**Ulcerative Colitis with Literature Review**

**By: Dr. Christina Rahm**

**Case Study Concerning Ulcerative Colitis with Literature Review**

According to Zhu et al. (2021), *Medicine and Health* encompasses the study of disease prevention, treatment, and management, as well as the examination of physical and mental well-being. Medicines can help control conditions such as high blood pressure or high cholesterol. While these drugs do not cure the underlying problems, they can help prevent some of the damaging effects on the body over time. Among the most important types of medicine are immunizations. Many medications are taken orally, either in pill or liquid form. Once swallowed, the digestive juices in the stomach break down the medicine, allowing it to enter the bloodstream. The blood then carries the medicine to other parts of the body where it can be most effective.

**Symptoms of Ulcerative Colitis**

Mouth sores, joint pain, red or painful eyes, skin rashes, liver disease, diarrhea, and bloody stools are among the most common initial symptoms of Ulcerative Colitis. Individuals may also experience abdominal or rectal pain, weight loss, fever, loose and urgent bowel movements, a frequent need to empty the bowels, and fatigue. Ulcerative Colitis begins when the immune system misidentifies harmless substances. Typically, the immune system targets harmful invaders like viruses. However, in Ulcerative Colitis, it mistakenly identifies food, beneficial gut bacteria, and the cells lining the colon as threats.

**Diets That Prevent Ulcerative Colitis**

Consume protein-rich, soft, and well-cooked meats such as poultry, low-sodium and low-fat meats, well-cooked eggs, tofu, smooth nut and seed butters (e.g., peanut butter), fruit juice without pulp, cottage cheese, fish, pork, and refined white bread (Ungaro et al., 2019).

**Foods that should be avoided with Ulcerative Colitis**

Whole grain cereals and loaves of bread are difficult to digest and lead to flare-ups, as well as nuts and seeds, unhealthy fats, caffeine, alcohol, certain vegetables, spicy foods, foods high in fiber, foods that contain sulfur, and carbonated drinks (Alsoud et al., 2021).

**Types of medicines used to treat Ulcerative Colitis and their aims**

**Aminosalicylates:** They are medicines that help lessen inflammation and allow damaged tissues to heal. They are usually the first treatment option for mild to moderate Ulcerative Colitis (Tripathi & Feuerstein, 2019). They can also be used as a short-term treatment for flare-ups to maintain remission. Aminosalicylates can be taken in the following forms: as a suppository, where a capsule is inserted into the rectum and dissolves; orally, by swallowing a capsule or a tablet; or through an enema, where fluid is administered into the colon. These medicines rarely have side effects, but some people may experience headache, rash, stomach pain, or occasionally diarrhea.

**Corticosteroids:** They are a more powerful type of medicine used to reduce inflammation. They can be used instead of aminosalicylates to treat flare-ups if 5-ASAs alone are ineffective. 5-ASAs may be administered orally, as an enema, or as a suppository. However, corticosteroids and 5-ASAs are not recommended as long-term treatments to maintain remission because they can cause potentially serious side effects such as weakened bones and cloudy patches in the lens of the eye when used for extended periods. Side effects of short-term steroid use may include difficulty sleeping, weight gain, mood changes, irritability, and increased appetite (Armuzzi & Liguori, 2021).

Immunosuppressants such as tacrolimus and azathioprine are medicines that reduce the activity of the immune system. They are usually given as tablets to treat flare-ups or to maintain remission if symptoms have not responded to other medications. Immunosuppressants can be effective in treating Ulcerative Colitis but typically take two to three months to begin working. These medicines can increase the risk of infection, so it is important to report any signs of illness such as fever or nausea. They can also reduce red blood cells, raising the risk of anemia. Regular blood tests and checkups are necessary to monitor for other potential complications.

**Ciclosporin:** This type of medicine functions similarly to immunosuppressants and also reduces immune system activity. It typically works within a few days because it is more powerful than medicines used to treat milder cases of Ulcerative Colitis. Ciclosporin is usually administered slowly through an intravenous infusion, typically over the course of one week (Armuzzi & Liguori, 2021). Side effects of intravenous ciclosporin may include diarrhea, swollen gums, nausea or vomiting, excessive hair growth, uncontrollable shaking or trembling of part of the body, and extreme tiredness. More serious complications can include impaired liver or kidney function, which is why patients are monitored regularly throughout treatment.

