

Research Article

## Prevalence Of Inflammatory Bowel Disease

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### Abstract

Crohn's disease and ulcerative colitis both are known as Inflammatory bowel disease (IBD) and characterized by chronic and prolonged inflammation of the gastrointestinal (GI) tract results in scarring to the GI tract.

**Keywords:-** Inflammatory bowel disease; etiology and risk factors; diagnosis; medical and surgical management; Nursing Interventions

Worldwide Prevalence of IBD Was 321.2 Per 100,000 Population and, during 2006 it was 200 Per 100,000 Population. Now prevalence of IBD has surged at a rate of +46% and currently surging.

### Review of anatomy and physiology

The small intestine also known as small bowel anatomical located between the stomach and the large intestine (large bowel) and includes part like duodenum, jejunum, and ileum. It's called small intestine due to smaller diameter of intestinal lumen in comparison of the large bowel, although small bowel is longer in length than the large bowel.

#### Small intestine:-

The small intestine extends from the pyloric sphincter of stomach to the ileocecal valve, where it attach to the large intestine and empty in it.

The small intestine perform the digestion process, absorbs the nutrients, and proceed the remnants into the large intestine.

**The small intestine made up of:** A mucosal layer with simple columnar epithelium,

**Submucosal layer consist of** smooth muscle with inner circular and outer longitudinal layers, and Serosa. Plicae circulars,villi,and microvilli of small intestine have absorptive surface which increase this bowel area.

#### Parts of small intestine:-

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### **1. Duodenum**

Duodenum is first part of the small intestine. It is short, approximately 10 inches long descending region which arch around the pancreas and stomach empty into. It is “C” figure prior to joining to the rest of the coiled intestines.

### **2. Jejunum**

The middle part of small intestine is known as Jejunum made up its less than half of remaining half of intestine. It found inside lower abdomen inform of several coils.

Small intestine jejunum is have many arteries and venous supply, which make it a dark red color.

### **3. Ileum**

The ileum is the terminal part and extended section of the small intestine. This part of small intestine has thin and narrow walls and reduced blood supply.

Digestive contents spend the maximum time in the ileum, here water and nutrients are absorbed.

### **Functions:**

The small intestine is where most of the long process of digestion takes place. It:

Systematically break down food.

Absorbs nutrients from food ingested.

Absorb water and nutrients.

Removes unnecessary contents.

Forward food along the gastrointestinal tract.

The process of digestion in small intestine takes up approximately five hours.

### **Large intestine**

**The large intestine consist of four parts:** cecum, colon, rectum, and anal canal.

It have larger diameter in comparison the small intestine.

It evolve at the ileocecal junction, where the ileum get in the large intestine, and terminate at the anus.

### **Layers of the large intestine**

As like small bowel, the cross-sectional view of the large bowel be composed of four definite layers, that is, Mucosa, Submucosa, Muscularis, and Serosa

### **Blood supply of the large intestine**

Branch of and superior mesenteric artery (SMA) and inferior mesenteric artery (IMA) provide blood supply to the colon and large intestine.

SMA and IMA communicate via the marginal artery, which supply side by side to the length of the whole colon.

**Venous drainage:-** Mesenteric veins side by side their correlating arteries.

The superior mesenteric vein unloads the small intestine, cecum, and ascending and transverse colon through the jejunal, ileal, ileocolic, right colic, and middle colic veins.

The inferior mesenteric vein voids the descending colon through the left colic, the sigmoid via the sigmoid vein, and the rectum by the superior rectal vein.

The **IMV** joins with the splenic vein, which then connect the **SMV** to form the portal vein.

**Functions:** The large intestine performs following three primary functions:

Water electrolytes and vitamins are absorbed here.

Production of vitamins K and Biotin, and

Formation of feces and propel toward the rectum to get rid of it.

## INFLAMMATORY BOWEL DISEASE (IBD)

A term IBD delineates disorders involving chronic inflammation of tissues in bowel.

**IBD classified into:**

**1. Crohn's disease (regional enteritis)**

**2. Ulcerative colitis**

**Crohn's disease (regional enteritis)**-Cobble stone ulcerations or rottenness along the mucosal layer of the terminal ileum, cecum, ascending colon. Scar tissue formed by pathological changes reduces food and water absorption.

Intestinal submucosal ulceration accompanied by congestion, thickening of the small bowel and fissure formation, fistulas and abscess may form.

**Location:-** Terminal ileum, cecum, ascending colon.

**Etiology:-**

**Genetic predisposition:** Research study reveals 5% and 20% of Clients with IBD have a first-degree relative, like a parent, child, or sibling, who also affected by IBD. The genetic risk is greater with Crohn's disease in comparison to ulcerative colitis.

