

Alternative Herbal Medicines For Prevention And Treatment Of Ulcerative Colitis

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Abstract

Drugs such as adreno-corticosteroids, corticosteroids, purine analogues, antibiotics, immunomodulators, and 5-aminosalicylic acid have become the foundations in management therapy for Ulcerative Colitis (UC). These medicaments remain available in the variety of forms are used orally and topically to reduce inflammation of the colon and rectum. There can be seen the imbalance of intestinal beneficially acting bacteria triggered an inapt, intense, and enduring mucosal immune retort that leads to the intestinal tissue impairment in an individual. Nonetheless, all these drugs are useful for treatment tolerated with some shortcomings side-effects. From the beginning to the end of human life, natural plants or plant products play an important part. In this existing review, the authors summarize the revisions relating to the natural products practiced by UC patients as a substitute management process for each induction or upkeep management.

Keywords: *Ulcerative Colitis; Alternative Medicine; Inflammatory Bowel Disease; Natural Products; Herbal Medicine*

1. INTRODUCTION

The chronic inflammatory ailment condition of the GIT is known for instance inflammatory bowel disease (IBD). This remains a very broad term considered through chronic inflammation of the bowel involving the GIT. The occurrence of IBD remains not clear with unknown pathophysiology [1]. There are n-numbers of diseases are involved but the most common can be considered as Ulcerative Colitis (UC) & Crohn's disease (CD). UC remains an idiopathic inflammatory bowel ailment of colonic mucosa of unfamiliar etiology. UC distresses the colon and rectum with the typical involvement of mucosa or innermost lining with a continuous manifestation of ulceration and inflammation without segmentation of normal tissues. It can be characterized clinically by repeated inflammation of duodenal sections with numerous signs repeatedly resulting in an erratic course [2].

When there remains an involvement of most of the distal portion of colon and rectum, then it is particularized as ulcerative proctitis; when the progression of the disease from the descending portion of downwards colon is mentioned as a distal colitis. In pancolitis, entire colon is involved [3]. In most restricted form, UC might remain limited to the distal portion of rectum.

However, in its utmost extensive practice there is a complete involvement of whole colon. More than 80% of the patients extant through ailment spreading since the rectum to the

splenic flexure, and about 20% obligate pancolitis [4]. The epidemiology, natural history, diagnosis, and treatment contributed significantly in current few years.

