Understanding the causes and symptoms of IBD

In this article...

- Causes of inflammatory bowel disease (IBD)
- Groups that appear to experience higher rates of IBD
- Symptoms of Crohn’s disease and ulcerative colitis, forms of IBD

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Inflammatory bowel disease can have a negative impact on a patient’s quality of life. Understanding the condition and its aetiology will help nurses provide optimal care.

**5 key points**

1. Inflammatory bowel disease (IBD) is a long-term condition.
2. The condition generally presents in adolescents or people who are in their 20s.
3. Reported incidence rates of IBD are increasing.
4. Incidence rates in Western countries are higher than those in developing countries.
5. Diet has not been proven to be a cause of IBD.

A recent audit assessing gastrointestinal ward nurses’ knowledge about inflammatory bowel disease (IBD) highlighted a poor knowledge base (Septon et al, 2013); this was an unexpected finding. Further work compared the IBD knowledge of these nurses with that of respiratory ward nurses, with little difference identified between the two groups (Septon et al, 2013). It is vital nurses caring for patients with IBD understand how this long-term condition affects health and quality of life, and have the appropriate knowledge and skills to provide effective evidence-based care.

What is IBD?
IBD is a chronic long-term inflammatory condition of the bowel and is generally used to describe ulcerative colitis (UC) and Crohn’s disease (CD). These are chronic disorders characterised by gastrointestinal inflammation (Orchard et al, 2011). There is no known cause for IBD but we do know that environmental factors, the immune system and genetic factors play a part in the disease (Hanauer, 2006).

IBD affects all ages but commonly presents in adolescents and people in their early 20s; this then impacts on their fertile reproductive years as well as quality of life. Men and women are diagnosed in equal numbers (IBD Standards Group, 2013). The condition is incurable and treatments aim to induce remission and reduce symptoms, thereby improving quality of life.

IBD is unpredictable and characterised by exacerbations and remission. Exacerbations are referred to as a relapse or “flare-up” when the disease is active (IBD Standards Group, 2013). The pattern of relapse and remission can vary from patient to patient, and in severity and duration. The unpredictable nature of the condition can make some aspects of life very difficult, including planning anything from a simple shopping trip to a major holiday. Remission is defined as complete resolution of symptoms plus mucosal healing, identified by endoscopic imaging such as ultrasound or a magnetic resonance imaging (MRI) scan (Hommes et al, 2012).

More than 50% of patients with CD will undergo surgery within 10 years of diagnosis (IBD Standards Group, 2013). The lifetime risk of needing surgery may be as high as 70-80% in CD and 20-30% in UC, depending on the severity of the
Epidemiology
The prevalence of IBD in the UK is 400 per 100,000 people; it is estimated that there are approximately 240,000 people in the UK who have the condition (Mowat et al, 2011). The incidence of CD in the UK increased markedly between the 1950s and the 1980s and it has continued to do so, albeit at a slower rate (Mowat et al, 2011). This increase is not thought to be due to an increase in incidence reporting.

Ulcerative colitis
UC is an inflammatory condition that affects the colon and rectum. It is suggested that it may be an autoimmune condition. The epithelial barrier in the gut plays an important role in the mucosal immune system (MIS); the single layer of epithelial cells maintains the integrity of the intestinal mucosa and provides defence against micro-organisms. The epithelial cells are constantly exposed to antigens, which are part of the natural flora of the gut, but MIS down regulates its response to these antigens and stops an inflammatory response. With IBD there is a dysfunction in the regulation of this response, exposure to normal flora triggers an immune response resulting in inflammation and tissue damage (Fig 1).

Some researchers believe an immune response to a viral or bacterial infection may fail to “turn off” once the infection has resolved and so continues to cause inflammation (Hanauer, 2006).

Genetics may also play a part in the development of UC and the condition is linked to environmental factors, such as where patients live. As an example, the condition is more common in urban areas of northern parts of Western Europe and North America (Podolsky, 2002). The effects of air pollution and certain diets have been studied but no factors have been identified so far.

