

Nutritional disease: Bowel conditions and diseases

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Received: 12 April 2011; Accepted: 30 May 2011

Abstract

Inflammatory bowel disease can encompass many different disorders which irritate the bowel, including Crohn's disease and ulcerative colitis.

These diseases can develop important complications which requiring emergency surgery. Both, Crohn's and ulcerative colitis are ulcer-causing conditions. Crohn's refers to ulcers in the intestines and ulcerative colitis means ulcers in the colon. Crohn's disease is a chronic inflammatory disease of unknown cause that can involve any portion of the intestinal tract. Inflammation can extend entirely through the intestinal wall, often resulting in diarrhea, strictures (narrowing), fistulas (abnormal opening), malabsorption and the need for surgical resections of portions of the digestive tract.

Material and methods: In 1-st Surgical Clinic of the Medicine and Pharmacy "Victor Babes" Timisoara, County Emergency Hospital in a period of 36 years (1974-2010) we had treating 9748 patients with complications of such inflammatory diseases, representing almost 15% of total surgeries.

Results: part from the problems of surgery, recovery after surgery depending on the severity of complications and extent of surgery, remains the permanent treatment of chronic illness. One big problem was to convince patients of the need for permanent postoperative diet.

Conclusions: Chronic inflammatory bowel diseases are serious diseases and their complications and evolution need treatment and diet which requires constant attention; Compliance by the surgical patients of postoperative indications, mainly diet recommended prevents all these diseases recurrence.

Keywords: inflamatory bowel disease, diet, malabsorption

1. Introduction

Nutritional Diseases are diseases in humans that are directly or indirectly caused by a lack of essential nutrients in the diet. Nutritional diseases are commonly associated with chronic malnutrition. Additionally, conditions such as obesity from overeating can also cause, or contribute to, serious health problems. Excessive intake of some nutrients can cause acute poisoning.

These diseases appeared about 80 to 120 years ago when grocery stores began carrying "food" manufactured by the food processing industry instead of that produced on family farms. When foods are prepared by industry, nutrients are lost, and empty calories appeared in the products on grocery store shelves. Nutritious preparations have not been a target of the food processing industry.

They have been concerned with taste and shelf life. When diets and nutrition began to change, the change was to modern diets, nutritional diseases, and declining health. Migration to the cities and slums took place with the rise of industry. Not every one fancied life on the farm as the ultimate goal in life. Food had to be obtained from the grocery store. Nutrition is clearly disturbed by active intestinal inflammation. Appetite is reduced, yet energy substrates are diverted into the inflammatory process, and thus weight loss is characteristic [13-19].

The nutritional disturbance represents part of a profound defect of somatic function. Linear growth and pubertal development in children are notably retarded, body composition is altered, and there may be significant psychosocial disturbance. The ageless whole food diets, followed for thousands of years, gave people immunity to many diseases that plague us today. Those who followed their ageless diets were virtually free from dental decay, obesity, diabetes, cardiovascular diseases, stroke, and cancer.

As long as they remained on their whole food diets they were free from the debilitating diseases that grip us today. Whole foods diets included fish from the sea or lakes. Animal meat sources, including animal fat, saturated fat and cholesterol, came from their flocks: cattle, goats and sheep, various kinds of fowl, clean raw whole milk, butter and cheese. Fruits, vegetables, and whole grain breads rounded out these diets. Along with the change in diet and nutrition, there was a subtle change in the attitudes of some in the medical profession. This changing attitude helped solidify the transition from nutritional health and wholeness to the physical and moral degeneration afflicting most civilized countries today. [1-3]

There are actually two totally separate colon health issues. Inflammatory bowel disease can encompass many different disorders which irritate the bowel, including Crohn's disease and ulcerative colitis.

These diseases can develop important complications which requiring emergency surgery. Both, Crohn's and ulcerative colitis are ulcer-causing conditions. Crohn's refers to ulcers in the intestines and ulcerative colitis means ulcers in the colon.