**Biological:** These medicines reduce inflammation in the intestines by targeting specific proteins used by the immune system to trigger inflammation. They are used to treat adults with moderate to severe Ulcerative Colitis. If other options are not effective, certain biologic medicines may also be used to treat children between the ages of six and seventeen with severe Ulcerative Colitis. Biologics are administered in a hospital setting either through a drip into the arm every four to twelve weeks or as injections every one to four weeks. Treatment generally continues for eleven months unless the medicine is not effective. Biologic medicines affect the immune system and can increase the risk of infection. Individuals may develop symptoms such as a sore throat, coughing, or fever and should report them promptly.

**Tofacitinib:** This is a recently developed medicine for Ulcerative Colitis that also modulates immune function, although it works differently from other medicines. It is recommended for individuals with moderate to severe Ulcerative Colitis when biologics are not suitable. This medicine is not recommended during pregnancy. Women taking it should use effective contraception while on the medication and for at least four weeks after completing treatment.

**Surgery:** When an individual has a particularly severe flare-up that is not responding to medications, surgery may be necessary. For Ulcerative Colitis, surgery involves permanently removing the colon. Once the colon is removed, the small intestine is used to expel waste products from the body. This can be done by creating an opening in the abdomen through which the small intestine is diverted (ileostomy). After the procedure, a special bag is placed over the opening to collect waste. Another option is creating an ileoanal pouch, where the small intestine is used to form an internal pouch that is connected to the anus, allowing normal bowel movements (Armuzzi & Liguori, 2021). Ileoanal pouches are preferred by many patients because they eliminate the need for an external waste bag. After the large intestine is removed, Ulcerative Colitis does not return.

The healthcare provider has to rule out other illnesses and diagnose Ulcerative Colitis in teenagers, children, and adults. After a physical exam, the provider may order a blood test, which can indicate infection or anemia. Anemia is a low level of iron in the blood and may suggest bleeding from the rectum or colon. Signs of microorganisms or inflammation can also appear in a stool sample. Imaging tests may be used to examine the colon and rectum, including magnetic resonance imaging (MRI). Endoscopic tests involve using a thin, flexible tube with a small camera. Healthcare providers insert the endoscope through the anus to examine the rectum and colon (Kucharzik et al., 2020). Common endoscopic procedures include sigmoidoscopy and colonoscopy.

If an individual exhibits symptoms of Ulcerative Colitis, their primary care provider will likely refer them to a specialist. For adults, care should be managed by a gastroenterologist, a doctor specializing in the digestive system. For younger patients, a pediatric gastroenterologist should oversee care, as they specialize in gastrointestinal conditions in children.

**How Ulcerative Colitis is Treated**

Ulcerative colitis has no cure, but treatments can calm the inflammation, help you feel better, and get you back to your daily activities. Treatment also depends on the severity and the individual, so it varies based on each person’s needs. However, providers manage the disease with medications. If testing reveals an infection that is contributing to symptoms, your healthcare provider will treat those underlying conditions to determine if symptoms improve (Zhu et al., 2021). The goal of medication is to reduce inflammation, maintain remission, and improve the quality of life for people with ulcerative colitis.

**Roles of diet and nutrition play in ulcerative colitis**

Diet does not cause the development of ulcerative colitis, nor can any special diet cure the disease. However, the foods your child consumes may play a role in managing symptoms and extending the time between flare-ups. Some foods may worsen symptoms and should be avoided, especially during flare-ups (Feagan et al., 2021). Trigger foods differ from person to person. To identify which foods affect you, keep track of how you feel after eating. Common problem foods include greasy foods, alcohol, carbonated beverages, high-sugar foods and drinks, and high-fiber foods. In addition to these, children, infants, and teenagers may also experience issues with salt and dairy products. Keep a close watch on your child’s diet and nutrition. Appetite may decrease during flare-ups, and they may not eat enough to stay healthy and continue growing. Inflammation from ulcerative colitis can also prevent the digestive tract from absorbing enough nutrients. This may require increasing your child’s caloric intake. It is recommended to work with a healthcare provider and nutritionist to develop a personalized diet plan if you or your child has ulcerative colitis.