Diagnosis
An IBD diagnosis is confirmed by clinical evaluation and a combination of haematological, endoscopic, histological or imaging-based investigations. With UC, the diagnosis should be made based on:
» Clinical suspicion;
» Appropriate macroscopic findings on sigmoidoscopy or colonoscopy;
» Histological findings on biopsy;
» Stool examinations that have tested negative for infectious agents (Mowat et al, 2011).

UC can vary in terms of the extent of bowel affected and the severity of the symptoms.
inflammation. It is classified as:
› Remission;
› Mild;
› Moderate;
› Severe.

UC starts in the rectum and extends uppermost in a continuous, confluent manner. Atypical cases not involving the rectum (usually a sign of CD) can be seen in children (Stange et al, 2006). This variant can pose a dilemma for clinicians who need to rule out CD by undertaking bowel investigations. Approximately 5% of patients with IBD affecting the colon are unclassifiable after clinical, radiological, endoscopic and pathological investigations, because they have some features of both UC and CD. This is termed “IBD, type unclassified” (Dignass et al, 2012).

The distribution of UC is classified by the Montreal classification (Satsangi et al, 2006); it is important to know the distribution of the disease so treatment and management can be tailored appropriately. The classification is outlined in Table 1.

### Crohn’s disease

The features of UC and CD have similarities but are distinguishable. Crohn's disease can affect any part of the gastrointestinal tract with patchy or discontinuous inflammation, commonly described as skip lesions. It is potentially an aggressive and progressive disease, which can lead to complications such as perianal fistulas.

Both inflammation and fibrosis can lead to a narrowing of the lumen of the bowel, causing intestinal strictures that may lead to obstructive bowel symptoms. Strictures can progress to perforation of the gut wall and abscess formation. Management involves establishing whether the stricture is fibrotic or inflammatory so the most appropriate treatment can be given.

CD can be further characterised by location, as well as the nature or pattern of the disease. The location could:
› Be confined to the terminal ileum (terminal ileal);
› Be confined to the colon (colonic);
› Affect both the ileum and colon (ileo-colic);
› Affect any other part of the upper gastrointestinal tract (upper gastrointestinal).

The pattern of CD can be characterised as follows:
› Inflammation;
› Formation of strictures in the gastrointestinal tract;
› Formation of fistulas connecting parts of the bowel, or connecting the bowel to organs such as the bladder and vagina.

The classification of CD is outlined in Table 1.

### Causes

CD is more common in developed parts of the world, such as the UK and the US, and the incidence has increased considerably in the UK between the 1950s and 1980s; since the 1980s, however, it has continued to rise at a much slower rate. This increase suggests some link to Western lifestyles but the reason for this is unclear (Gunes et al, 2008; Armitage et al, 1999).

There is also evidence to suggest genetics plays a role in the development of CD and a familial link has been identified. Twin studies have confirmed this, with 50% concordance in identical twins with CD (Xavier and Podolsky, 2007). CD is more common in some ethnic groups, such as Caucasians and Ashkenazi Jews, but there has been an increased incidence in Asian people migrating to the developed world, which supports the view that both genetics and environment have a role (Hanauer, 2006) in the disease development.

An autoimmune response and history of a previous bowel infection, as described in the section in this article on UC, may also play a part, and some researchers have linked a virulent form of E coli with CD (Rampton, 2010).

Smokers are twice as likely to develop CD compared with non-smokers, and smoking may aggravate symptoms. Stress may also trigger relapses (Stange et al, 2006). Diet has no known pathogenic triggers but CD often improves when ordinary food is removed and replaced with a liquid formula diet.

### Symptoms

Symptoms can vary depending on the severity and location of the condition, and may be associated with signs of malnutrition and weight loss. Patients usually experience diarrhoea, which may contain blood if there is rectal involvement. If the ileum in the upper gastrointestinal tract is involved, it is unusual to have bloody diarrhoea but fat, bile and salt may be malabsorbed, leading to pale stools that are difficult to flush away or stools that are watery.