Crohn's disease is a chronic inflammatory disease of unknown cause that can involve any portion of the intestinal tract. Inflammation can extend entirely through the intestinal wall, often resulting in diarrhea, strictures (narrowing), fistulas (abnormal opening), malabsorption and the need for surgical resections of portions of the digestive tract. Ulcerative colitis is an inflammatory disease of the colon, or large intestine, which is often accompanied by bloody diarrhea. This inflammation does not go through the entire wall of the intestines and therefore does not result in fistulas. However, extensive inflammation may eventually require surgery for removal of the affected area. [23]

Irritable Bowl Syndrome or Inflammatory bowel disease is a condition in the intestines and colon in which the body doesn't properly absorb fluids from the food that passes through it. Sometimes the colon absorbs too much fluid, resulting in constipation. At other times, the colon absorbs too little fluid and the result is diarrhea. Irritable Bowl Syndrome is also sometimes known as a "spastic colon." [3,4,8,9,24]

Inflammatory bowel disease symptoms include increased bowel movements, blood loss, abdominal pain, nausea, vomiting, and loss of appetite. This and other complications can lead to nutritional deficiencies. Crohn's Disease patients usually develop malnutrition slowly, while Ulcerative Colitis patients can develop deficiencies very quickly [10-12].

The exact cause of Inflammatory bowel disease is, as they say, idiopathic (they don't know). However, genetics, environment, and diet are contributing factors. What seems to happen is that in genetically susceptible people, the bowel's immunity over-reacts to bacteria (even the normal flora – the good bacteria) of the intestine. This is called auto-immunity; the body attacking itself. The areas of the intestine that don't move as much are especially vulnerable because they are more likely to stagnate [5-7, 20-22].

2. Materials and methods

In 1-st Surgical Clinic of the Medicine and Pharmacy "Victor Babes" Timisoara, County Emergency Hospital in a period of 36 years (1974-2010) we had treating 9748 patients with complications of such inflammatory diseases, representing almost 15% of total surgeries. (Fig 1-5)

