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Herbs Used in the treatment of Ulcerative Colitis

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ABSTRACT

Ulcerative colitis (UC) is one of the inflammatory bowel disease (IBD). UC is a refractory, chronic & nonspecific disease occurred usually in the rectum and the entire colon the etiopathology is probably related to dysregulation of the mucosal immune response towards the resident bacterial flora towards together with genetic & environmental factors. UC is the one of the autoimmune inflammation of unclear etiology affecting the Colon & rectum. Several types of medications are used to control the inflammation or reduce the symptoms conventional treatment options for uc include mesalamine, glucocorticoids, immunosuppressants & biologics. However there are limited controlled evidences indicating the efficacy of traditional chinese medicines such an aloevera gel, wheat grass juice, Boswellia serrata & bovine colostrum enema in the treatment of UC. In recent years attention is being paid to curcumin, a main active polyphenol found in the turmeric root, which has numerous beneficial effects in the humanbody, including anti-inflammatory, anti- carcinogenic, antioxidative properties targeting several cellular pathways impact on intestinal microbes. The potential benefits of herbal medicine could lie in their high acceptance by Patients, efficacy, relative safety & relatively low cost.

Keywords: Ulcerative colitis, IBD, epidemiology, curcumin, humanbody

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1. Introduction

Crohn's disease and ulcerative colitis are chronic idiopathic inflammatory bowel diseases (IBD) involving the large bowel (UC) or the small and large bowel (CD) in which patients require both indication and maintenance treatment. Although the etiology remains largely unknown, it has been suggested that a combination of genetic susceptibility factors and the activation of the mucosal immune system in response to luminal commensal bacterial antigens along with persistent pathologic cytokine production contributes to the initiation and chronification of IBD. The inflammation usually involves the rectum down to the anal margin and extends proximally in the colon for a variable

distance. There is no difference between men and women. The worldwide incidence is 0.5~24 new cases per 100,000 individuals and prevalence is 100~ 200 cases per 100,000.

Epidemiology

Incidence: 8-15 per 100,000 persons

Prevalence: 170-230 per 100,000 persons

An increased incidence and prevalence is found in developed nations, northern locale and urban environments; among Caucasians and among persons of Jewish ethnicity.

Rise of incidence in IBD in India-Reasons

- Familial aggregation
- Nicotine consumption

- Oral contraceptives
- Dietary habits - refined sugars, fast foods etc.
- Physical inactivity
- Early weaning
- Hygiene
- Infectious diseases -TB, Measles.
- Some factors that may contribute to the increase in IBD
- Lifestyle changes
- A westernized diet with high fat and high sugar.
- Processed and packaged Food

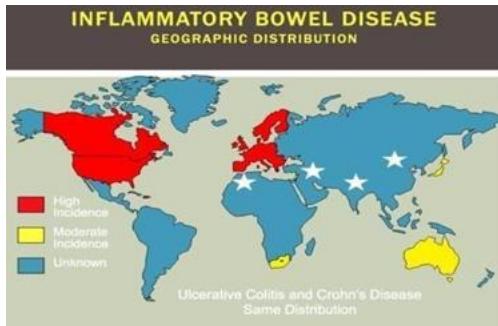


Fig.1: Geographic Distribution of Ulcerative Colitis

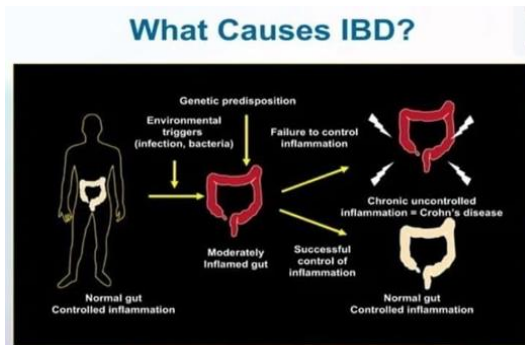


Fig.2: Causes of inflammatory bowel disease

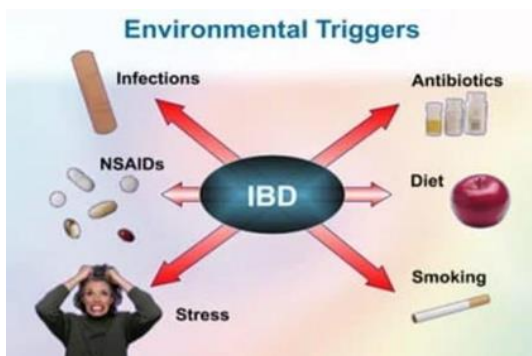


Fig.3: Environmental triggers for inflammatory bowel disease

Etiology

- The cause of UC remains unclear, although interplay of genetic, microbial, and immunologic factors clearly exists.
- A limited number of environmental factors have clearly been proven to either modify the disease or regulate the lifetime risk of developing it.

