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ECCO-EFCCA Patient Guidelines on Crohn's Disease (CD)

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Introduction

Crohn's Disease and Ulcerative Colitis, in short CD and UC respectively, belong to a group of chronic inflammatory disorders of the bowel, called Inflammatory Bowel Diseases (IBD). IBD are immune-mediated diseases, which develop in patients who have a genetic predisposition when they are exposed to the influence of appropriate but as yet unidentified environmental factors.

This guideline is about CD diagnosis and treatment. The term CD will be used throughout this guideline. It has been derived from an international guideline on Crohn's Disease that has been developed through a thorough process involving leading European physician experts and assessing all current evidence for the best management of patients with CD, so they can better understand how CD is best diagnosed and treated by medical professionals. Many terms are underlined; these are terms that appear in the glossary to help you better understand this guideline. Regarding UC, you may look in another

patient-oriented guideline that has been established simultaneously.

CD is a disease that affects the small and the large bowel, and less often other parts of the gastrointestinal tract. It may also affect various organs and tissues outside the gut, most commonly the skin, the joints, and the eyes.
CD most commonly affects the end of the small bowel and the large bowel. However, CD may affect any part of the entire gastrointestinal tract, starting from the mouth and ending at the anus. The inflammation of the bowel is usually 'discontinuous' and areas of inflammation ('patches of diseased bowel') alternate with normal bowel parts ('skip lesions'). Depending on the severity of the inflammation the innermost lining of the bowel wall ('mucosa') may appear red ('erythematous') and swollen ('oedematous') with ulcers of various size and form (aphthous, superficial, deep, longitudinal) and the mucosa may appear as 'cobblestone'. These lesions affect the entire thickness of the bowel wall and may lead to complications, such as stenosis of the lumen and/or penetration resulting in formation of abscesses (diffusion of the contents of the intestinal lumen in the abdominal cavity) or fistulae (tracts which communicate and drain the contents of the bowel lumen to the skin, or to adjacent organs, such as the bladder, or to other loops of the bowel). In addition, in a significant proportion of patients CD may involve various parts of the body outside the gut, most commonly the skin, the joints and the eyes. These extra-intestinal manifestations may appear before the development of the typical bowel symptoms of CD (see later) and sometimes are more troublesome and more difficult to treat than the bowel symptoms.
Because CD is a polymorphic disease, the lesions in the gut must be mapped by appropriate diagnostic tests and graded for severity at the time of diagnosis. In addition, because CD is a life-long disease without a definitive cure at the moment, therapy aims to relieve the inflammation in the gut and extra-intestinal sites (if present), preserve the function of the bowel, prevent the complications, and offer patients a normal quality of personal, professional and social life without disability. Therapeutic interventions include cessation of smoking, dietetic interventions, and a variety of medicines that are used alone or in combination according to the location and severity of disease.

Diagnosis of Crohn's Disease (CD)

Symptoms of CD

Symptoms of CD can be diverse. They often include abdominal pain, weight loss and diarrhoea for more than four weeks. If these symptoms occur especially in young patients, a doctor should consider the possibility of CD. General symptoms of feelings of discomfort, fatigue, loss of appetite, or fever are common.

Symptoms can start suddenly, and sometimes CD may be mistaken for acute appendicitis. Symptoms may also be similar to irritable bowel syndrome (IBS). Most patients experience abdominal pain and weight loss before diagnosis. Blood and mucus in stools is seen less frequently than in UC patients. Symptoms related to CD outside the bowel, most commonly in the joints, can be seen before bowel symptoms.

Diagnostic tests

CD varies between patients depending on the patient's age at onset, the location of the disease in the bowel and how the disease behaves.

There is no single test for the diagnosis of CD. The diagnosis is established by a combination of assessment of clinical symptoms, blood tests, findings in imaging, endoscopy, and histological assessment of bowel biopsies (to be explained in glossary). Genetic tests are not recommended for a routine diagnosis of CD at the moment.

Patient history

Your doctor should ask you many detailed questions, such as when your symptoms started, whether you have travelled recently, you have food intolerances, you take medication or have previously taken medication (incl. antibiotics and NSAIDs, anti-inflammatory and pain medication like aspirin, ibuprofen or diclofenac) or whether you have had an appendectomy. The doctor should pay special attention to well-known CD risk factors, such as smoking, having a family member with CD, and recent infection in the digestive tract.

Smoking, family history of IBD and appendectomy in earlier life are all risk factors for CD. Bacterial or viral infection of the stomach or intestine increases the risk of developing CD. Studies of NSAIDs as a risk factor have less consistent findings.

Non-gut-related (extra-intestinal) symptoms of CD

There are many symptoms that can occur with CD and not all them involve the intestines directly. As previously mentioned, CD may also affect various organs and tissues outside the gut.

Your doctor should ask you about symptoms at night and symptoms and/or signs outside the bowel (for example, the mouth, skin, eye, or joints), abscesses around the anus, or anal fissure (i.e. crack in the skin). A general check-up should include:

- general well-being
- pulse rate
- blood pressure
- temperature
- tenderness or swelling in the abdomen
- lumps that you can feel
- perineum (the area between the anus and the genitals) and the mouth
- rectal examination using a finger
- measurement of body mass index

Physical examination and laboratory tests

Your doctor should check for signs of acute and/or chronic inflammation, anaemia, dehydration, and signs of malnutrition or malabsorption. Early laboratory checks should include CRP and full blood count. Other markers of inflammation, such as faecal calprotectin or ESR, may also be used. In some situations, the doctor should test for infectious diarrhoea, including *Clostridium difficile*. Further stool tests may be needed especially if you have travelled abroad.

Anaemia and thrombocytosis (when the body produces too many thrombocytes or platelets) are the most common findings of CD in the blood. CRP and ESR show whether inflammation is present; CRP broadly correlates with disease activity, whereas ESR is less accurate. Faecal calprotectin correlates well with disease activity in the intestines.
None of these tests, however, is specific enough to diagnose CD or differentiate it from UC.

Endoscopy

If your doctor thinks you might have CD, ileocolonoscopy and biopsies from the end of the small bowel and each part of the colon to look for microscopic evidence of CD are necessary to reach a diagnosis. No matter what the findings are, further tests are recommended to find out the location and extent of CD in the small bowel. It is unclear whether an endoscopy of the upper digestive tract through the mouth should be a routine method in adult patients who have no symptoms.

Colonoscopy and biopsies is the first line procedure to diagnose inflammation in the colon. In most colonoscopies, biopsies can also be taken from the small bowel. Endoscopic signs of CD include discontinuous, patchy inflammation, anal lesions, and cobblestone-like appearance of the intestinal wall. The severity of CD in the colon can be assessed well in colonoscopy, but in case of CD located in the end of the small bowel, ileoscopy in combination with imaging techniques is more efficient for diagnosis. Imaging techniques alone like ultrasonography, CT scan or MRI cannot definitely diagnose CD.

Imaging tests

Imaging tests of the bowel (MRI and CT) and an ultrasound of the abdomen add to the findings of the endoscopy. They help to detect and determine the extent of the inflammation, obstructions and fistulae caused by CD. Exposure to radiation should be taken into account, especially when techniques are selected to monitor the course of your disease. As conventional radiologic studies where barium (i.e. contrast agent) is used have a lower quality and significant radiation burden, other methods should be chosen if available.