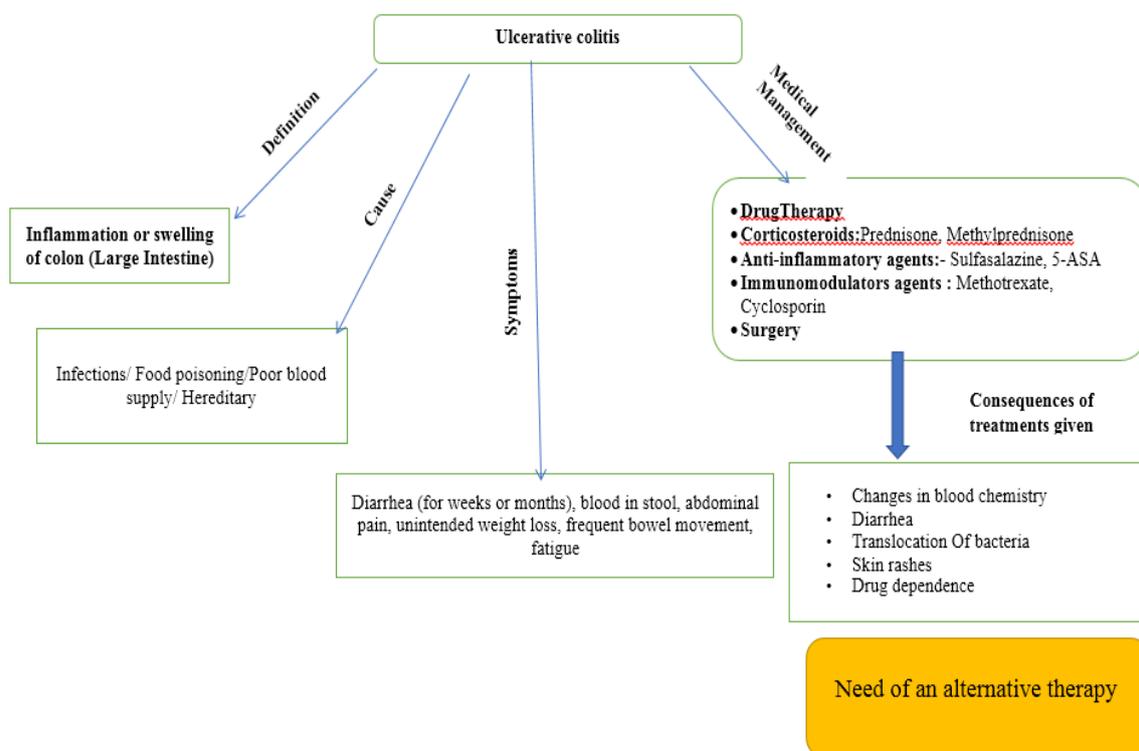


Figure 1. A schematic diagram for ulcerative colitis

Symptoms of UC

At the very beginning only, UC showed the sign and symptoms of loose stool or diarrhoea, pain, presence of blood in stool, lose weight, loss of appetite, hurting pain in joints, high body temperature, nausea, vomiting, fistulae, abscesses and lymph node swelling ⁴. Major indication of occurrence of mild, moderate and chronic UC.

Epidemiology of UC

Constant change in the epidemiology of UC has been reported by the researcher. Evolving countries such for instance China and Eastern Europe obligate a prevalence of UC ⁵. UC is directly connected with repeated occurrences through full lessening of indications in the provisional. Generally, certain group of population is more affected as compared to others. Caucasians are more affected than blacks or orientals. Surprisingly, the Jew population has a three to six folds risk of the disease affecting both male and female population at the equal rate. The highest rate of occurrence of the two diseases i.e. UC and CD is amongst ages of 15 and 35 as proclaimed in almost each and every span of life. A hereditary rate of occurrence of IBD is under recording of occurrence. Sometimes, due to depression or hopelessness, westernmost food habits, left-handedness may raise the phenomenon of UC [5]. Among the Western Europe and USA people, UC occurs at the frequency of nearly around 6 to 8 instances per 1,00,000 of populace. And it is also estimated that predominance of about 70 to 150 among the population of 1,00,000 [6].

2. Pathophysiology of UC

The cause of UC is not entirely defined. The major pathophysiology involved in UC is inadequate regulation or over stimulation of mucosal immune system. Therefore, the

emphasis should be given to study the immunological reactions or mucosal inflammation. In its active form of the disease, the mucosa of lamina propria gets extremely infiltrate with acute and chronic inflammatory cells. There remains a dominant escalation factor present in the production of mucosal Immunoglobulin G (IgG), the indication of activation of complement, macrophages and T-cells stimulation [7]. There is a strong connection between exceeding mentioned immunological activeness through the discharge of an enormous assortment of leukotriene, kinins, cytokines, platelet activating factor (PAF) and reactive metabolites of oxygen. Discharge of these mediators are not only limited for intensifying the inflammatory and immune response, but they also participate in a key role. They have undeviating effects on epithelial role and endothelial function. Due to this undeviating effect, there is a chance of ischemia with permeability enhancement and on repair mechanisms, thus rising synthesis of collagen. On the other hand, sundry of the cytokines similar interleukins 1 & 6, tumor necrosis factor determine trigger an acute phase retort. It can further lead to high fever and an increase in serum acute phase proteins [8-9].

Jenkins et al., 1997 reported that UC could not diagnose by one or two symptoms, physical examination, or test outcome. The clinical diagnosis based on compatible history of patient, laboratory & physical examination, radiological study, endoscopic result and histological or tissue findings. The diagnosis of UC is recommended by the symptoms of ordinary abdominal pain, rectal blood loss, and bloody diarrhoea [10].