**Complications of ulcerative colitis**

Ulcerative colitis increases the risk of developing colon cancer. The longer a person has the disease, the higher the risk becomes. Due to this increased risk, doctors will screen for cancer at the time of diagnosis. According to the American Cancer Society, screenings should be repeated every three years. Regular screenings help reduce the risk of colon cancer.

Other complications of ulcerative colitis include kidney stones, inflammation of the skin, joints, and eyes, ankylosing spondylitis (which involves inflammation of the joints between the spinal bones), rare cases of liver disease, thickening of the intestinal wall, intestinal bleeding, blood infection, and rupture of the colon (Lai & Fujinami, 2021).

**Prevention of ulcerative colitis**

There is no definitive evidence that diet affects whether a person will develop ulcerative colitis. However, certain foods and beverages can worsen symptoms during flare-ups. Helpful practices include lowering milk intake, avoiding fatty foods, eating smaller meals throughout the day, drinking small amounts of water regularly, and limiting high-fiber foods.

The diagnosis of ulcerative colitis cannot be confirmed through a single test. Instead, it is based on a combination of clinical symptoms, lab tests, and endoscopic, histological, and radiological findings. Infectious causes should be ruled out at diagnosis and again whenever a flare-up occurs. Common microbial pathogens must be considered, especially Clostridioides difficile (Dolin, 2021). In treatment-resistant cases, reactivation of cytomegalovirus should also be checked, as recommended in current guidelines. Laboratory testing should include inflammatory markers in both blood and stool (Feagan et al., 2021). The primary differential diagnosis is Crohn’s disease, followed by rarer types of colitis such as NSAID-induced, ischemic, lymphocytic, and collagenous colitis.

In rare cases of treatment-resistant proctitis, sexually transmitted infections, radiation-induced proctitis, or malignant infiltration of the colorectum must be considered. Proctological disease should also be assessed in cases where symptoms are confined to the rectum or when isolated rectal bleeding occurs. In general, inflammation markers may not be elevated in all cases, but when they are, they often indicate severe disease activity. In moderate colitis, fecal markers such as calprotectin are more sensitive and are suitable for follow-up evaluations across all disease patterns. Iron-deficiency anemia is the most common extraintestinal manifestation of chronic inflammatory bowel disease. For this reason, annual screening for iron deficiency is recommended even in patients in clinical remission. If primary sclerosing cholangitis is present, bilirubin levels and liver function tests should also be checked once per year, as this condition significantly affects prognosis and treatment planning.

Ulcerative colitis appears on endoscopy as an inflammatory process spreading continuously from the rectum toward the upper colon. It can be classified by pattern: proctitis (confined to the rectum), left-sided colitis (extends past the splenic flexure), and extensive colitis. Endoscopic findings can range from mild (granular mucosa, reduced vascular markings, and moderate redness) to severe (ulceration and spontaneous bleeding). The transition between normal and inflamed tissue is typically sharp, and inflammation usually worsens closer to the rectum (Spinelli et al., 2022). The rectum may be spared in patients with both sclerosing cholangitis and ulcerative colitis, as well as in children and adolescents. Mild inflammation may also appear distally due to localized treatments with suppositories, enemas, or foam. In cases of left-sided colitis, a cecal patch—an isolated inflamed area in the cecum—may also be present. Whenever treatment is started or changed, especially when beginning biologics, the response should be evaluated by endoscopy within three to six months (Tripathi & Feuerstein, 2019). The goal of treatment is to achieve mucosal healing documented by endoscopy, even if it cannot be achieved in all patients.

If endoscopy is not available, treatment response should be evaluated using other objective parameters, such as fecal calprotectin reduction or normalization, or the normalization of bowel wall thickness measured by ultrasound. For patients with extended disease, surveillance intervals are determined by risk level. According to Spinelli (2022), some patients develop colon cancer by 30 years after diagnosis. Thanks to improved monitoring, the overall cancer risk has decreased. Surveillance colonoscopy should be performed either using chromoendoscopy or high-resolution white-light endoscopy with targeted biopsies in either case.

**Conclusion**

A wide variety of medications are now available for treating ulcerative colitis, allowing for personalized treatment based on each patient’s unique needs. Regular surveillance colonoscopies to screen for colon cancer should be scheduled based on individual risk factors.