CT and MRI are the current standards for assessing the small bowel. Both can show the extent and activity of CD based on the intestinal wall thickness, oedema and ulcerations. Both are similarly accurate, but CT is more easily available and less time-consuming than MRI. Because CT requires radiation, however, MR should be considered where possible.
Abdominal ultrasound may provide information about disease activity and location, especially in the small bowel. In addition, it is widely available and inexpensive, and does not expose the patient to radiation. However, it may be difficult to see deep bowel segments and different examiners may vary in the opinion about what they see.

Small bowel endoscopy

Small bowel capsule endoscopy (SBCE) should only be considered when ileocolonoscopy and imaging tests have been negative, but your doctor still highly suspects CD. In such a case, SBCE may help to confirm that you do not have CD. Device-assisted enteroscopy may be done by an expert if a biopsy is needed. It can also be used when endoscopic therapy, such as dilatation (widening of the lumen) of strictures, retrieval of a stuck capsule, or treatment of bleeding is needed.

SBCE is a new method that allows the doctor to directly see small bowel lesions that might not be seen in colonoscopic or imaging examinations. It is an effective diagnostic tool in small bowel CD, but cannot be used if the patient has bowel obstructions, strictures or fistulae, implanted electromedical devices (e.g. pacemakers) or swallowing disorders

Endoscopic biopsies

For a reliable diagnosis of CD, biopsies should be taken. These should include at least two biopsies from five sites along the colon (including the rectum) and the end of the small bowel.

An analysis of a series of biopsies from the entire colon produces the most reliable diagnosis of CD. Biopsies should be taken from areas both involved and uninvolved by the disease. In follow-up examinations, a smaller number of biopsies can be used to confirm the diagnosis, and in follow-ups after surgery, biopsies should be taken when disease recurrence is suspected. In patients with a J-pouch, biopsies should be taken of the afferent intestinal loop (i.e. the part of the small intestine that ends in the pouch), if CD is suspected. If early stages of cancer are suspected, multiple biopsies should be taken.

Prediction of disease course

Clinical factors at diagnosis and/or endoscopic findings may predict the course of CD. This should be taken into account when deciding on what treatment to use.

Studies suggest that the following factors predict a more severe disease within five years after diagnosis:
- perianal lesions,
- disease in the end of the small bowel and beginning of the colon,
- young age at diagnosis, and/or
- the need to treat the first flare with steroids.

There is increasing evidence that early intensive therapy with immunomodulators and/or biologics may induce mucosal healing and early continuous remission without steroids. Early intensive therapy should, however, only be considered in severe cases due to the risks of immunosuppressive therapy.

Follow-up of disease activity and treatment success

CRP and markers in the stool (such as faecal calprotectin or lactoferrin) can be used to guide therapy. They can also be used for follow-up on the short-term and to predict relapse. Faecal calprotectin can also help to tell whether you have CD or irritable bowel syndrome (IBS).

Endoscopy is still considered the standard way to evaluate healing in the bowel, but it is invasive and costly. Faecal calprotectin and lactoferrin are more easily measured. Both show intestinal inflammation due to any cause, can very well predict active CD, and are better for measuring gut-specific inflammation than CRP levels.

Medical Management of Active Crohn's Disease including Alternative Therapies

General considerations

The presence of active inflammation caused by CD should be confirmed before a medical treatment is started or changed.

The CD treatment plan should take into account disease activity, location, and behaviour, and the plan should always be discussed with the patient. Sometimes, especially in severe cases, treatment decisions may have to be made without knowing the full

distribution of the disease. Doctors may not always be able to judge disease activity, and objective markers (e.g. biopsies, faecal calprotectin) of disease activity should be obtained by various examinations before starting or changing therapy.
When deciding on a suitable therapy, a balance between drug potency and potential side effects, previous response to treatment, and potential complications or symptoms outside the bowel should be taken into account.

Moderately active CD

Moderately active CD, which is located in the end of the small bowel and beginning of the colon, should be treated with budesonide or systemic corticosteroids like prednisolone or methyl-prednisolone. An anti-TNF treatment should be used for patients who have not responded to steroids in the past or do not tolerate them. For patients with a disease that relapses rarely, starting steroids again together with an immunosuppressant may be suitable. In patients who do not respond to steroids and/or anti-TNF, vedolizumab is a suitable option.

Budesonide and prednisolone are suitable initial therapies for moderately active CD. Prednisolone is very effective and less expensive, but usually causes more side effects than budesonide. Corticosteroid exposure should, however, be minimised in CD treatment, because it is not effective in maintaining remission.
Steroid therapy can be effectively minimised by starting anti-TNF therapy early. Certain patient groups, such as those who are dependent on steroids or do not respond to them, may benefit more from anti-TNF.
In patients at early stages of the disease, a combination of infliximab and azathioprine has been found to be more effective than infliximab alone in reaching and maintaining remission.

Severely active CD

Severely active CD, which is located in the end of the small bowel and beginning of the colon, should at first be treated with systemic corticosteroids. An anti-TNF treatment is suitable for those who have relapsed. In patients who do not respond to steroids and/or anti-TNF, vedolizumab is a suitable option. For some patients who have a rarely relapsing disease, starting steroids again with an immunosuppressant may be suitable. Surgery should be discussed with patients who do not respond to medical treatment.

Although prednisolone or intravenous hydrocortisone is still used as initial treatment of severe CD in the end of the small bowel, in recent years the threshold for starting anti-TNF therapy has been lowered in patients with a poor prognosis. According to studies, continuous treatment with the anti-TNF agents infliximab or adalimumab reduces the risk of surgery and hospitalization in CD.
Anti-TNF therapy is frequently used for patients who do not respond to initial therapy and who are not candidates for surgery. The threshold for surgery is lower in CD located in the end of the small bowel and beginning of the colon than for disease elsewhere, especially if disease is localized at the small bowel, as extensive or repeated loss of small bowel may cause malnutrition. Some experts prefer surgery to anti-TNF therapy for disease in this location, whereas others prefer surgery if medical therapy does not work fast enough or causes intolerable side effects.

Colonic CD

Active CD in the colon should be treated with systemic corticosteroids. For those who have relapsed, thiopurines, a treatment with anti-TNF, or vedolizumab are suitable options. In patients who do not respond to first anti-TNF treatment, vedolizumab may be suitable.

Active, severe CD in the colon is more easily and earlier confirmed than CD in the small bowel. This may be why CD in the colon seems to respond better to anti-TNF therapy than CD in the small bowel. Systemic corticosteroids, such as prednisolone, are effective, but budesonide has no effect in treating CD in the colon.
If patients do not respond or lose response to anti-TNF or vedolizumab therapy, surgery is usually discussed. Surgery should however always be discussed, when initiating or changing an immunosuppressive therapy.

Extensive CD

Extensive CD in the small bowel should at first be treated with systemic corticosteroids. Early treatment with anti-TNF should also be evaluated. For patients with a severe disease who have relapsed, an anti-TNF based treatment is suitable.

The consequences of continuous intestinal inflammation, such as poor nutrition, development of intestinal strictures and obstruction are greater in extensive compared to localized small bowel CD. Therefore, treatment with steroids in combination with early start of immunomodulators is considered appropriate in these patients.

Immunosuppressive therapy

Early treatment with immunosuppressants seems to suit best for patients who have signs and symptoms that suggest a poor outcome. Early treatment with anti-TNF should be started in patients who have very active disease and signs and symptoms that suggest a poor outcome.