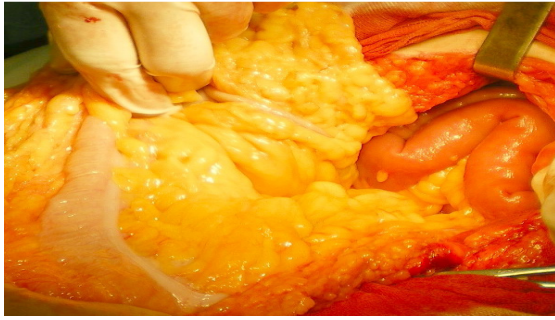


Figure 1



Figure 2



Figure 3

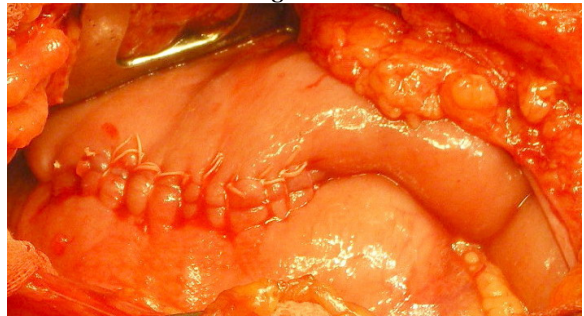


Figure 4

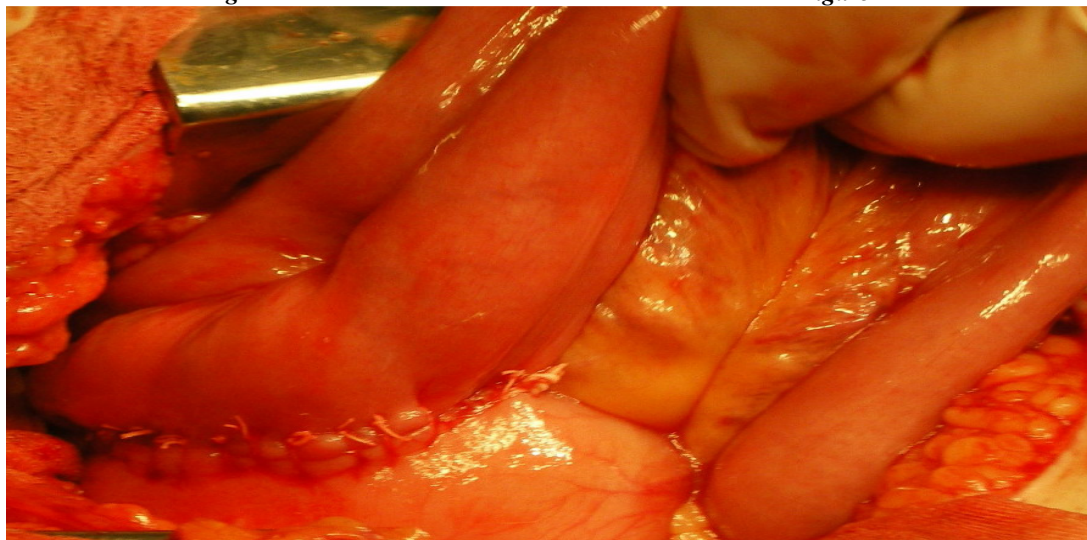


Figure 5

3. Results

Apart from the problems of surgery, recovery after surgery depending on the severity of complications and extent of surgery, remains the permanent treatment of chronic illness. One big problem was to convince patients of the need for permanent postoperative diet.

Diet Recommendations for Ulcerative Colitis Flare:

- Follow a low residue diet to relieve abdominal pain and diarrhea.
- Avoid foods that may increase stool output such as fresh fruits and vegetables, prunes and caffeinated beverages.

- Decrease concentrated sweets in your diet, such as juices, candy and soda, to help decrease amounts of water pulled into your intestine, which may contribute to watery stools.
- Decrease alcohol consumption.
- Try incorporating more omega-3 fatty acids in your diet. These fats may have an anti-inflammatory effect. They are found in fish, including salmon, mackerel, herring and sardines.
- Patients often find that smaller, more frequent meals are better tolerated. This eating pattern can help increase the amount of nutrition you receive in a day.
- Consider taking nutritional supplements if appetite is poor and solid foods are not tolerated well (see section on recommended liquid supplements).

Diet Recommendations for Crohn's Disease Flare

- Follow a low residue diet to relieve abdominal pain and diarrhea.
- If you have strictures, it is especially important to avoid nuts, seeds, beans and kernels.
- Avoid foods that may increase stool output such as fresh fruits and vegetables, prunes and caffeinated beverages. Cold foods may help reduce diarrhea.
- If you have lactose intolerance, follow a lactose-free diet. Lactose intolerance causes gas, bloating, cramping and diarrhea 30 to 90 minutes after eating milk, ice cream or large amounts of dairy. A breath hydrogen test may confirm suspicions of lactose intolerance.
- If you have oily and foul-smelling stools, you may have fat malabsorption. Treat fat malabsorption by following a low-fat diet. Discuss these symptoms with your doctor or nutritionist.
- Smaller, more frequent meals are better tolerated and can maximize nutritional intake.
- If your appetite is decreased and solid foods not tolerated well, consider taking nutritional supplements (see section on recommended liquid supplements).

Diet Progression Following Flares for Ulcerative Colitis and Crohn's Disease

- Continue to follow a low residue diet and slowly add back a variety of foods.

- Begin with well-tolerated liquids and advance to soft solids, then solids (see below for liquid and solid food suggestions).
- Introduce one or two items every few days and avoid any foods that cause symptoms.
- Add fiber to diet as tolerated. Well-tolerated fiber sources include tender cooked vegetables, canned or cooked fruits, and starches like cooked cereals and whole wheat noodles and tortillas.
- Between flares, eat a wide variety of foods as tolerated. This includes fruits, vegetables, whole grains, lean protein, and low-fat and nonfat dairy products.
- Increase your calorie and protein intake following a flare. Abdominal pain, diarrhea and decreased appetite may have caused poor food intake. Steroids used to treat flares also can increase protein needs.

Suggestions for first foods after a flare include:

- Diluted juices
- Applesauce
- Canned fruit
- Oatmeal
- Plain chicken, turkey or fish
- Cooked eggs or egg substitutes
- Mashed potatoes, rice or noodles
- Bread — sourdough or white.