**Autoimmunity:** CD and UC both are involved autoimmune and immune-mediated reactions include the existence of serum and mucosal autoantibodies in case of intestinal epithelial cells in either form of IBD, and anti-human tropomyosin fraction five selectively in UC.

**Environmental cause's** immune system reacts mistakenly to environmental stimulants, like a bacterium's and viruses, which produces inflammation of the intestinal mucosa.

**Environmental triggers** incorporate smoking, NSAIDS sodium phosphate and certain other medications, stress and MDP specially depression.

**Clinical manifestation:-**

Nausea and vomiting sensation,

Extreme abdominal pain and cramping,

Spasms exaggerations related to emotional mood swings or dietary milk and fatty foods.

**Objective:-** Weight loss due to dietary intolerance,

Fever,

Elevated WBC counts( leukocytosis),

Diarrhea with mucus electrolyte disturbances,

Melena (Dark terry stool with blood) and fat in feces (steatorrhea),

Lymph adenopathy (Enlargement of regional lymph nodes)

**Diagnosis**

**Barium study-** A diagnostic X-ray taken after oral consumption of barium meal shows upper G.I. Tract stricture of the ileum is known as String sign.

**Endoscopy and biopsy:** to diagnose IBD with clear and detail views of gut and differentiate Crohn's disease with ulcerative colitis.

**Fecal fat test:** to identify fat loss in feces

**D-xylose test:-** Determines fat content, an abnormal amount of fat is important in oral absorption disease and hyper motility.

**CT-scan:** to diagnose any tumors and pathological changes in Gastrointestinal tract.

**Therapeutic interventions**

NBM and TPN in extreme inflammatory attacks or episodes.

Maintain fluid and electrolyte balance.

Surgery indicated in intestinal obstruction or fistula formed. These complications can be removed through resection and anastomosis or temporary or permanent ostomy by surgery.

### **Medical management**

**Drugs-** Antidiarrhoeal drugs to reduce frequency of diarrhoea **eg.** Loperamide.

**Antispasmodics:** to relieve spasmodic episodes of disease **eg.** Propantheline bromide.

**Anti-infectives:** to treat the infection associated with disease **process eg.** Metronidazole+ ciprofloxacin

**Steroids:** To reduce inflammation

**Vitamins:** to treat malnutrition or vitamin deficiency during illness.

### **Diet**

Clear fluid diet progressing to bland,

Low residue,

Increased calories in diet, with carbohydrates, proteins and vitamins especially k and B-12 (when entire region of ileum is affected.)

Diet should contain low fat,

## **ULCERATIVE COLITIS**

Edema or swelling of mucosal layer causes bleeding and superficial ulcerations of colon.

### **Caused by-**

Emotional stress,

Autoimmune response or destruction of mucosal wall,

Genetic predisposition

Onset of bacterial infection before episodes.

Ulcerative colitis is associated with raised risk for colon cancer.

### **Clinical Manifestation**

Weakness due to malnutrition nausea anorexia,

Abdominal pain and cramps, debilitation, diarrhea (15-30 liquid stools/day)

**Objective.**-On examination dehydration identified with tenting of skin,

Frequent passage of bloody, purulent, mucoid, watery stools,

Anemia due to blood loss in stool,

Hypocalcemia, low grade fever.

### **Difference between CD &UC:**

Ulcerative colitis is inflammation of the inner lining of the large bowel (colon and rectum) and affects large intestine region only.

But Crohn's disease, can appear anywhere in the gastrointestinal tract, from the oral region to terminal part of anus.

### **Surgical intervention-**

**Segmental or partial colectomy** with anastomosis.

Total colectomy with ileostomy.

Total colectomy with incontinent or continent ileostomy.

Total colectomy with ileoanal anastomosis (creation of ideal pouch that maintain and sphincter function).

## **SURGICAL MANAGEMENT OF IBD:-**

### **Indication for surgery in IBD**

Patients with life-threatening complications in UC require immediate surgery.

### **These complications include:-**

Colonic perforation and rupture,

Life-threatening gastrointestinal bleeding and hemorrhage, and  
Toxic megacolon.

Drugs remain ineffective,

Development of Strictures in Crohn's disease.

Abscesses or fistulas formations in Crohn's disease,

Growth retardation in children (Crohn's)

Colonic carcinoma

**Surgery for Crohn's disease:** The most common surgeries for Crohn's disease include:

**Strictureplasty/Stricturoplasty-** Obstruction and narrowing intestine reshaping through this surgery.

**Resection-** Diseased portion of the small intestine or large intestine are resected and the healthy portion of intestine are reconnected

**Ileocaecal resection** - the terminal ileum or end part of the small intestine and the caecum are resected and the small bowel and large bowel are directly connected.