Several studies have shown that anti-TNF is more effective when it is started early in the disease, especially in those with certain risk factors for a poor outcome. Such risk factors include extensive disease, young age at diagnosis, initial need for steroid therapy and perianal disease.

All anti-TNF treatments that are available at the moment seem to be equally efficient in treating CD inside the intestine. They also have similar side effects. The choice of treatment depends on what is available, how the medicine is delivered, what the patient prefers and cost.

Primary lack of response to an anti-TNF based treatment should be determined within 12 weeks.

After 12 weeks of insufficient response it is unlikely that a positive therapeutic effect will occur and patients should be switched to a new therapeutic regimen that may be able to induce remission.

There is a risk of serious infections when a patient is treated with immunosuppressants, including anti-TNF. This risk should be taken into account.

All immunosuppressants including steroids, thiopurines, methotrexate and anti-TNF decrease the activity and competence of the immune system. This may increase the risk to acquire various infections that may cause severe and even lethal diseases. Co-therapy with more than one immunosuppressant increases the risk of infections significantly. Therefore, long-term co-immunosuppressive therapy should be avoided whenever possible. On the other hand, co-immunosuppressive therapy has been demonstrated to be more potent and may be needed especially in severe disease.

Complementary and Alternative Medicine

The doctor should ask if you use complementary and alternative medicine. There is no scientific evidence that these products work, there is a big variety of products, and they may be expensive. If you are very interested in trying them, you should first discuss it with your doctor.

The use of complementary and alternative medicine (CAM) is common among patients with IBD. Complementary therapies are used in addition to conventional medicine, whereas alternative therapies are used instead of conventional medicine. There is insufficient/limited scientific evidence on the efficacy and safety of CAM therapies, and it may be difficult for gastroenterologist to inform their patients adequately. Besides, there is a big variety of products which may be expensive. For these reasons if you are very interested in trying them or abandon conventional medicine in favour of CAM, you should first ask your doctor for counselling about CAM use. As IBD patients often suffer from malnutrition, nutrition can be considered an essential complementary therapy.

Maintenance of Remission

General considerations

If you have become symptom-free (i.e. remission) with systemic corticosteroids, treatment with thiopurines or methotrexate should be considered. Some patients can stay in remission without any treatment.

As some patients can stay in remission without any treatment no therapy is an option for some patients.
Steroids should not be used to maintain the disease in remission, as they have been shown to cause numerous side effects and no efficacy to maintain remission with tolerable dose.
There is only limited evidence that mesalazine is useful for maintaining medically induced remission. Some consider that no maintenance treatment is an option after the first flare. Taking into account the high risk of relapse and of steroid dependence, and the higher success rate when introduced early, azathioprine is favoured if remission has been achieved with systemic steroids. Mercaptopurine can be tried in patients intolerant of azathioprine except if they had pancreatitis or cytopenia (i.e. decrease in number of blood cells). Methotrexate can also be used, especially in patients intolerant of thiopurines.

If you have a relapse, an increase in the maintenance treatment should be considered to stop the disease from getting worse. Surgery should always be considered for patients with localized disease.

If a relapse occurs, azathioprine should be considered. Corticosteroids (including budesonide) are not effective or appropriate for staying in remission, and the long-term

use of corticosteroids often causes unacceptable side effects, especially osteoporosis (i.e. loss of bone mass) and subsequent fractures, but also cataract and glaucoma.

Maintenance in extensive disease

If you have extensive disease, thiopurines are recommended to stop the disease from getting worse. If the disease is aggressive or severe or if the outcome is likely to be poor, an anti-TNF treatment should be considered.

Taking into account the risks of relapse and the higher success rate when introduced early, azathioprine is recommended in patients with extensive Crohn's Disease.

Steroid-dependent CD

Patients who have not yet been treated with immunosuppressants and who need corticosteroids to stay symptom-free (i.e. in remission) should be treated with a thiopurine, methotrexate or anti-TNF agent. Surgery should also be discussed.

Immunosuppressants (azathioprine/mercaptopurine, methotrexate) are effective in steroid-dependent CD. Ileal resection is an alternative for certain patients with localised disease. A very effective approach to prevent the need for steroids is using anti-TNFs early. Steroid-dependent patients may also get greater benefit from starting anti-TNF therapy early. It has now been established that combination treatment with infliximab and azathioprine is more effective than infliximab alone for maintaining steroid-free remission in patients at an early stage of disease. Also vedolizumab may be used in these patients.

Inappropriate maintenance therapy with thiopurines (Thiopurine-refractory CD)

If you are treated with thiopurines and you have a relapse, the doctor should assess whether you are following the agreed treatment plan. Signs of inflammation should also be looked for. Optimizing the dose may improve response rates. If suitable, treatment should be changed to methotrexate or anti-TNF. Surgery should always be considered as an option in localized disease.

Patients receiving azathioprine or mercaptopurine who relapse whilst on standard maintenance doses can have their dose increased until blood tests show white blood cells have decreased or 6-TGN (a metabolite of thiopurines that can be measured in the blood) levels have increased to the appropriate level. Methotrexate, anti-TNF therapy and vedolizumab are other options as well.

Continuation of maintenance therapy

If a patient who had no treatment before has become symptom-free (i.e. remission) with the combination of anti-TNF and thiopurine, the same medication plan is recommended for maintenance treatment. For some patients, thiopurines alone may be an option. If remission has been achieved with anti-TNFs alone, this can be continued for maintenance treatment. If remission has been achieved with vedolizumab, it can be continued for maintenance treatment.

Duration of maintenance treatment

For patients who are in long-term remission and who are on maintenance treatment with thiopurines, ending the treatment may be considered, if there are no signs of inflammation. No recommendation can be given for the duration of treatment with methotrexate. Prolonged use of anti-TNF treatment may be considered if needed.

CD is usually a life-long disease with episodes of remission and various degrees of activity. The aim of therapy is to achieve and maintain a prolonged remission. There is no general agreement what is meant by long-term remission and overall only limited data to make recommendations when to stop or change a treatment, as most controlled clinical studies do not follow patients longer than 1-3 years.
A study has reported that taking people off azathioprine after they had been taking it for more than three and a half years increased their chance of relapse 18 months after being taken off it compared to those who kept taking it (relapse 21% versus 8%, respectively). The same study did a long-term follow up and reported that among those taken off azathioprine, 53% relapsed after 3 years and 63% relapsed after 5 years. Fortunately, of the 23 who started taking azathioprine again, all but one regained remission (i.e. 95.7% regained remission with azathioprine).

Loss of response to anti-TNF-therapy

If you are no longer responding to anti-TNF treatment, your doctor should first try to optimize the dose. Increasing the dose or shortening the treatment interval are equally good strategies. If optimizing the dose does not help, it is recommended to switch to another anti-TNF. Measurement of anti-TNF levels in the blood before the next dose and anti-drug antibodies, if possible, can help to decide how to optimize the treatment.

Neoplasia risk and immunosuppressive therapy

Patients who are treated with thiopurines may have an increased risk of lymphoma, skin cancers, and cervical dysplasia. Patients who are treated with anti-TNF are more likely to get skin cancer. At the moment it is not known whether patients who are treated with anti-TNF alone are more likely to get lymphoproliferative disorders or solid tumours, but anti-TNF and thiopurines together raise the risk of lymphoproliferative disorders. Even with the increased risk of cancer, the rates of cancer still remain very low. Therefore, the risks should always be balanced carefully against the benefits of the treatment and you should discuss them together with your doctor.