Foremost obstacles of UC comprise toxic megacolon, gastroenteric perforation, and regular heavy bleeding. Lethal megacolon remains distinguish through a sepsis-like condition and widespread swelling of the colon (>6 cm). Microcytic anemic condition occurs due to severe chronic blood loss. Sometimes due to these chronic and severity in diseases, there is a chances of occurrence colon cancer. This risk of occurrence of colon cancer can be observed after ten years of UC [11].

3. Treatment of UC

In present scenario there is not a single helpful medicine are available towards treatment the patient of UC. The conventional management based on the lessening of the anomalous colon inflammation and thus dismisses the indications of diarrhoea, incessant rectal bleeding and severe abdominal pain. The management of the disease remains contingent proceeding the rigorousness of the ailment condition. That's why treatment is adjustable and different for different patients [12]. Person having mild and moderate UC remain treated through drug like corticosteroids (dexamethasone) which decrease the inflammation and give release from the signs of the disease. The utmost vital supervision goal of medical management for UC remains focussed headed for the relief of clinical indication [13]. Management for UC be contingent on the rigorousness of the ailment. As respective patient experience ulcerative colitis in a different way, so management is modified for each [14-15].

Following treatments are given to the patients of UC: i) Drug therapy; ii) Surgery

i) Drug therapy

The main objective of drug therapy used for the treatment is to induce and preserve remission. It will also enhance the quality of life of UC patients. There are many class of drugs are available in the market as a therapy for the patient with UC. Medications to treat UC include [16]:

a) Anti-inflammatory proxies aforementioned as 5-aminosalicylic acid (5-ASA), sulfasalazine and mesalamine, systemic corticosteroids, topical corticosteroids.

b) Immunomodulators

ii) Surgery

Approximately 25 to 40 percent of UC patients requisite ultimately obligate their colons impassive since of immense bleeding, severe illness, split of the colon, or menace of cancer²⁰. Proximate around 25% of patients through UC expending steroids develop steroid-dependent subsequently one year, and practically entire progress steroid-related adverse actions [17]. Further medications as immune modulators (azathioprine and 6-mercaptopurine) such lessen inflammation through distressing the immune system and aminosalicylates remain obtainable [18]. Nevertheless, the side effects associated with aminosalicylates remains usually escorted through adverse side effects specific as dizziness, nausea, changes in blood chemistry (comprising anemia and leukopenia) and skin rashes [19].

4. *Alternative treatment of ulcerative colitis*

Moreover, the mentioned predictable anti-IBD medications remain allied through the menaces of a number of contrary effects like metabolic deregulation which lead to obesity (for corticosteroids), or adverse skin retorts for anti-TNF- α antibodies [20-21]. A formulation as an alternative therapy or natural plants or the products based on the plants plays an important role from the very beginning to the end of human life. Although, the pathophysiology of UC remains not clear nevertheless by probable hypothesis contrivance of the conventional system of medication for management of UC remains designated.

Furthermore, none of the medications currently obtainable, which remain practiced for anti-IBD remedy, remain sufficient adequate to deliver ample and life-long aid for the patients without any side-effects. Due to lower effects and higher side-effects most often pooled through reduced efficiency and the menace of decline remain the foremost details for that new treatments beside UC remain desirable. To diminish these side effects and upsurge the pharmacological efficacy, there is need to move to plants or ayurvedic based formulation as an alternative therapy. Widespread exploration after the last decades devours discovered the application of a traditional system of medicine as inflammatory diseases in a prevention of ulcerative colitis.

A popular exploration devours remained propelled from time-to-time to ascertain new anti-ulcer medicines since likely sources towards auxiliary presently practiced medications of tentative adeptness and safety. In the world of scientific research, numbers of herbs, medicinal plants and its secondary metabolites through anti-ulcerative probable obligate remained described. Plants and its source have been measured towards be a probable source to control ulcerative colitis.