**Colectomy with ileostomy-** all or diseased portion of colon is removed by surgery and the opening of the small intestine is brought to abdominal surface to make an **ileostomy** and a bag is attached to collect faecal matter.

**Colectomy with ileo-rectal anastomosis** -Diseased colon is removed and healthy the small intestine is anastomosed directly to the rectum through bypass the colon.

**Proctocolectomy and ileostomy** – Diseased colon and rectum both are removed and an ileostomy is performed with the small intestine.

**Surgery for abscesses and fistulas:-**

Abscesses may incise and drained. Fistulas can be removed by fistulectomy or by opening and cleaning them and then leaving them to heal.

**Surgical intervention for ulcerative colitis:-**

**Proctocolectomy and ileostomy-** Diseased colon and rectum are removed and an ileostomy procedure is performed with the small intestine.

**Proctocolectomy and ileostomy**

**Restorative Proctocolectomy with ileo-anal pouch (J-pouch)** - the whole colon and rectum is removed. A pouch is created using the ileum over lower end of small intestine known as ileostomy and connected to the anus.

This is created with two surgeries and a temporary ileostomy is performed in between the surgeries.

**Restorative Proctocolectomy with ileo-anal pouch (J-pouch)**

**Colectomy resection** – some portion of the large bowel is removed and anastomosed.

**Stomas:** A stoma is region where the terminal end of the bowel is brought to the surface of the abdomen. A bag is connected to stoma for passage of stool rather than rectum. Stoma care is required to prevent infection.

**Nursing Problem Priorities:**

Nursing priorities for patients with ileostomy and colostomy are following:

Ensure maintenance and right stoma care.

Prevent skin irritation or leakage of ostomy.

Educate clients on self-care with colostomy.

Prevent blockages or digestive problems with diet therapy.

Educate about body image disturbance and psychosocial issues with an ostomy.

Lifestyle modifications and adjustment should address with ostomy.

Teach client to odour control and treatment gas formation.

Infection control or prolapse management required.

Comprehensive care can be given by nurse specialist.

**Nursing Interventions:-**

### 1. Managing colostomy care and wound care

Change the bag timely and do inspection of the stoma and peristomal skin area.

Nurse should check and record irritation of stoma site for color and rashes,

Periodical measurement of stoma: First 6 weeks should inspect once weekly, then once a month for 6 month.

Width and length of the stoma should measure.

Diagnose to note inflammation, itching, or blistering nearby the stoma.

Colostomy should clean with warm water and dry it.

Sticky stool should be cleaned with soap and water.

Use odor proof and clear transparent drainable pouch.

Empty pouch daily.

Apply corticosteroid and prescribed antifungal powder as written.

Note down characteristics of fecal matter.

Use an aseptic technique required for dressing change.

### Bibliography

Gian Paolo Caviglia, Epidemiology of Inflammatory Bowel Diseases: A Population Study in a Healthcare District of North-West Italy *J Clin Med.* 2023 Jan; 12(2): 641. Published online 2023 Jan 13. doi: 10.3390/jcm12020641

Soward,<sup>1</sup> Eichenbichler,<sup>2</sup> Bernstein,<sup>3</sup> Javina-Zubieta et al, Forecasting the incidence and prevalence of inflammatory bowel disease: a Canadian nation-wide analysis *Can Assoc Gastroenterol.* 2023 Mar; 6(suppl 1): 19–20. Published online 2023 Mar 7. Doi: 10.1093/jcag/gwac036.035

Centers for Disease Control and Prevention (.gov), <https://www.cdc.gov/ibd/what-is-IBD>

[https://www.crohnscolitisfoundation.org/what-is-crohns-disease/causes#:~: text=Genetic% 20 Factors&text=Studies% 20have% 20shown% 20that% 20between,Crohn's% 20disease% 20than% 20 ulcerative% 20colitis.](https://www.crohnscolitisfoundation.org/what-is-crohns-disease/causes#:~:text=Genetic%20Factors&text=Studies%20have%20shown%20that%20between,Crohn's%20disease%20than%20ulcerative%20colitis.)

Zhonghui Wen and Claudio Fiocchi “Inflammatory Bowel Disease: Autoimmune or Immune-mediated Pathogenesis” . *Clin Dev Immunol.* 2004 Sep-Dec; 11(3-4): 195–204. doi: 10.1080/17402520400004201

[https://nyulangone.org/conditions/inflammatory-bowel-disease/diagnosis#:~: text= Endoscopic% 20 procedures% E2% 80% 94such% 20as% 20colonoscopy,Crohn's% 20disease% 20and% 20ulcerative% 20colitis.](https://nyulangone.org/conditions/inflammatory-bowel-disease/diagnosis#:~:text=Endoscopic%20procedures%E2%80%94such%20as%20colonoscopy,Crohn's%20disease%20and%20ulcerative%20colitis.)