Whilst azathioprine has repeatedly been shown to be an effective treatment, it is associated with a slightly increased risk of non-Hodgkin's lymphoma, which is a serious type of cancer of the immune system. Therefore, the benefits and risks of its use need to be weighed up. Nevertheless, a study analysing the risks (including cancer) and benefits (including symptom reduction) of azathioprine led to the conclusion that the benefits far outweigh the risks, even when the risk of non-Hodgkin's lymphoma is overestimated in a conservative manner; this was especially true in young people who have a low rate of lymphoma to begin with. Other cancerous lesions like an increased risk of skin cancer and cervical dysplasia in women have been observed as well and also in patients treated with anti-TNF agents. Thus, close surveillance of all patients under these therapies is mandatory.

Surgery for CD

Obstructive Ileocecal CD

Surgery is the preferred option if your CD is located in the end of the small bowel and beginning of the colon and you have obstructive symptoms, but no significant evidence of active inflammation.

If a patient (a) has CD confined to the end of the small bowel and beginning of the colon, (b) ~~is~~ not responding to steroids, and (c) has stubborn obstructive symptoms, he/she should have surgery. Likewise, patients presenting with obstruction without inflammation (e.g. normal CRP levels) can also be treated with surgery. If, however, the patient has had previous ileocaecal resection and anastomotic stenosis (i.e. narrowing of the resection join) has occurred, endoscopic dilatation (i.e. stretching open the stenosis) could be tried before moving to doing an intestinal resection.

Abdominal Abscess

Active CD in the small bowel can be accompanied by an abdominal abscess. It should first be managed with antibiotics, drained surgically or via needle-puncture. If necessary, this can be followed by resection after healing of the abscess.

Opinions vary about whether resection should always follow drainage.

Prognostic factors for an increased risk of first or subsequent surgery in CD

Certain factors increase the risk of surgery in CD. These include:
- current smoking
- fistulizing and stricturing disease behaviour
- early steroid use (medical need for steroids for treatment of first flare)
- disease in the end of the small bowel (i.e. ileum)
- disease in the middle part of the small bowel (i.e. jejunum), and
- young age at the time of the diagnosis.

Several studies have looked for potential risk factors for recurrence after surgery for CD. Smoking, prior intestinal surgery (including appendectomy), penetrating disease behaviour, perianal location, and extensive small bowel resection have been shown to predict early post-operative recurrence in most studies. Maintenance medical therapy has been shown to be effective in multiple studies. It is not known whether age at onset of the disease, sex, duration of the disease, resection margins, or type of surgery influence risk of recurrence. As yet, no system of scoring people into low—medium-high risk categories has been developed even though this would be highly useful.

Reducing the risk for surgery by medical treatment

Patients who are treated early with thiopurines may be less likely to have surgery. Treatment with anti-TNF reduces the risk of surgery.

Follow-up after surgical treatment

Ileocolonoscopy is the best method to diagnose the return of the disease after surgery. It helps to define whether the disease has recurred, how severe it is, and to predict its clinical course. It should be done within the first year after surgery where treatment decisions may be affected.

Ileocolonoscopy is recommended within the first year after surgery where treatment decisions may be affected. This is because several studies have shown that colonoscopy

is the most sensitive tool to document disease recurrence. Relapse can be detected using colonoscopy and biopsy within a few weeks to months after surgery and should be performed within one year after surgery. Relapse is usually apparent in colonoscopy before the patient gets symptoms. If the findings during colonoscopy are severe, the treatment should be intensified to prevent the development of early post-operative complications, such as abscesses or obstructions.

There are new, less invasive diagnostic methods that help in identifying the return of the disease after surgery. These methods include faecal calprotectin, abdominal ultrasound, MR enterography with contrast agent, and small bowel capsule endoscopy (SBCE).

Radiology and imaging (US, MR, and CT) are being evaluated as independent diagnostic methods for postoperative recurrence. Small bowel capsule endoscopy performed 6 or 12 months after surgery appears to be about as accurate as ileocolonoscopy in diagnosing post-operative recurrence. However, it has not been studied whether MRI, CT enterography, or small bowel capsule endoscopy are able to diagnose relapse in the ileum or jejunum.

Prevention of subsequent surgery following ileocolonic resection

For patients who have at least one risk factor for recurrence of the disease, preventive treatment is recommended after ileocolonic resection (i.e. removal of the end of the small bowel and first part of the colon). The best preventive treatment is thiopurines or anti-TNF. Mesalazine in high doses is an option for patients who have only had the end of the small bowel removed. Antibiotics are effective after ileocolonic resection, but they are not as well tolerated.

All patients with CD should be informed of the risk associated with smoking. Smoking cessation should be encouraged and supported.

Smoking is one of the biggest risk factors for relapse and increased need for surgical resection in Crohn's Disease. Therefore, all Crohn's Disease patients should do their absolute best to quit smoking.

Management of Fistulizing CD

Diagnostic Strategies

Pelvic MRI is the first method for the assessment of perianal fistulae in CD. If rectal stricture (i.e. narrowing) is ruled out, endoscopic ultrasound of the rectum is a good option. Both methods are more precise when combined with examination under anaesthetic (EUA). Fistulography is not recommended. If a fistula in the anal area is found, EUA done by an experienced surgeon is the best method.

MRI, if possible, should be initially used because it has an accuracy of 76-100%. Nevertheless, if an MRI is not available promptly, an examination under anaesthetic with drainage of the abscess or fistula should be done as soon as possible to avoid the dangers of an undrained infection; examination under anaesthetic is 90% accurate and allows the surgeon to drain the abscess at the time of the examination.

Surgical treatment of uncomplicated fistula

In case of an uncomplicated low anal fistula, simple fistulotomy may be discussed. The presence of an abscess in the anal area should be ruled out and if present should be drained.

If a person has an uncomplicated low anal fistula, a fistulotomy (i.e. the surgical opening of the fistula tract) may be discussed. However, fistulotomy should be performed very selectively, because of the potential complication of incontinence caused by it. If there is an abscess (i.e. a collection of pus) in the anal area, it is important to drain and treat properly because untreated abscesses can be detrimental to the tissue surrounding perianal strictures, including the muscles that control bowel motions.

Medical treatment of simple fistula

Simple fistulae (i.e. a single tract) in the anal area that cause symptoms require treatment. Seton (i.e. silk or latex string) placement together with antibiotics (metronidazole and/or ciprofloxacin) is the preferred treatment. If a fistulising disease causing simple fistulae recurs and does not respond to antibiotics, thiopurines or anti-TNF medication can be used as second line treatment.

If a simple perianal fistula (i.e. a fistula with only one tract) does not cause symptoms, there is no need to do anything. However, if it is causing symptoms, a combination of medical and surgical intervention should be done; antibiotics, abscess drainage, and the insertion of a seton stitch is the preferred treatment plan.
If the fistula recurs and does not respond to antibiotics, thiopurines or anti-TNF medication can be used as second line treatment. The pooled results from five studies have shown that thiopurines are effective for closing fistulae and keeping them closed. Meanwhile, studies have shown infliximab to be effective for closing fistula, keeping them closed, and subsequently reducing the need for hospital and surgery.

Management of complex perianal fistula

If fistulising CD in the anal area is causing complex fistulae (i.e. with multiple tracts), infliximab or adalimumab can be used as first line treatment after the fistulae have been surgically drained, if indicated. Treatment with ciprofloxacin and anti-TNF medication together improves the short-term outcome.