Natural products for the management of ulcerative colitis

Fernandez et al., (1999) reported that during double-blind clinical trials, it devours remained described that the *Psyllium* seeds possess marked activity against ulcerative colitis [22]. Guslandi, (1999) reported that UC devours a slighter dominance in smokers than non-smokers. Revisions expending transdermal nicotine patch obligate revealed clinical and histological enhancement [23]. Kane et al., (2000), reported **Bromelain** is a proteolytic enzyme and is found effective in UC. It shows enhancement of histologic and clinical sternness of colonic inflammation for a murine colitis model of IL-10-deficient mice [24].

Mazzon et al., (2005) reported about *Camellia sinensis* (*Theaceae*) extract remained institute towards remain operative in the management of ulcerative colitis. Together diarrhoea and loss of body weight can remain substantially diminished through the management by *Camellia sinensis* extract [25]. Oh et al., (2006) reported glycoprotein isolated since *Gardenia jasminoides* devours operative in (Dextran sodium sulphate) DSS induced UC in mice [26].

Cheon et al., (2006) Guggulsterone is found effective against DSS-induced murine colitis for instance evaluated in colon length, histology and clinical disease activity score [27]. Yuan et

al., (2006) described such diammonium glycyrrhizinate obtained from *Glycyrrhiza glabra* and found effective against inflammation of intestinal mucosal in rats and, prominently, decreases expression of TNF- α significantly in inflamed colonic mucosa [28]. Li et al., (2008) finds that Proanthocyanidins is useful in anti-inflammatory activity in case of the acute phase of 2,4,6-trinitrobenzenesulfonic acid (TNBS) induced colitis in rats [29]. El-Abhar et al., (2008) deliberated *Zingiber officinale* (*Zingiberaceae*) extract and it remained assessed for anti-UC activity. Activity against UC exhibited a protruding consequence of ginger extract beside acetic acid-induced ulcerative colitis. The consequence might be probable owing to antioxidant and anti-inflammatory properties of extract of *Zingiber officinale* [30]. Wong et al., (2008) informed the defensive effects of *Angelica sinensis* (*Apiaceae*) polysaccharides might remain explicated partly through oxidative stress and glutathione (GSH) depletion [31]. Green et al., (2010) also confirmed this fact as, Proanthocyanidins isolated since grape seed remained explored their action in the healing persistent UC in rats [32]. Gupta et al., (2011) reported that in a clinical study 30 patients were administered with 900 mg of *Boswellia* gum preparation thrice a day and 10 patients were administered with sulphasalazine, 3gm, thrice a day. The *Boswellia* gum was found to be effective against ulcerative colitis [33]. Gautam et al., (2012) reported that *Terminalia chebula* extract (600 mg/kg) also possess remedial activity beside acetic acid-induced colonic impairment score and weight when directed orally daily for 14 days [34]. Deok et al., (2013) studied that Methanol extract of leaves of *Rhodomyrtus tomentosa* has been investigated by researcher on the production of inflammatory mediator's nitrous oxide and prostaglandin E2. The methanol extract of leaves of *Rhodomyrtus tomentosa* arbitrated reticence, as well as target enzymes, remained deliberate through RAW264 [35]. In 2016, Singh et al., reported the *in vivo* assessment of curcumin loaded granules expending Eudragit FS30D and Guar-gum coating in the management of ulcerative colitis in albino rats. Results advocated certain the co-administration of probiotics laterally by colon targeted delivery of curcumin exhibited probable valuable defensive effect beside acetic acid induced UC in rats [1].

2. CONCLUSION

Ulcerative colitis (UC) remains a refractory, chronic, and nonspecific ailment ensued frequently in the rectum and the intact colon. The etiopathology remains likely identified by deregulations of the mucosal safe reaction to the occupant bacterial vegetation composed by hereditary and natural variables. A few kinds of drugs are utilized to control the aggravation or diminish side effects. Sometime herbal medications are prescribed and incorporate an extensive scope of applies and treatments external the domains of customary Western drug. Herbal medicine prescription can cure and delight an extensive scope of intense and constant GI issue, comprising UC. Herbals referenced beyond speak to a basic worldview of what remains in standard practice through patients by UC in numerous nations of the world. The present review is an attempt to summarize some important studies on the antiulcer potential of herbal drags which may provide some clues.

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