Abdominal pain may be related to oedema of the bowel wall or stricture formation. If the pain is due to strictures, symptoms usually occur one or two hours after eating and may be associated with abdominal bloating. Important signs of CD are as follows:
› Perianal disease;
› Presence of an abdominal mass;
› Growth failure in children (Stange et al, 2006).

### Extraintestinal manifestations

Extraintestinal manifestations (EIMs) are present in both UC and CD they relate to areas outside the bowel and commonly occur with active luminal disease (Orchard et al, 2011). The most common EIMs affect the skin, musculoskeletal system, eyes and hepatobiliary system. The IBD Standards Group (2013) states that a named rheumatologist and ophthalmologist in IBD services should be involved in the management of EIMs and, in many circumstances, it is also necessary to engage with a dermatologist.

### Skin EIM

Skin EIMs affect 2-34% of patients with IBD (Ardizzone et al, 2008). The most common is erythema nodosum, which usually occurs on the shin region of the legs and presents as painful pink nodules around 2cm in diameter that fade to blue (Fig 2). They are usually associated with flare-ups and treatment is of the underlying disease.

Pyoderma gangrenosum has a prevalence of 0.4-2.0% (Orchard et al, 2011) and is characterised by pain that precedes the development of pustules. The pustules can develop into necrotic ulcers, which appear mainly on the lower leg but can also occur on the abdomen and elsewhere (Fig 3).

### Musculoskeletal EIM

Musculoskeletal EIMs in the form of arthritis can affect the axial or the
**Fig 2. Erythema Nodosum**

**Fig 3. Pyoderma Gangrenosum**

Peripheral joints. Those affecting the axial skeleton include ankylosing spondylitis and sacroilitis, which have a prevalence of 1-6% (Orchard et al, 2011). Sacroilitis is characterised by buttock pain after rest, which improves with movement. Diagnosis is made clinically and radiologically. Ankylosing spondylitis is progressive, leading to immobility of the spine; fusion of the vertebrae results in a characteristic question-mark-shaped posture. MRI is the gold-standard diagnostic tool. Treatment involves intensive physiotherapy along with treatment of the underlying disease.

Peripheral arthritis is the most common EIM and occurs in 30% of patients with CD (Orchard et al, 2011). Type 1 arthritis is associated with active intestinal inflammation, it is important to treat this underlying intestinal condition. Type 2 arthritis is a more persistent type, treatment with immunosuppressant therapy and, sometimes, biologic therapy may be required. Type 1 and type 2 arthritis do not lead to deformation or erosion of the joints.

**Ocular EIM**

Ocular EIMs occur in less than 10% of patients (Orchard et al, 2011). Manifestations include:

- Episcleritis – inflammation of the layer between the sclera and conjunctiva. This is the most common ocular manifestation. It presents with burning, itching and the presence of dilated blood vessels at the site of inflammation. It is managed with topical steroids and treatment of the underlying disease;
- Scleritis – inflammation of the sclera (white of the eye) is more serious and can result in visual impairment and even retinal detachment. It is usually managed with systemic steroids, non-steroidal anti-inflammatory drugs or immunosuppressant therapy;
- Uveitis – inflammation of the middle layer of the eye, including the iris, choroid and ciliary body and can occur independent of underlying disease. It presents with painful red eyes, photophobia and blurred vision. Treatment is topical and sometimes systemic steroids are required.

**Hepatobiliary EIMs**

Primary sclerosing cholangitis (PSC) involves fibrosis of the extra and intrabiliary biliary tree. It is associated with UC and is most common in young males who have UC. Typically UC is mild with few flare-ups but PSC can occur years before the onset of colitis and persist even after total colectomy.

PSC can also be complicated by the development of cholangiocarcinoma and increase the risk of colorectal cancer, necessitating annual colorectal endoscopic surveillance (Mowat et al, 2011). Specialist advice is important in the management of PSC as patients may eventually require a liver transplant.

**Conclusion**

Having an awareness of the background of IBD can empower a nurse to deliver the most appropriate care to patients who are diagnosed with the condition. Systematic holistic assessment will enable the development of a patient-centred care plan, which is embedded in the 6Cs of nursing. This will be covered in part two of this series, published next week, which will look at how best to manage the condition.

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