To improve the effect of anti-TNF treatment in–fistulising CD with complex fistulae (i.e. with multiple tracts), a combination of anti-TNF treatment with thiopurines may be considered.

Maintenance treatment in fistulazing CD

Thiopurines, infliximab or adalimumab, seton drainage (i.e. using a silk or latex string), or a combination of them should be used as maintenance treatment.

There are no data on the effect of thiopurines as maintenance therapy for fistulae after induction with infliximab, or during infliximab maintenance therapy. Only maintenance therapy with infliximab has been shown to reduce hospitalizations and surgery. Adalimumab seems to work for keeping fistulae closed but it is not known if it reduces hospitalizations and surgery.

Overall, more than 90% of gastroenterologists agree that maintenance therapy after successful cessation of fistula drainage is mandatory. The preferred drugs are thiopurines or anti-TNFs and they should be used for at least one year.

Extra-intestinal Manifestations (EIM, Symptoms Related to CD Outside the Bowel)

Joint Problems

Diagnoses of joint diseases that are associated with IBD are made on clinical grounds based on typical symptoms, and ruling out other specific forms of arthritis.

There are two broad types of joint diseases associated with IBD, namely peripheral and axial arthropathy. Peripheral arthritis has two types, namely type 1 and type 2. Type 1 affects large joints (e.g., knees, elbows, and shoulders), coincides with inflammation in the intestines, and happens in 4-17% of CD patients. On the other hand, type 2 affects small joints (e.g., in the hand) and only happens in 2.5% of CD patients.
The diagnosis of arthritis is made by observing painful swollen joints and the other diseases that need to be ruled out are osteoarthritis, rheumatoid arthritis, and arthritis associated with connective tissue diseases (e.g., lupus). In addition, medication related causes to be ruled out are arthralgia (i.e. joint pain) caused by withdrawal of steroids, osteonecrosis (i.e. reduced blood flow to the joints) caused by steroids, and infliximab-induced lupus.
Meanwhile, axial arthropathy includes sacroiliitis (which occurs in 25-50% of CD patients) and spondylitis (which occurs in 4-10%). Ankylosing spondylitis is characterised by chronic back pain, morning stiffness, limited ability to bend the spine, and, in later stages, reduced chest expansion. The gold standard for diagnosing ankylosing spondylitis is MRI because it can detect inflammation before bone lesions occur.

Peripheral arthritis usually affects the large joints in the limbs. It can be treated with physiotherapy, NSAIDs on a short-term basis, and local steroid injections. The emphasis should be on treating the underlying CD. Sulfasalazine may help to treat persistent peripheral arthritis.

Recommendations for the treatment of CD-related arthropathy (i.e. joint disease) are based on studies in spondyloarthropathy (i.e. joint disease), predominantly ankylosing spondylitis (i.e. arthritis in the spine). No well-designed studies have been performed in the domain of IBD and so the recommendations in this domain are inferred from other diseases.
In peripheral arthritis, the treatment of the underlying CD using corticosteroids, immunomodulators and anti-TNFs should also relieve the symptoms. If treating the underlying CD does not alleviate the joint pain then the patient should consider taking NSAIDs short term; whilst NSAIDS can potentially aggravate the underlying CD, the risk of this seems to be low. Physiotherapy and rest can provide symptom relief. The use of COX-2 inhibitors (e.g., etoricoxib and celecoxib) appears safer with a lower risk of disease flare than conventional NSAIDs. Sulfasalazine can be beneficial for large joint arthropathy. Lastly, infliximab can have a very beneficial effect on peripheral arthritis.

Axial arthritis causes pain and stiffness in the joints of the lower back. Intensive physiotherapy and NSAIDs are recommended, but long-term treatment with NSAIDs should be avoided due to safety concerns. Anti-TNF is preferred to treat ankylosing spondylitis if the patient does not tolerate NSAIDs or there is no response. Sulfasalazine, methotrexate and thiopurines are ineffective.

Recommendations for the treatment of CD-related axial arthritis are based on studies in ankylosing spondylitis (i.e. arthritis in the spine). Intensive physiotherapy and NSAIDs can be used although NSAIDs should be avoided in the long term. Local corticosteroid injections can be considered. Sulfasalazine, methotrexate and azathioprine are not effective for ankylosing spondylitis with axial symptoms. In patients with active ankylosing spondylitis that do not respond to or cannot tolerate NSAIDs, anti-TNF agents are recommended. Adalimumab and infliximab are both proven to be sufficiently safe and effective for treating ankylosing spondylitis.

Bone disorders

Patients who take corticosteroids or those with reduced bone density should receive calcium and vitamin D supplements. Muscle strength training and quitting smoking are helpful. Patients with fractures should be treated with bisphosphonates, but their ability to prevent fractures is unproven. Routine hormone replacement in postmenopausal women is not recommended due to the risk of side effects. Men with low testosterone may benefit from receiving it medically.

Treatment with calcium 500–1000 mg/day and vitamin D (800–1000 IU/day) increases bone density in patients with IBD although it has not been studied whether they prevent fractures in IBD patients. Therefore, a general recommendation of treatment with bisphosphonates on the basis of reduced bone density is not feasible. That being said, postmenopausal women or those with steroid-induced osteoporosis will benefit from them. Overall, in individual patients with low bone density and additional risk factors, treatment should be considered.
Patients with chronic active disease should be treated with immunosuppressants, such as azathioprine and anti-TNFs, so they can stay off steroids and reduce the negative effects of their inflammation on their bone density; it has been shown that many CD patients can regain normal bone density after three years of stable remission.

Skin manifestations

Treatment of erythema nodosum is usually based on that of the underlying CD. Systemic steroids are usually required. Pyoderma gangrenosum is at first treated with systemic steroids, anti-TNF treatment or calcineurin inhibitors.

Erythema nodusum (i.e. red lumps on the skin on the shins, thighs, and forearms) usually easily noticed and occurs in about 5-10% of CD patients. It usually occurs when the CD is active. Diagnosis can usually be confirmed without the need for biopsies. Treating the underlying disease using oral steroids is usually needed and if steroids do not work or it relapses regularly, azathioprine and/or infliximab may be added; the need for azathioprine or infliximab is very rare, nonetheless.
Pyoderma gangrenosum (i.e. large painful ulcers on the skin) can occur anywhere on the body, including genitals, but the commonest sites are the shins and near stomas. They usually start off being superficial but get deeper with time. Between 0.6% and 2.1% of CD patients get this at some time and it can coincide with the CD disease activity or not coincide with it at all. Pyoderma gangrenosum is a diagnosis of exclusion, which means it

is diagnosed when other causes for the ulcers cannot be found; biopsy can help exclude other skin disorders. Rapid healing should be the goal of treatment because this can be a debilitating disease. Corticosteroids should be used first before calcineurin inhibitors are tried. Infliximab is beginning to get used more often and has been shown to be effective in one large study and two small case studies. No studies have compared systemic steroids, anti-TNF treatment or calcineurin inhibitors to each other as yet. Surgical interventions as in other skin ulcerations need to be avoided.