Scientists still aren't quite sure what causes the body to mistake its own cells for dangerous invaders. It appears to be a combination of genetics and environmental influences. Since we can't change our genes (yet!), we must control what comes into contact with our immune system. Some researchers speculate that immune-related gut problems have increased at too high a rate to be caused by genetics. Environmental influences, they say, are a much more likely cause. Environmental influences can be broken down into two categories: hygiene and nutrition.[4, 25-30]

4. Discussions

Constipation, a condition characterized by the difficult passage of relatively dry, hardened feces, may arise from insufficient dietary fibre (roughage) or other dietary factors, such as taking calcium or iron supplements, in addition to daily routines that preclude relaxation. Straining during defecation can also contribute to diverticulosis, small outpouchings in the colonic wall, which may become inflamed (diverticulitis) and present serious complications.

Another possible consequence of straining is hemorrhoids, swollen veins of the rectum and anus that typically lead to pain, itching, and bleeding. Constipation can usually be treated by eating high-fibre foods.

Hemorrhoids, or piles, are one of mankind's most common and nagging disorders. By themselves, hemorrhoids are rarely serious, but they can be extremely troublesome. In some instances, they may mask a more serious disorder. Therefore, hemorrhoids require the proper diagnosis and treatment by a surgeon.

A common cause of hemorrhoids is simply the standing position, in which all the blood above the rectum exerts pressure on the rectal and anal areas. Other conditions which contribute to hemorrhoids are: poor bowel habits, constipation, diarrhea, pregnancy, obesity, and especially frequent straining when having a bowel movement. However, some patients will have none of these conditions and still develop hemorrhoids.

Information regarding dietary treatments for Nutritional disease is often confusing. Many people receive information telling them to avoid entire food groups or specific foods. However, there is no need to avoid foods unless they worsen your symptoms. It is best to restrict as few foods as possible to increase the chances that you are getting a balanced, nutritious diet. This is important for maintaining the function of your digestive tract and your overall health.

No specific diet has been shown to prevent or treat Nutritional disease. However, some diet strategies help control symptoms. See information below for diet strategies that may be appropriate for you.

Keeping a record of foods eaten and then taking note of when symptoms worsen may help you identify patterns that indicate problem foods.

There are different approaches to diet during flares and in the absence of flares. Regardless of disease, do not overly restrict the diet. Adequate nutrition during illness is important.

Nutritional recommendations are different for each disease and for each individual patient. It is important to discuss the treatments that are right for you with a registered dietitian and with your doctor.

Moderate to severe flares of Inflammatory bowel diseases are often treated by surgery after it follows with corticosteroids (prednisone), cholestyramine and 5-ASA compounds (sulfasalazine). These medications have nutritional side effects that should be addressed. If you use any of these medications, talk to your surgeon or registered dietitian for treatment advice.

Prednisone causes decreased absorption of calcium and phosphorus from the small intestine. It also causes increased losses of calcium, zinc, potassium and vitamin C. With continual use of high doses of prednisone, the result may be bone loss and development of bone disease. People on prednisone may need up to 1200 milligrams a day. Protein needs also are increased for people taking prednisone because it increases protein breakdown in the body.

Cholestyramine decreases absorption of fat-soluble vitamins (A,D, E and K), as well as folate, vitamin B-12, calcium and iron.

Sulfasalazine interferes with folate absorption. People taking this drug also should take a 1 milligram folate supplement each day.

Most patients need surgery for severe inflammation, strictures, fistulas and abscesses. In Crohn's disease, the affected portion of the digestive tract is removed. In ulcerative colitis, the colon is often removed and the ileum (bottom of the small intestine) may be attached to the anus.

Removal of portions of the intestine can affect nutritional status. When sections of the small or large intestine are removed, surface area for absorption of nutrients is decreased. The following diagram illustrates where nutrients are absorbed. If certain portions of the intestine are severely inflamed, or have been removed, absorption of nutrients may be affected. Malnutrition and nutrient deficiencies can result.

There are several reasons why people with Inflammatory bowel disease may be at risk for malnutrition. The following list includes some side effects that contribute to malnutrition.

Inadequate food/fluid intake may be caused by nausea, abdominal pain, loss of appetite or altered taste sensation. Increased losses — intestinal inflammation during acute flares results in increased protein losses, losses from fistula fluids, diarrhea and bleeding.

Increased nutritional needs — inflammation or infection increases metabolic requirements.