These include:

- Appendectomy
- Tobacco usage
- Antibiotic usage
- Oral contraceptive pills.

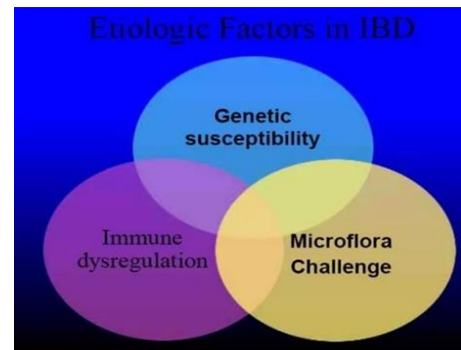


Fig. 4: Etiologic factors in inflammatory bowel disease

2. Pathology

- The inflammation is limited to the mucosal layer of the colon.
- The rectum is always involved, with inflammation extending proximally in a confluent fashion.

The disease is classified by the extent of proximal involvement into:

- Proctitis: Involvement limited to the rectum.
- Proctosigmoiditis:
 - Involvement of the rectosigmoid.
 - Left-sided colitis: Involvement of the descending colon up to the splenic flexure.
 - Extensive colitis: Involvement extending proximal to the splenic flexure.

•Pancolitis (universal colitis): Involvement of the entire colon. It is may be associated with inflammation of the terminal ileum (backwash ileitis).

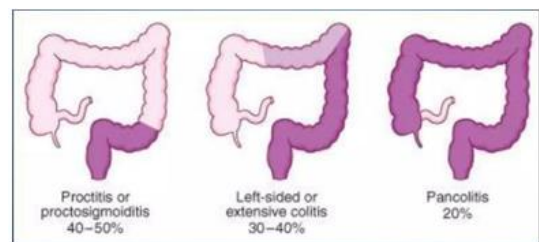


Fig-5: Classification based on the extent of proximal involvement in IBD

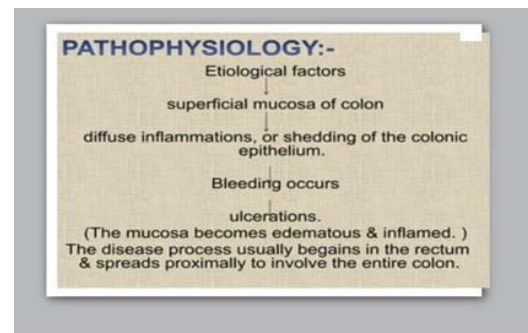


Fig-6: Flowchart depicting pathophysiology of IBD

Symptoms of Ulcerative Colitis

Symptoms depend on extent and severity of inflammation are:

- Rectal bleeding and urgency to evacuate
- Diarrhoea
- Abdominal cramping
- Extraintestinal (systemic) symptoms
- Joint pain/swelling
- Eye inflammation
- Skin lesions



Fig-7: Disease activity of UC



Fig.8: Management Goals in IBD



Fig.9: Medical therapies for IBD

UC - Disease activity

Mild: Up to 4 bloody stools daily and no systemic toxicity.

Moderate: 4-6 bloody stools daily and minimal toxicity.

Severe: > 6 stools daily and signs of toxicity, such as fever, tachycardia, anaemia raised ESR

Fulminant ulcerative colitis

> 10 bloody stools daily, continuous bleeding, anaemia requiring blood transfusion, abdominal tenderness, and colonic dilation on plain abdominal radiographs.

- How IBD is diagnosed
- Clinical history

- Physical examination
- Laboratory tests
- Endoscopy (Gastroscopy/Colonoscopy)
- X-ray findings
- Tissue biopsy (pathology)

Colonoscopy in IBD

- Diagnosis of IBD (UC vs. CD)
- Allows visualization of large intestine and ileum
- Allows biopsies to examine colon tissue
- Determines activity of disease
- Important for pre-cancer surveillance in UC and CD
- Colonoscopy
- Requires complete "cleansing" of colon to allow visualization of bowel lining.