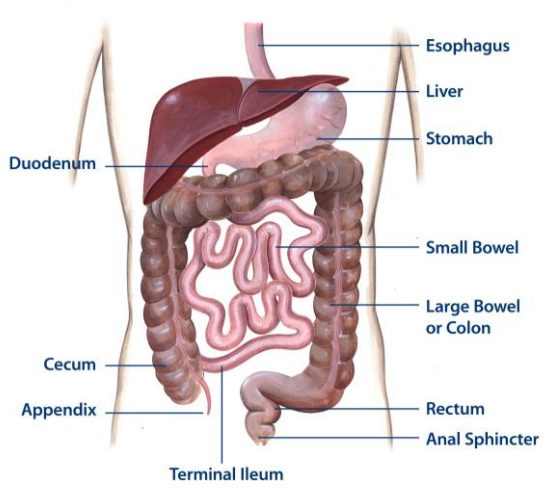
Thromboembolic complications

Prevention of thrombosis (i.e. formation of blood clots) should be considered in all hospitalized and outpatients with severe disease. Treatment of IBD patients with venous thromboembolism (i.e. blood clot blocking a vein) should follow established therapeutic options against thrombosis.

For largely unknown reasons, patients with CD are at increased risk for blood clots, called venous thromboembolism, in the veins. These are important to prevent and treat because they can lead to complications or even death. Such blood clots should be diagnosed using appropriate imaging techniques, such as ultrasound and venography.
In terms of treatment, blood thinning medications (called anticoagulants) should be used to prevent and also treat blood clots. If a person has a second episode of blood clots they should consider having long-term treatment. IBD patients do not seem to have more bleeding complications caused by blood thinners than people without IBD. Lastly, CD patients should be wary of long distance travel as well as oral contraceptives as these further increase the risk of blood clots and should consider preventive anticoagulation therapy under certain circumstances.

Glossary

Anatomical illustration of gastrointestinal tract



Term	What the term is related to	Definition
5-ASA or 5-aminosalicylic acid or mesalazine	Medication	This is a topical medication used to treat IBD, preferably UC and under certain conditions also CD. It can also be called mesalazine and can be taken orally or rectally as enema, foam or suppository.
6-TGN	Medication	The active metabolite of azathioprine or mercaptopurine.
Abscess	Complication of CD	An abscess is an enclosed collection of liquefied tissue, known as pus, somewhere in the body. It is the result of the body's defensive reaction to foreign material.
Adalimumab	Medication	Anti-TNF medication commonly used for IBD treatment, belonging to the group of biological (biotechnologically produced) drugs. Injected under the skin (subcutaneous) by the patient or by a nurse.
Adhesions	Complication of surgery	Parts of the bowel glued together by inflammatory reactions. May cause obstruction and pain.
Aminosalicylate	Medication	This is a medication used to treat IBD, also called 5-ASA.
Anaemia	Disease	A condition, in which you do not have enough healthy red blood cells or haemoglobin. Having anaemia may make you feel tired and weak.

Anaemia of chronic disease	Disease related to IBD or inflammatory conditions	This is anaemia that results from a chronic disease such as IBD or other inflammatory processes.
Ankylosing spondylitis	Disease related to IBD	Is a form of arthritis characterized by chronic inflammation that primarily affects the spine, causing pain and stiffness of the back, progressing to the chest and neck.
Anti-TNF medication	Medication	Biological (biotechnologically produced) drugs commonly used to treat Inflammatory Bowel Disease. The most common ones are infliximab, adalimumab, certolizumab and golimumab.
Antibiotics	Medication	Medications used to treat infections caused by bacteria. They are ineffective against viruses.
Antidiarrheal	Medication	A medication that provides relief from the symptoms of diarrhoea. The most common one is loperamide.
Appendectomy	Surgery	The removal of the appendix by a surgeon. Usually done for appendicitis.
Appendicitis	Disease	The inflammation of the appendix which is an extension of the colon. Among other things, appendicitis can cause pain, loss of appetite, and fever or perforation.
Arthritis	Disease related to IBD	Inflammation of joint(s) that causes joint pain and swelling.
Arthropathy		Any disease or abnormal condition affecting a joint.
Auto-immune	Disease descriptor	An auto-immune disease is a disease wherein the immune system attacks healthy cells in the body.
Axial arthritis	Disease related to IBD	Disease of joint(s), can affect the spine and hips.
Azathioprine	Medication	See thiopurines
Biological drugs	Medication	Usually IG (Immunoglobulin) proteins that are made by genetically modified cells, e.g. anti-TNF agents or vedolizumab.
Barium (contrast)	Diagnostic Test	A substance used in certain radiological studies to enhance visualization of anatomical structures.
Biopsy, biopsies	Diagnostic Test	A biopsy is a sample of tissue taken from the body in order to examine it more closely. Biopsies are taken from the bowel wall during colonoscopy.
Bisphosphonates	Medication	Compounds that slow bone loss and increase bone density.
Bowel cancer	Disease related to CD/UC or treatment	This can also be called colorectal cancer. It is cancer of the bowel that IBD patients are at increased risk of getting. Among other things, it can cause symptoms like blood in stools, change in bowel habit, abdominal pain, lumps in the abdomen, and weight loss.

Budesonide	Medication	A drug that belongs to the group of corticosteroids. Budesonide has anti-inflammatory power and it is used to treat acute flares in patients with ileocecal CD and UC with the involvement of the end of the colon as enemas. Corticosteroids are also hormones naturally produced by the adrenal glands of our body.
Calcineurin inhibitors	Medication	Immunosuppressant agents which is used to treat IBD and to prevent of organ rejection in transplant patients.
Cervical dysplasia	Disease	Abnormal tissue development of the uterine cervix.
CD or Crohn's Disease	Disease descriptor	This is an Inflammatory Bowel Disease. Crohn's Disease can affect all parts of the gastrointestinal tract including frequently the small intestine whereas UC does not.
Chronic diseases	Disease descriptor	These are diseases that a person has for a long time (usually for life). IBD are chronic diseases.
Ciclosporin	Medication related to UC	Calcineurin inhibitor that is a drug used to slow down the immune system and therefore can be used for treating UC.
Ciprofloxacin	Medication	An antibiotic also used to treat IBD and pouchitis.
Clostridium difficile	Disease	A bacterium that can cause IBD-like symptoms.
Colectomy	Surgery	Removal of the colon by a surgeon. It precedes the IPAA surgery in UC patients.
Colon (see picture)	Body part	This can also be called the large bowel or large intestine.
Colonography	Test	This can be done using a CT or MRI machine. It is a method for gaining a view of the inside of the colon without needing to use an endoscope.
Colonoscopy	Test	This is a test wherein an endoscope with a camera is inserted into the rectum and the whole colon in order to investigate the disease activity and take biopsies.
Colorectal surgeon	Other	This is a surgeon who specialises in surgery of the rectum, anus, and colon.
Corticosteroids (or steroids)	Medication	A group of medications that mimic the effects of hormones naturally produced by the adrenal glands and act as immunosuppressant. Hydrocortisone and prednisolone are two commonly used in IBD treatment.
COX-2 inhibitors	Medication	This is a more specific NSAID with fewer side effects and better tolerated in IBD.
Creatinine	Test	A creatinine blood test helps determine how well the kidneys are functioning.
CRP (C-reactive protein)	Test	Blood test done to measure inflammation in the body. It is useful to detect inflammation in the body, however a high CRP-level does not necessarily mean that the inflammation is in the bowel. Therefore, other tests should also be