Malabsorption with Crohn's disease may be caused by severe intestinal inflammation, resection of small intestine and medications, such as prednisone and sulfasalazine

Nutritional needs are specific to the individual and differ with disease state, body size and age. A nutritionist can help you estimate your individual needs. Calorie and protein needs are similar for Crohn's disease and ulcerative colitis. In both diseases, needs increase during inflammation and immediately after to restore losses.

Calories — Calorie needs are only slightly increased, unless weight gain is desired. Weight loss can occur due to episodes of inflammation, poor appetite and decreased intake.

Protein — Protein needs for patients between flares are the number of grams protein equal to your weight in kilograms (1 kilogram equals 2.2 pounds body weight). For example, a 120 lb. female is 54.5 kg. and should therefore eat approximately 55 grams of protein each day. For weight gain and to restore losses after an acute flare, needs may be increased by 50 percent. Needs also are increased if you are taking corticosteroids (prednisone).

Fluids and Electrolytes — It is important to drink adequate amounts of fluid. A good guideline for hydration is to drink half of your body weight in ounces of water (e.g. a 120 lb. person should drink 60 ounces of water). Fluid requirements increase during or after episodes of diarrhea and with exercise. Make sure you replenish losses of electrolytes from diarrhea. Sodium, chloride and potassium can be replenished by drinking sports drinks, such as Gatorade and Powerade.

Vitamins and Minerals — A standard multivitamin with minerals can be taken each day. Increased risk for deficiencies of specific nutrients should be treated with an additional amount of those nutrients.

People with *Crohn's disease* are at greater risk for deficiencies of several vitamins and minerals due to extensive inflammation or removal of large portions of the digestive tract.

People with *ulcerative colitis* have less risk for vitamin and mineral deficiencies but are more prone to iron, fluid and electrolyte loss with bleeding, diarrhea and/or removal of the large intestine.

At times, there are very few foods that are tolerated well. During these times it is important to eat high calorie foods in tolerable amounts as frequently as possible. During times when solid foods cause irritation or you have a poor appetite, liquid oral supplementation may help provide nutrition. The following list includes liquid supplements for Crohn's Disease and ulcerative colitis [26-31].

Liquid Supplements for Crohn's Disease

Peptamen or Peptamen Junior for kids — Contains protein that has been partially broken down, making it easier to absorb. This may be useful if portions of the digestive tract are inflamed or have been removed. This formula also contains MCT oils that are absorbed more easily, decreasing the undesirable effects of fat malabsorption (diarrhea, gas and bloating). This formula is not highly concentrated, which also may help decrease diarrhea. An 8 ounce ready-to drink can provides 240 calories, 10 grams protein; made by Nestle. Recommend adding flavor packets to improve palatability.

Peptamen 1.5 — Same composition as Peptamen but offers more calories per can. An 8 ounce ready-to-drink can provides 360 calories, 16 grams protein.

Modulen IBD — A mild formulation, which may help control diarrhea. It also contains a growth factor which may decrease inflammation. It contains MCT oil for better absorption of fat. An 8 ounce serving made from powder provides 240 calories, 9 grams protein.

EnLive — Useful for nutrition before surgery, fat malabsorption, lactose intolerance and gluten sensitivity. This is a clear liquid supplement that is a good source of protein and calories. An 8 ounce ready-to drink box provides 300 calories, 10 grams protein.

Lipisorb — High in MCT oil, which is an easily absorbed form of fat -- useful for fat malabsorption. An 8 ounce ready-to drink can provides 325 calories, 14 grams protein.

Subdue — Partially broken down protein plus MCT oil for better absorption of fat. An 8 ounce ready-to drink can provides 240 calories, 12 grams protein.

Vivonex — May be indicated for severe problems with absorption. This formula is very low in fat and is "elemental" or contains completely broken down protein, so the intestines can absorb nutrients easily. An 8 ounce ready-to drink can provides 240 calories, 11 grams protein.

Optimental — This product is also elemental (completely broken down proteins) and contains MCT oils for easier absorption. It is lactose free and contains high levels of antioxidants. An 8 ounce ready-to drink can provides 237 calories, 12 grams protein.

Vitamin B12 — Increased risk with extensive inflammation in the ileum (lower small intestine) or removal of the ileum.