Preparations include:

- Golytely / Colyte purge
- Requires drinking 1 gallon of solution
- Fleets prep
- Small volume of purge, large volume of water
- Visicol tablets

3. Herbal Medicine

The term "herb" is derived from the Latin word herba meaning "grass." The term has been applied to plants of which the leaves, stems, or fruit are used for food, for medicines, or for their scent or flavour. Herbal medicine refers to folk and traditional medicinal practice based on the use of plants and plant extracts for the treatment of medical conditions. The use of herbs to treat diseases is almost universal among native people. A number of traditions have come to dominate the practice of herbal medicine in the West at the end of the twentieth century. Herbal medicine is one of the most common TCM modalities. It has been estimated that 28.9% of US adults regularly use one or more TCM therapies, 9.6%–12.1% of which are in the form of herbal products. Recent studies have indicated that the percentage of adults using TCM therapies for their GI symptoms ranges from 20% to 26%, but patients with functional GI disorders are more likely to make use of them, as are those with chronic GI conditions.

Currently, TCM is widely used in the treatment of UC in Eastern Asian countries. Langmead *et al* has reported that herbal remedies for the treatment of IBD include slippery elm, fenugreek, devil's claw, Mexican yam, tormentil, and Wei tong ning (a TCM). Slippery elm, fenugreek, devil's claw, tormentil, and Wei tong ning are novel drugs in the management of IBD. Chen *et al* reported that 118 cases of UC patients were treated with integration of TCM and that 86 cases of UC were treated with prednisone as controls. The therapeutic effects were observed and compared after two therapeutic courses of 40 consecutive days. As a result, there were 39 cases cured, 60 cases improved and 19 cases failed, with a total effective rate of 84% in TCM-treated group. In contrast, there were 15 cases cured, 37 cases improved and 34 cases failed, with a total effective rate of 60.5% in prednisone-treated group ($P < 0.01$). These data indicate that treatment of UC by the integrated TCM

method is superior to that by simple Western drugs, such as prednisone and that it is also safe and effective in maintaining remission of UC.

Aloe vera

Aloe vera is a tropical plant used in traditional medicine throughout the world. It has been studied for its ability to relieve UC. Aloe vera gel is the mucilaginous aqueous extract of the leaf pulp of *Aloe barbadensis* Miller. Aloe vera juice has anti-inflammatory activity and been used by some doctors for patients with UC. It was the single most widely used herbal therapy. A doubleblind, randomized trial was undertaken to examine the effectiveness and safety of aloe vera gel for the treatment of mild-to-moderate active UC. Thirty patients took 100 mL of oral aloe vera gel and 14 patients had 100 mL of a placebo twice daily for 4 weeks. Clinical remission, improvement, and response occurred in 9 (30%), 11 (37%), and 14 (47%), respectively, in aloe vera-treated patients compared with 1 (7%), 1 (7%), and 2 (14%), respectively, in controls. Although the numbers are small in this study, the number of patients who responded to aloe vera is more than those who took placebo. However, the numbers are similar to placebo responses in other trials and the placebo response rate is very low. The exact mechanisms of action of aloe vera are unclear. In vitro studies on human colonic mucosa have demonstrated that aloe vera gel could inhibit prostaglandin E2 and IL-8 secretion, indicating its role in antimicrobial and anti-inflammatory responses.

Boswellia serrata

Boswellia or Indian frankincense is an ayurvedic herb that is derived from the resin of the plant, and has also been used traditionally to treat UC. Boswellic acid, the major constituent of Boswellia, is thought to contribute to most of the herbal pharmacologic activities. In vitro studies and animal models have shown that boswellic acid could inhibit 5-lipoxygenase selectively with antiinflammatory and antiarthritic effects. Since the inflammatory process in IBD is associated with increased function of leukotrienes, the benefits of Boswellia in the treatment of UC have proven a positive result. Moreover, it has also been found to directly inhibit intestinal motility with a mechanism involving L-type Ca²⁺ channels. Boswellia has been found to reduce chemically induced edema and inflammation in the intestine in rodents.

Other studies suggest that it has cytotoxic properties.