		performed to see whether the origin of inflammation is in the bowel of the IBD patient.
CT (computed tomography)	Test	This is a form of X-ray performed in a scanning machine.
Device-assisted enteroscopy	Test	Examination of the small bowel with a special endoscope.
Disease extent	Disease descriptor	This refers to how much of the colon is affected by UC or CD. This is not to be confused with severity which refers to how deep and extensive the inflammation is. Disease extent is useful for grouping UC into proctitis, left-sided colitis, and extensive colitis, similar for CD with small bowel, large bowel, and upper GI tract involvement.
Disease severity indices	Test	A disease severity index is a way of measuring the severity of disease based on a patients symptoms and certain tests (e.g., how the bowel looks in an endoscopy). Usually, more severe disease is represented by higher scores. One example of this is the Ulcerative Colitis Disease Activity Index (UCDAI) or Crohn' disease activity index (CDAI).
Double contrast barium enema	Test	This is a procedure in which x-rays of the colon and rectum are taken after a liquid containing barium is put into the rectum. The barium outlines the colon and rectum on an x-ray and thus helps to show abnormalities.
Electrolytes	Test	Tested via the blood, these are minerals (e.g., sodium, potassium, and chloride) in your blood and other body fluids that carry an electric charge. IBD can cause abnormal electrolyte levels.
End ileostomy	Surgery	This is when the end of the small intestine is divided and brought out through the abdomen and stitched to the skin to form a stoma. A person with an end ileostomy wears a bag on her/his belly to collect their stool.
Endoscopic	Test	This is the adverb of endoscopy.
Endoscopic intubation	Test	This is the insertion of a tube into the body using an endoscope.
Endoscopy	Test	A procedure wherein a camera on the end of a long tube is inserted into the body to look directly at the organs being examined. The most common endoscopy for IBD patients is (ileo) colonoscopy.
Enema	Medication	This is a fluid injected into the lower bowel by way of the rectum. This can be done to help the doctor perform tests or as a medication route.
Erythema nodosum	Disease related to IBD	Inflammatory condition of the skin.
Erythropoietic agent	Medication	This is a drug that stimulates red blood cell production.
ESR or erythrocyte	Test	A blood test used to measure the degree of inflammation in the body, similar to CRP.

sedimentation rate		
Extensive colitis	Disease descriptor	This is UC that affects the whole colon.
Extent (disease extent)	Disease descriptor	Disease extent refers to how much of the intestine is affected by an IBD.
Faecal calprotectin	Test	Protein that is released into the bowel when it is inflamed. Faecal calprotectin levels only rise for bowel inflammation, thus making faecal calprotectin better for measuring inflammation than CRP or ESR. Not specific for IBD. The patient has to provide a stool sample for it to be measured.
Fertile	Other	A fertile person is a person who is physically able to have children.
Fistula, fistulae	Complication of CD	An ulcer extending through the intestinal wall, creating an abnormal passage between the intestine and skin, or between intestine and another organ. Single fistulae consist of a single tract; complex fistulae have multiple tracts. Fistulizing CD is a form of CD.
Fistulography	Test	An X-ray examination of a fistula.
Fistulotomy	Surgery	Surgical opening of a fistula.
Flare or relapse	Disease descriptor	This is a state of active disease and is the opposite of the disease being in remission. A person who is in a flare will experience symptoms and have inflammation.
Fracture	Other	This is a break in the bone either caused by a single event or continual stress on the bone.
Gastroenterologist	Other	This is a doctor who specialises in treating gastrointestinal diseases like IBD.
Haemoglobin levels	Test	Haemoglobin levels measure how much haemoglobin is in your blood. Haemoglobin carries oxygen in the blood. Low levels indicate anaemia.
Histological	Test	Histological examination occurs when cell tissue from biopsies gets examined under a microscope.
IBD	Disease	Short for Inflammatory Bowel Disease, this is a collective term for Crohn's Disease and Ulcerative Colitis.
IBDU or IBD unclassified	Disease descriptor	If it cannot be decided whether a person has CD or UC after all tests have been performed, the term IBDU should be used.
IC or indeterminate colitis	Disease descriptor	In cases where it is not possible to tell whether a person has CD or UC, it can be called IC. However, IC should only be used for resection samples.
Ileocolonoscopy	Test	Endoscopy to look at the colon and the ileum.
Ileorectal anastomosis	Surgery	This is a surgery wherein the rectum is preserved and the ileum is attached to the rectum. This is in contrast to the IPAA wherein the rectum is not preserved.

Ileoscopy	Test	This is using an endoscopy to look at the ileum which is the lowest part of the small bowel.
Imaging	Test	Production of a picture or image of a body part using any of a variety of techniques such as x-rays, ultrasound, CT or MRI. Imaging techniques are often needed to assess, which part of the body is affected by IBD.
Immunized	Other	A person is immunized if he/she has been made immune to an infection. Common immunizations are for measles, mumps, and tetanus but there are many others.
Immunomodulator	Medication	Immunomodulators weaken or stimulate the activity of the immune system. Immunosuppressants are a common immunomodulator used in IBD treatment because it is thought that IBD is at least partly caused by an overactive immune system.
Immunosuppressant	Medication	A group of drugs used to slow down the immune system, including steroids, thiopurines, methotrexate, anti-TNF medications, and vedolizumab. Because IBD may be caused by an overactive immune system, immunosuppressants can be useful for its treatment.
Infliximab	Medication	Anti-TNF biological medication commonly used for IBD treatment. It is given to the patient through a drip straight into the bloodstream.
IPAA or ileal pouch anal anastomosis	Surgery	This is a surgery often performed for UC patients wherein the end of small intestine is re-structured as a pouch and does the job the large intestine used to do before it was removed.
Iron deficiency	Disease	This is when there is not enough iron in the blood.
Iron deficiency anaemia	Disease	This is a condition in which blood lacks red blood cells due to iron deficiency.
Iron deficiency without anaemia	Disease	This is a condition where iron is depleted but not to such an extent that anaemia happens.
Irritable bowel syndrome (IBS)	Disease	A common condition with IBD-like symptoms, but without inflammation.
IV or Intravenous	Medication	This is medication taken through the veins into the blood stream.
Keratolytic agent	Medication	This is a medication used to remove warts and other lesions.
Laparoscopic	Surgery	Laparascopic surgery is a way of doing surgery wherein small incisions are made into the patient and cameras are inserted to view the surgical site. Due to the smaller incisions, it usually leads to a quicker recovery than usual surgery.
Lactoferrin	Test	Protein that is released into the bowel when it is inflamed. The patient has to provide a stool sample for it to be measured.
Left-sided colitis	Disease	This is UC that happens up to, but not beyond the

