

***Hericium erinaceus* in the management of faecal calprotectin**

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Calprotectin is a Mn, Ca and Zn-binding protein of the S100-group which has many functions in the cell. It is a major constituent (60% of the soluble ingredients and 5% of the total proteins) of the cytoplasm of neutrophil granulocytes, as well as monocytes and epithelial cells. During inflammation, the leukocytes migrate through the intestinal wall releasing calprotectin that can be measured in the stool. The concentration of calprotectin correlates with the number of granulocytes in the intestinal lumen.

Calprotectin dosage can distinguish inflammatory bowel diseases (IBD), like Crohn's disease (CD) and ulcerative colitis (UC) from irritable bowel syndrome (IBS) in both children and adult patients. Calprotectin levels correlate with the severity of IBD, reflect the disease activity in UC and CD, predict IBD relapses and can be used for monitoring and optimizing therapy in IBD patients. Calprotectin detection is a non-invasive method in contrast to endoscopy; it is a remarkably stable marker of inflammation, which is easy to detect in stool and can be used as a screening tool for identifying patients with a suspected IBD. Several diseases other than IBD, especially colorectal neoplasia and gastrointestinal infections, can also increase calprotectin levels. [1-3]

Medicinal properties of *Herichium erinaceus* have been well-known for hundreds of years in traditional Chinese and Japanese herbal medicine to treat various human diseases. *H. erinaceus* contains various ingredients with anti-inflammatory and antibacterial activity, cytotoxic effect on cancer cells and compounds that stimulate the synthesis of the nerve growth factor (NGF). Studies have indicated that *H. erinaceus* can be used to improve gastrointestinal conditions, in gastric ulcers as well as IBD, UC and CD. [5-10]

Fifty six patients, (23 with UC, 12 with CD, 11 with IBD and 10 with mixed conditions (colon cancer, peritoneal mesothelioma and parasites) with high levels of stool calprotectin at time zero (T0) were treated for two months with 2 grams/day (1 gram before lunch and 1 gram before dinner) of *H. erinaceus* food supplement (A.V.D. Reform Srl, Noceto, Italy) composed of 80% mycelium and fruiting bodies and 20% hydroalcoholic extract [11]. At the end of the therapy calprotectin levels in faeces of patients were determined.

Faecal calprotectin levels were reduced in all test groups. UC group showed a reduction of 74,5%; 74,8% reduction was determined in CD group; 75,8% in IBD group and 70,1% reduction in mixed condition group, after two months of treatment. All patients described symptoms (i.e. abdominal pain, blood in stool, fatigue) remission and life quality improvement.

Ingestion of *H. erinaceus* food supplement resulted in anti-inflammatory effects as demonstrated by significant reduction of calprotectin in faeces. These data provide early evidence for *H. erinaceus* as a potential anti-inflammatory agent in gastrointestinal diseases.

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