TRICHINELLA SPIRALIS LARVAL ANTIGEN EXTRACT PROTECTS MICE AGAINST EXPERIMENTAL COLITIS VIA AN INTERLEUKIN-10 MEDIATED MECHANISM

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Abstract- Helminths adapt immune responses of their hosts, and can reduce immune-mediated inflammatory bowel diseases (IBDs). Identification of the mechanism responsible for this beneficial effect on IBDs will provide another feasible approach to treat these diseases. The current study was designed to investigate the possible role of interleukin-10 (IL-10) in the ameliorative effect of *Trichinella spiralis (T. spiralis)* crude larval antigen extract on 2,4,6-trinitrobenzene sulfonic acid (TNBS)-induced colitis mouse model. Colitis was induced by intra-colonic instillation of TNBS (5 mg/mlin 50% ethanol), preceded or followed by intra-peritoneal administration of a single dose of *T. spiralis* crude larval antigen extract (100 µg/mouse). Colonic damage was assessed macroscopically and microscopically and the expression of myeloperoxidase (MPO) was evaluated by immunohistochemistry. Colonic IL-10 and serum nitric oxide (NO) levels were also measured. Administration of *T.spiralis* crude larval antigen extract before induction of colitis reduced colitis severity as demonstrated by reduced colon weight-to-length ratio, improved macroscopic and microscopic scores, increased in colon IL-10 and diminished colon MPO protein expression. Moreover, there was a significant negative correlation between serum NO and colonic IL-10 levels. In addition, the preventive potential of *T. spiralis* crude larval antigen extract against TNBS-induced colitis was more prominent than its therapeutic effect. These findings support the hypothesis that *T. spiralis* may have both prophylactic and therapeutic potential in inflammatory bowel diseases which may be via increase of IL-10 with predominance of its prophylactic role.

Keywords- Colitis;IL-10; Myeloperoxidase; TNBS; *Trichinella Spiralis.*