	descriptor	left side of the colon and can be effectively treated with topical treatment
Loperamide	Medication	A typical anti-diarrheal drug, see antidiarrheal.
Low molecular weight heparin	Medication	This is a medication commonly used to prevent blood clots.
Localized disease	Disease descriptor	Disease confined to one organ system or a localized area of the bowel.
Lymphoproliferative disorders (LPDs)	Disease	A group of diseases in which lymphocytes (white blood cells) are produced excessively. LPDs include different leukemias and lymphomas.
Maintenance treatment	Medication	This is treatment used to keep the patient in remission.
Malabsorption	Complication of CD	Abnormal absorption of food nutrients in the gastrointestinal tract.
Malnutrition	Complication of CD	Lack of proper nutrition resulting from, for example, not being able to eat enough, not eating enough of the right things, or malabsorption (see Malabsorption).
Mesalazine	Medication	A drug used to treat IBD. It can be taken orally or rectally.
Methotrexate	Medication	Drug, belongs to the group of immunosuppressants, commonly used for CD treatment. Not as effective for Ulcerative Colitis.
Metronidazole	Medication	This is an antibiotic commonly used to treat pouchitis and fistulising CD.
MR (Magnetic Resonance) Enterography	Test	A test that uses magnetic waves to take diagnostic images of the small bowel with the help of an oral contrast dye. Radiation is not used.
MRCP or Magnetic resonance cholangiography	Test	This is a special test using an MRI machine to check for hepatobiliary disorders.
MRI or Magnetic Resonance Imaging	Test	A test that uses magnetic waves to take diagnostic images of various parts of the body. Radiation is not used.
NSAIDs or non-steroidal anti-inflammatory drugs	Medication	These drugs can provide pain relief and also reduce fever and non-gut inflammation. The most common ones are ibuprofen and aspirin and are best avoided by IBD patients, as they may increase the risk of a flare.
Obstruction, obstructive	Complication of CD	An obstruction is when the CD inflammation thickens the intestinal wall, causing the intestine to narrow, or when parts of the intestine develop adhesions and the flow of digestive contents is blocked.
Oral	Medication	Oral medication is medication taken via the mouth.
Osteopenia	Disease	This is weakening of the bones that is not significant enough to be considered osteoporosis.
Osteoporosis	Disease	This is a medical condition wherein the bones become weak and puts the person at a higher risk of getting a fracture.

p-ANCA	Test	p-ANCA stands for Perinuclear Anti-Neutrophil Cytoplasmic Antibodies. They are detected in the blood.
Patient-centred	Other	Patient-centred care involves ensuring that the individual needs of the patient are respected and responded to and that the patient values guide all clinical decisions.
Peripheral arthritis	Disease	Joint inflammation usually affecting the large joints of the limbs.
Pouchitis	Complication	Inflammation of the ileal pouch (see IPAA).
Pyoderma gangrenosum	Disease	Inflammation of the skin resulting in painful ulcerations caused by autoimmune mechanisms and not by infection, sometimes seen in IBD patients
Rectal	Body part	Something that is rectal relates to the end of the colon, which is called a rectum. For example, a medication that is inserted into the rectum through the anus is called a rectal medication.
Rectum	Body part	This is the final section of the colon. It ends at the anus.
Relapse	Disease descriptor	Reactivation of the illness.
Remission	Disease descriptor	Remission is when a person has no active disease; this is in contrast to the terms "flare" or "relapse" which are used to describe when a person does have active disease.
Resection	Surgery	Surgically removing all or part of an organ or other body structure.
Sacroiliitis	Disease	Inflammation of the joint between sacrum and ileal pelvic bones.
Salvage therapy	Treatment	Salvage therapy is a treatment that is used when all conventional treatments have failed and is used as a last effort to get the disease under control.
Serological	Test	Serology studies serum and other body fluids. Usually it is used to diagnose antibodies in the serum.
Serology	Test	This is testing of serum or other bodily fluids.
Serum ferritin level	Test	This is a test that measures the amount of iron stored in the body.
Serum urea	Test	Urea is a substance normally cleared from the blood by the kidneys into the urine. Serum urea levels are important to test because abnormal readings can indicate whether the kidneys are affected or if the patient is dehydrated.
Seton	Surgery	A thread that is used to keep a fistula tract open and to avoid collection of pus in an abscess.
Side effects	Medication	Undesired (harmful) effect of a medication or intervention.
Sigmoidoscopy	Test	This is similar to a colonoscopy, except it only

		looks at the last part of the colon as opposed to the whole colon.
Small bowel capsule endoscopy (SBCE)	Test	A test in which the patient swallows a capsule that contains a tiny camera. The camera records images of the gastrointestinal tract.
Stenosis	Disease	This is a narrowing that is significant enough to cause the patient discomfort.
Steroids	Medication	Steroids are commonly used to treat IBD and work by immunosuppression. They can be topical or systemic. Due to their multiple side effects, their use should be limited as much as possible.
Stricture	Disease of CD	This is a narrowing that is significant enough to cause the patient discomfort.
Stool or stools	Other	A stool is a bowel motion or faeces.
Subtotal colectomy	Surgery	In contrast to a colectomy, this is a colectomy which involves removal of part of the colon, not the whole colon.
Sulfasalazine	Medication	Sulfasalazine is a drug used to treat IBD. Sulfasalazine consists of two parts, 5-ASA, the active part, and an antibiotic, sulfapyridine. Sulfasalazine is split by bacteria in the colon and delivers 5-ASA.
Suppositories or suppository	Medication	This is a drug that is inserted into the rectum and then melts and covers the bowel lining to treat inflammation.
Surveillance	Test	Surveillance happens when the doctor regularly checks the IBD patient, often with an endoscope, to see whether bowel cancer has developed. Surveillance is important because IBD patients are at an increased risk of getting bowel cancer.
Systemic	Medication	A systemic drug that affects the whole body. This in contrast with a topical drug that does not go throughout the body.
T-score	Test	A T-score is a measure of bone density.
Tacrolimus	Medication	This is an immunosuppressant similar to cyclosporine that can be used orally to treat UC.
Tenesmus	Disease descriptor	Painful spasm or cramp in the rectum/anus, usually accompanied by involuntary straining efforts and urgent desire to evacuate without real product.
Thiopurines	Medication	These drugs are immunosuppressants. Azathioprine and mercaptopurine are the most commonly used ones for treatment of IBD.
thrombocytosis	Test	Increased number of platelets (thrombocytes).
Topical	Medication	This is a drug that treats the inflammation directly without being absorbed by the body.
Transferrin saturation	Test	This is a measure of the iron binding capacity in the body and levels of lower than 16% indicate iron deficiency.

Tuberculosis	Disease	This is an infectious disease that affects the lungs and other parts of the body caused by mycobacterium tuberculosis.
UC or Ulcerative Colitis	Disease descriptor	UC is one of the Inflammatory Bowel Diseases.
Ultrasound	Test	An imaging method that uses sound waves to evaluate organs in the body.
Ursodeoxycholic acid	treatment	This is an oral medication that can be given to patients with PSC (Primary sclerosing cholangitis, a chronic liver disease characterised by inflammation and fibrosis of the bile ducts inside and outside the liver.) to protect the liver and prevent bowel cancer
Uveitis	Disease	This is inflammation of the uvea in the eye.
Validated	Test	If something has been validated, it means it has been proven to be an accurate measure of what it claims to be measuring. For example, a disease severity index will be validated once it is proven to be measuring disease severity accurately.
Vedolizumab	Medication	A biological (biotechnologically produced) drug used to treat IBD. It is given to the patient through a drip straight into the bloodstream.
VSL#3	Medication	This is a probiotic (live microorganisms which when administered in adequate amounts confer a health benefit on the host) which has shown promise for treating pouchitis.
Weaned	Medication	If a medication is weaned, it is taken off gradually and not suddenly. This has to be done in the case of steroids because sudden stopping of steroids can have serious side effects.

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Dissemination policy

The ECCO-EFCCA Patient Guidelines are based on the ECCO Clinical Guidelines on Crohn's Disease and Ulcerative Colitis. For access to the ECCO Clinical Guidelines, please follow this link: https://www.ecco-ibd.eu/index.php/publications/ecco-guidelines-science.html
Please feel free to disseminate the ECCO-EFCCA Patient Guidelines. Please note that any

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