Folate — Increased risk with Sulfasalazine use; extensive inflammation in the jejunum (middle portion of the small intestine) or removal of the jejunum.

Vitamins D, E and K — Increased risk with fat malabsorption; inflammation of large portions of the jejunum and/or ileum or removal of portions of the jejunum and ileum.

Vitamin A — Increased risk with fat malabsorption; disease involvement of the duodenum (upper small intestine) and/or upper jejunum.

Magnesium — Increased risk with extensive inflammation and/or removal of large portions of the jejunum and ileum, fistula losses and chronic diarrhea.

Zinc — Increased risk with extensive inflammation and/or removal of the jejunum, diarrhea, fistula losses, prednisone use or measured low blood levels of zinc.

Calcium — Increased risk with avoidance of dairy foods for lactose intolerance, fat malabsorption, prednisone use, extensive inflammation or surgery throughout the entire small intestine.

Potassium — Increased risk with chronic vomiting and diarrhea, prednisone use.

Liquid Supplements for Ulcerative Colitis

Folate — Increased risk with Sulfasalazine use;

Magnesium — Increased risk with chronic diarrhea;

Calcium — Increased risk with prednisone use;

Iron — Increased risk with blood loss from ulceration of colon and/or clinical signs and symptoms of deficiency (anemia);

Potassium — Increased risk with chronic vomiting and diarrhea, prednisone use and/ or low blood levels of potassium;

Probiotics ("beneficial live microorganism cultures that are characteristic of the healthy, human gut microflora") have been shown to reinforce the gut's ability to defend itself properly, alleviate inflammation, normalize the bowel, and decrease sensitivities.

There is quite a bit of controversy about **vaccines** and how they might negatively impact the immune system.

"*Dysbiosis*" is when there is too much of some intestinal bacteria and not enough of others. Avoid antibiotics except when absolutely necessary, since they can throw off the normal balance of intestinal flora. If you do have to take antibiotics, follow them up with probiotics, and have your healthcare practitioner monitor your intestinal health with stool tests (GSDL). Eat lots of fruits and vegetables.

Because people with ulcerative colitis do not have malabsorption concerns, a supplement that contains partially broken down protein is not usually needed. Standard supplements are fine but are more easily tolerated if they are isotonic or low concentration, which helps prevent diarrhea.

People with ulcerative colitis may have increased needs for the following nutrients. Deficiencies depend on medications used and the extent of blood loss and diarrhea.

People with Crohn's disease may be at increased risk for deficiencies of the following nutrients. A variety of factors affect risk for nutrient deficiency including medications used, portions of the digestive tract removed, degree of inflammation and the patient's ability to take adequate nutrition.

Medical researchers have yet to determine the exact causes of inflammatory bowel disease. There's some evidence that the source may be a problem in the immune system. Others think germs may be involved in some way. Early on, there are often no cut and dry indications that one is suffering from Inflammatory bowel disease.

But there are some things patients'll notice that deserve attention and maybe some investigation. These include frequent urgency to evacuate the bowels, cramping, and stomach pain. In some cases there can be loose stools with blood.

If the initial indications of Inflammatory bowel disease go untreated, complications can follow. There can be bleeding in the colon and bowel and in some cases, toxic megacolon can be present. Toxic megacolon can be dangerous because is characterized by a very dilated colon and accompanied by abdominal bloating and pain, along with fever and even shock [26,28,30].

Those who are diagnosed with the form of Inflammatory bowel disease known as ulcerative colitis run a higher risk of developing certain forms of cancer. Other possible complications of Inflammatory bowel disease include:

- Painful joints
- Bone loss
- Problems with eyes
- Problems involving the liver and kidneys
- Skin trouble

All these complications require surgical treatment followed by a good dietetic nutrition.

5. Conclusion

- Chronic inflammatory bowel diseases are serious diseases and their complications and evolution need treatment and diet which requires constant attention,
- Compliance by the surgical patients of postoperative indications, mainly diet recommended prevents all these diseases recurrence.
- In-depth knowledge of diet for each disease is important for the physician and patient.
- Diet is basically a "*modus vivendi*" in certain surgical diseases, an indispensable factor without the patient's health is continuously threatened, even life.

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