chemistries including albumin) should be part of the primary evaluation of the patient with persistent rectal bleeding. Anemia, elevation of acute phase reactants and hypoalbuminemia may be present indicating inflammation and chronicity. If the cultures are negative and the symptoms persist beyond two weeks, then referral to a pediatric gastroenterologist is appropriate.

When should I refer to a pediatric gastroenterologist?

Patients presenting with more inidious intermittent rectal bleeding, additional factors such as weight loss; extraintestinal manifestations of inflammation and a family history of IBD should prompt early evaluation and referral.

In patients where the infectious evaluation is negative but bleeding persists with or without pain, referral is indicated.

How is the diagnosis made?

The diagnostic gold standard is a colonoscopy with biopsy. Grossly, a continuous colitis that begins in the rectum is the most common appearance of UC. Biopsies are taken to confirm the diagnosis and further exclude infections. It is not unusual for a pediatric gastroenterologist to also perform esophagogastroduodenoscopy (EGD) at the time of the colonoscopy since the EGD can help classify the diagnosis as one of Crohn’s disease or UC. Additionally, a contrast small bowel series is frequently performed to image the rest of the bowel and to confirm that all the involvement is restricted to the colon and does not involve the small intestine, as is seen in Crohn’s disease.

More recently, it has been noted that there are various antibodies that are seen in a majority of individuals with inflammatory bowel disease (IBD). While the diagnosis of IBD cannot be made serologically, antibody testing can help to confirm the diagnosis. Per-nuclear anti-neutrophil cytoplasmic antibody (pANCA) is an auto-antibody that is most associated with UC and may help predict some potential long-term complications.

What treatments should I expect my patient to receive?

As with any chronic condition, the first goal of medical therapy in UC is to induce a clinical remission. Once remission is achieved, therapy is directed to maintain that remission. Corticosteroids have been the mainstay of induction therapy for many years. The rapid onset of action makes steroids an attractive choice especially in patients who are ill and have a poor quality of life at the time of diagnosis. The immunosuppressive, cosmetic and metabolic side effects of steroids make them inappropriate to use as maintenance agents.

5-aminosalicylic acid (5-ASA) preparations are effective anti-inflammatory agents and have been demonstrated to both induce and maintain remission in UC. Clinical response can be somewhat slower than steroids and, therefore, patients with severe UC continue to receive steroids in most cases. Once remission is achieved, either with 5-ASA or steroids, maintenance therapy with 5-ASA is the most common therapeutic approach. There are oral and rectal preparations available.

Recent use of steroids becomes a concern in patients who are intolerant or unresponsive to 5-ASA. Since a goal of therapy is to eliminate long-term steroid use, immunomodulator therapy may be introduced. 6-mercaptopurine (6-MP) and its parent compound Azathioprine are the immunomodulators most commonly used to steroid-spare in pediatric UC.

Most recently, biologic therapy in the form of infliximab (Remicade) has been approved for the treatment of refractory UC in adults.

In addition to medical therapy, psychosocial support of the pediatric patient and the affected family is critical in UC or any chronic pediatric illness. Implementation of a psychosocial support plan is a critical component of the health care plan. Often, the primary care provider has a unique and long-term relationship with the family and child. This relationship can facilitate the execution of a coordinated psychosocial support plan.

What are primary care issues in ulcerative colitis

- How important are vaccines?
  It is important to recognize that children with ulcerative colitis continue to be at risk for routine childhood illnesses. Immunizations are an important protective mechanism and children and adults with ulcerative colitis should be maintained on the recommended immunization schedule.

At diagnosis, it is important that the immunization history be reviewed so that catch-up immunizations can be given if needed. Immunity to varicella should be confirmed by history or serology so that those who require varicella vaccine can receive the appropriate doses prior to receiving immunosuppressive therapy. The majority of vaccines do not contain live virus and,
therefore, are generally safe even in individuals with ulcerative colitis who are on immunosuppressive therapy. All patients with ulcerative colitis should receive an annual vaccine for influenza. All patients with ulcerative colitis should be considered for an annual vaccine for influenza.

Live viral vaccines should be avoided in immune compromised children. This includes children on steroids (prednisone >20mg/day or 2mg/kg/day for 2 weeks or more), 6 MP/azathioprine, or methotrexate. Whenever possible, serologic conversion should be documented in children being immunized while immune compromised.

- **When should I be concerned that the ulcerative colitis is flaring?**
  It is an old adage that patients "flare true". The symptoms the child had at first presentation are generally the same symptoms at time of flare. Rectal bleeding would be the most common symptom of a UC flare. Other potential symptoms include diarrhea, fever, persistent abdominal pain or extra-intestinal symptoms including a rash, arthralgias/arthritis, jaundice or eye pain.

- **When is it not a disease flare?**
  It is not always easy to distinguish between a viral illness and a flare of the ulcerative colitis. Time, patience and resolution of symptoms are often the determining factors. It is important to consider other sources for an illness prior to ascribing symptoms to the ulcerative colitis. Stool cultures and screening blood work looking for anemia, hypoalbuminemia or elevation of acute phase reactants can be helpful as well. Patients and their families can often tell the difference between an intercurrent illness and a flare of the ulcerative colitis.