Physicians play a critical role in managing severe cases and collaborate closely with other healthcare professionals to improve patients' outcomes by monitoring both progress and overall health status.

**References**

Armuzzi, A., & Liguori, G. (2021). Quality of life in patients with moderate to severe ulcerative colitis and the impact of treatment: A narrative review. *Digestive and Liver Disease*, *53*(7), 803-808.

Alsoud, D., Verstockt, B., Fiocchi, C., & Vermeire, S. (2021). Breaking the therapeutic ceiling in drug 595.

Dolin, J. (2021). The special Nordic science education and science education research tradition– and the importance of nursing it. *Science Education in the light of Global Sustainable Development:-trends and possibilities*, 15.

Feagan, B. G., Danese, S., Loftus Jr, E. V., Vermeire, S., Schreiber, S., Ritter, T., & Peyrin Biroulet, L. (2021).Filgotinib as induction and maintenance therapy for ulcerative colitis (SELECTION): a phase 2b/3 double-blind, randomised, placebo-controlled trial. *The Lancet*, *397*(10292)

Gottlieb, K., Requa, J., Karnes, W., Gudivada, R. C., Shen, J., Rael, E., & McGill, J. (2021).Central reading of ulcerative colitis clinical trial videos using neural networks. *Gastroenterology*, *160*(3), 710-719.

Kucharzik, T., Koletzko, S., Kannengiesser, K., & Dignass, A. (2020). Ulcerative colitis—diagnostic and therapeutic algorithms. *Deutsches Ärzteblatt International*, *117*(33-34), 564.

Lai, K., & Fujinami, T. (2021, May). A Comparative Study on the Expectation of Active Seniors in Nursing Care between Japan and China. In *2021 5th International Conference on Medical and Health Informatics* (pp. 259-264).

Naftali, T., Bar-Lev Schleider, L., Scklerovsky Benjaminov, F., Konikoff, F. M., Matalon, S. T., & Ringel, Y. (2021). Cannabis is associated with clinical but not endoscopic remission in ulcerative colitis: Arandomized controlled trial. *PloS one*, *16*(2), e0246871.

Sandborn, W. J., Feagan, B. G., D’Haens, G., Wolf, D. C., Jovanovic, I., Hanauer, S. B., & Danese, S. (2021). Ozanimod as induction and maintenance therapy for ulcerative colitis. *New England Journal of Medicine*, *385*(14), 1280-1291.

Sands, B. E., Peyrin-Biroulet, L., Loftus Jr, E. V., Danese, S., Colombel, J. F., Törüner, M., & Schreiber, S.(2019). Vedolizumab versus adalimumab for moderate-to-severe ulcerative colitis. *New England Journal of Medicine*, *381*(13), 1215-1226.

Smillie, C. S., Biton, M., Ordovas-Montanes, J., Sullivan, K. M., Burgin, G., Graham, D. B., & Regev, A. (2019). Intra-and inter-cellular rewiring of the human colon during ulcerative colitis. *Cell*, *178*(3), 714-730.

Spinelli, A., Bonovas, S., Burisch, J., Kucharzik, T., Adamina, M., Annese, V., & Panis, Y. (2022). ECCOguidelines on therapeutics in ulcerative colitis: surgical treatment. *Journal of Crohn's and Colitis*, *16*(2), 179-189.

Tripathi, K., & Feuerstein, J. D. (2019). New developments in ulcerative colitis: latest evidence on management, treatment, and maintenance. *Drugs in context*, *8*.

Ungaro, R., Colombel, J. F., Lissoos, T., & Peyrin-Biroulet, L. (2019). A treat-to-target update in ulcerative colitis: a systematic review. *The American journal of gastroenterology*, *114*(6), 874.

Zakerska-Banaszak, O., Tomczak, H., Gabryel, M., Baturo, A., Wolko, L., Michalak, M., & Skrzypczak-Zielinska, M. (2021). Dysbiosis of gut microbiota in Polish patients with ulcerative colitis: A pilot study. *Scientific reports*, *11*(1), 1-13.

Zhu, Y., Yang, S., Zhao, N., Liu, C., Zhang, F., Guo, Y., & Liu, H. (2021). CXCL8 chemokine in ulcerative colitis. *Biomedicine & Pharmacotherapy*, *138*, 111427.