Gupta *et al* studied the treatment of 30 patients with chronic UC, and gave 20 patients a Boswellia gum preparation (900 mg daily divided into 3 doses for 6 weeks), and 10 patients sulfasalazine (3 gm daily divided into 3 doses for 6 weeks). They concluded that Boswellia was an effective treatment with few side effects, because 14 out of the 20 patients treated went into remission, and furthermore, 18 out of the 20 patients found an improvement in one or more parameters. In comparison, in the group taking sulfasalazine, 4 out of 10 went into remission, and 6 out of 10 showed improvement in one or more of the above parameters. In animal models of inflammation, it has been

shown to be effective against Crohn's disease, UC, and ileitis.

Butyrate

Butyrate is an important energy source for intestinal epithelial cells and plays a role in the maintenance of colonic homeostasis. Butyrate enemas have been studied for use in treating UC. Some studies have shown that the topical use of butyrate may help decrease the inflammation in the colon. Nancey *et al* proposed a possible explanation for the decreased oxidation in UC patients who showed that butyrate oxidation could be reduced by TNF- α at concentrations found in inflamed human mucosa. This anti-inflammatory effect of butyrate via NF- κ B inhibition, contributing, for example, to decreased concentrations of myeloperoxidase, cyclo-oxygenase-2, adhesion molecules, and different cytokine levels, has been confirmed in several in vitro and in vivo studies. A diminished capacity of the intestinal mucosa to oxidize butyrate has been reported in patients with active UC. However, in patients with inactive UC a normal butyrate oxidation has been found in vivo, suggesting that in UC patients, abnormal butyrate oxidation is not a primary defect in colon mucosa. Administration of enteric-coated tablets (4 g of butyrate daily) in combination with mesalazine vs mesalazine alone significantly improved the disease activity score in patients with mild-to-moderate UC.

Liquorice

Liquorice, which is derived from the root of the plant, is used extensively in TCM for a variety of conditions and ailments. Liquorice has also got immune modulatory and adaptogenic property, which is required for the pathogenesis of UC. A number of active chemicals, including glycyrrhizin are thought to account for its biologic activity. Diammonium glycyrrhizinate is a substance that is extracted and purified from liquorice, and may be useful in the treatment of UC. Evidence has also reported that diammonium glycyrrhizinate could improve intestinal mucosal inflammation in rats and, importantly, reduce expression of NF- κ B, TNF- α , and ICAM-1 in inflamed mucosa. Clinical studies on liquorice have also been performed in combination with other herbs and demonstrated to be effective in the management of UC. The antiestrogenic action documented for glycyrrhizin at high concentration has been associated with glycyrrhizin-binding estrogen receptors. However, estrogenic activity has also been reported for liquorice and is attributed to its isoflavone constituents. It has been suggested that glycyrrhizin may exert its mineralocorticoid effect via an inhibition of 11 β hydroxysteroid dehydrogenase. Evidences have proven that glycyrrhizin could also suppress both plasma renin activity and aldosterone secretion. In addition, liquorice has been shown to have chemo preventive effects through influencing Bcl-2/Bax and inhibiting carcinogenesis.

Slippery elm (*Ulmus fulva*)

Slippery elm is a supplement that is made from the powdered bark of the slippery elm tree. It has long been used by Native Americans to treat cough, diarrhea, and

other GI complaints. Recently, slippery elm has been studied for use as a supplement for IBD. A study has confirmed the antioxidant effects of slippery elm when used in patients with IBD. The research so far has been promising, but there is not enough to warrant the widespread use of slippery elm in the treatment of IBD.

Tormentil extracts

Tormentil extracts have antioxidative properties and are used as a complementary therapy for chronic IBD. In individual patients with UC positive effects have been observed. Sixteen patients with active UC (clinical activity index ≥ 5) received tormentil extracts in escalating doses of 1200, 1800, 2400, and 3000 mg/day for 3 weeks each. Each treatment phase was followed by a 4week washout phase. The outcome parameters were side effects, clinical activity index, C-reactive protein, and tannin levels in patient sera. Mild upper abdominal discomfort was experienced by 6 patients (38%), but did not require discontinuation of the medication. During therapy with 2400mg of tormentil extracts per day, median clinical activity index, and C-reactive protein improved from 8 (6 to 10.75) and 8 (3 to 17.75) mg/L at baseline to 4.5 (1.75 to 6) and 3 (3 to 6) mg/L, respectively. During therapy, the clinical activity index decreased in all patients, whereas it increased during the washout phase. Neither undegraded nor metabolized tannins could be detected by liquid-mass spectrometry in sera.