  First line anti-pyretic and analgesic therapy (for common fever, headaches and the like) should probably be acetaminophen since there is some data to suggest that chronic NSAID therapy may adversely affect UC.

- **What is the role of surgery?**
  While medical therapy is the mainstay of treatment, surgery is performed in as many as 25% of pediatric UC patients. Steroid dependence and lack of response to medical therapy are the most common indications for colectomy in UC.

  Advances in surgical techniques have made it possible to remove the colon and use the terminal ileum as a neo-
rectum or pouch. The ultimate result allows for continuity of the gastrointestinal tract without a permanent stoma. An inflammation of the pouch can develop (pouchitis) and this can usually be treated medically.

**How important is cancer surveillance in a UC patient?**

It has been well established that patients with UC have an increased risk of colorectal cancer. Regular colonoscopy for cancer surveillance is recommended for all patients who have had UC more than 8-10 years including pediatric and adolescent patients. Surveillance of the pouch in patients who have undergone colectomy is usually recommended as well.

**Physician Notes**

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**Digestive Health for Life**

www.KidsIBD.org
www.CDHNF.org
www.NASPGHAN.org

CDHNF National Office:
P.O. Box 6, Fairmount
PA 19031
Phone: 215-233-0808

Educational support for the CDHNF Pediatric Ulcerative Colitis Campaign was provided by Prasco & GlaxoSmithKline.
Nutrition Information

Good nutrition is important in managing and overcoming any disease, especially inflammatory bowel disease (IBD). There can be many causes of inadequate nutrition in children and adolescents with IBD. First, a child’s appetite may decrease during a “flare”, resulting in inadequate calories to sustain normal activity and growth. Second, during times of inflammation, the digestive tract may not absorb nutrients as well as it should, or the body may not use the nutrients properly. Third, the body may need more energy to repair itself during and after a “flare.” Finally, some medications may affect appetite and nutrition.

DIET MODIFICATIONS

Some parents worry that something in their child’s diet caused him or her to have IBD, but there is no evidence to suggest that this is so. There is also no evidence that any particular diet will “fix” IBD. Therefore, there are usually no major restrictions on a child’s diet. However, individuality is the key. Many children do not have any obvious sensitivity to foods, whereas other children may. It is important to keep a food journal if you feel your child is not tolerating certain foods, then speak with your child’s health care team about your concerns.

However, a few specific situations may require a change in your child’s diet. Dietary fiber may cause pain and block the intestine if it is narrowed by inflammation or after surgery. A low-fiber diet can be helpful when inflammation of the intestines has made the passageway narrow. Such changes in diet are often temporary, until the inflammation is improved.

Salt intake should be monitored while taking corticosteroids, since salt increases fluid retention (swelling), a side effect of steroids.

Some children may have difficulty with milk and other dairy products. However, this is often only a temporary problem. Dairy products should only be restricted from the diet if they cause problems, as they are an excellent source of protein and calcium, and are high in nutritional value.

During a period of inflammation, a high calorie, high protein diet may be beneficial. The meat and dairy food groups provide good sources of calories and protein. For those having trouble eating, liquid diets can be useful in supplementing the nutrients they miss. These liquids may sometimes need to be given with a special feeding tube if the child cannot consume enough calories to ensure good growth.

Claims of curing or improving inflammatory bowel disease with special diets are sometimes heard or seen. While not medically proven, some of these diets can be safely followed under medical supervision, while others are not safe or appropriate for children. It is always best to discuss any diet change with your child’s health care team, especially if a special diet is being considered.

VITAMINS, MINERALS, HERBS, AND MEDICATIONS

It is important to let your child’s physician know if you are giving your child any over the counter medicines, multivitamins, minerals or herbal supplements, as they can possibly interact with your child’s medications.

It is usually recommended that your child take a multivitamin with iron. If your child’s iron level is low, your child’s physician may recommend an additional iron supplement. The absorption of iron is better if it is taken with vitamin C, so have your child take the iron with some orange juice or other beverage fortified with Vitamin C. Your child’s doctor may also recommend additional folate.

Children with IBD are at risk for osteoporosis (thin, weak bones) especially when they are on corticosteroids for any length of time. Corticosteroids may interfere with the body’s ability to absorb calcium. It is important to take in recommended amounts of calcium and vitamin D for strong bones and teeth. Your child’s physician or dietician can tell you the amount that your child should take based on your child’s weight and age.

Overall, nutrition plays an important role in the treatment of IBD. Proper nutrition may enable your child to reach their full growth potential and help them to live a healthier life.

Colitis book diet for UC and crohns disease-The Culinary Couple’s Creative Colitis Cookbook: 100 Recipes for Low-Fiber, Low-Residue Diets used while treating Ulcerative Colitis or Crohn’s Disease flare-ups
references

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Thank you