Tormentil extracts appeared safe up to 3000 mg/day. The wheat grass (*Triticum aestivum*)

The wheat grass juice has been used for the treatment of various GI conditions. A double-blind study has demonstrated that supplementation with wheat grass juice for 1 month results in clinical improvement in 78% of people with UC, compared with 30% of those receiving a placebo. The amount of wheat grass used is 20 mL per day initially, and this is increased by 20 mL/day to a maximum of 100 mL per day (approximately 3.5 ounces). No serious side effects are noticed. Wheat grass juice appears to be effective and safe as a single or adjuvant treatment of active distal UC.

Curcumin

Curcumin is a compound in turmeric (*Curcuma longa*) that has been reported to have anti-inflammatory activity. It has been found to induce the flow of bile, which helps break down fats. Additionally, it could reduce the secretion of acid from the stomach and protect against injuries such as inflammation along the stomach (gastritis) or intestinal walls and ulcers from certain medications, stress, or alcohol. In a preliminary trial, 5 of 5 people with chronic ulcerative proctitis had an improvement in their disease after supplementing with curcumin. Curcumin inhibits the activation of NF- κ B. NF- κ B promotes the synthesis of many antioxidant enzymes. Curcumin directly binds to thioredoxin reductase and irreversibly changes its activity from an antioxidant to a strong pro-oxidant. The amount of curcumin used was 550 mg twice a day for 1 month, followed by 550 mg 3 times a day for 1 month.[39] Hanai

and colleagues published the results of the first randomized, multicenter, double-blind, placebocontrolled trial from Japan to study curcumin's effect on UC maintenance.[40] All 97 patients who enrolled and 89 patients who completed the study took a standard dose of mesalamine or sulfasalazine and either 1 g of curcumin or placebo twice daily for 6 months and then were followed for another 6 months off study medications. The relapse rate at 6 months on therapy was greater for the placebo group than for those who took curcumin ($P = 0.049$). Thus, curcumin may confer some additional therapeutic advantages when used in combination with conventional anti-inflammatory medications in UC.

4. Conclusion

UC is a chronic medical condition that may require patients to take medication throughout their lives to prevent relapse, reduce the risk of colorectal cancer and improve quality of life. Although patients at all stages of UC are affected by nonadherence, those in symptomatic remission at the same time, large clinical double-blind studies assessing the most commonly used alternative therapies are needed. Herbal medicines undergo a similar level of rigorous testing as pharmaceutical medicines and there are positive examples of successful biochemical, animal model, and human-controlled trials within the literature. As a result, the manufacture, marketing, and prescribing of herbal medicines is now at an unprecedented level and is expected to continue to grow. Many herbal medicines are effective when used as therapeutic agents in treating illness and disease. Thus, herbal medicine is one of the great medical systems of the world, with an unbroken tradition dating back to the third century BC.

5. References

- [1] Podolsky D. K. (2002). Inflammatory bowel disease. *The New England journal of medicine*, 347(6), 417–429.
- [2] Baumgart, D. C., & Carding, S. R. (2007). Inflammatory bowel disease: cause and immunobiology. *Lancet* (London, England), 369(9573), 1627–1640.
- [3] Liu, Z. J., Yadav, P. K., Su, J. L., Wang, J. S., & Fei, K. (2009). Potential role of Th17 cells in the pathogenesis of inflammatory bowel disease. *World journal of gastroenterology*, 15(46), 5784–5788.
- [4] Loftus E. V., Jr (2004). Clinical epidemiology of inflammatory bowel disease: Incidence, prevalence, and environmental influences. *Gastroenterology*, 126(6), 1504–1517.
- [5] Card, T., Hubbard, R., & Logan, R. F. (2003). Mortality in inflammatory bowel disease: a population-based cohort study. *Gastroenterology*, 125(6), 1583–1590.
- [6] Wang, Y., Ouyang, Q., & APDW 2004 Chinese IBD working group (2007). Ulcerative colitis in China: retrospective analysis of 3100 hospitalized patients. *Journal of gastroenterology and hepatology*, 22(9), 1450–1455.

- [7] Kane, S. V., Cohen, R. D., Aikens, J. E., & Hanauer, S. B. (2001). Prevalence of nonadherence with maintenance mesalamine in quiescent ulcerative colitis. *The American journal of gastroenterology*, 96(10), 2929–2933.