The Effect of Mesalamine and Propolis in Experimental Colitis in Albino Rats (Histological and Immunohistochemical study)

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Abstract

Objective: The present study was designed to investigate the therapeutic effect of propolis as a putative new treatment for inflammatory bowel disease (IBD) versus/and mesalamine in experimental colitis.

Materials and methods: Forty eight male albino rats, (200-250g), were divided into six groups of eight rats each; group I was the control group, and experimental colitis was induced in groups II, III, IV,V and VI by a single 2 ml acetic acid 2% enema. From the 2nd to the 7th day, groups III, V and VI received orally; propolis (600mg/kg), mesalamine (200mg/kg), and combined mesalamine and propolis respectively, while group IV served as sham control. On day 8, animals were sacrified and the distal 8 cm of the colon was excised and processed for paraffin sections. Hematoxylin and Eosin (H & E), Periodic acid schiff (PAS) reaction as well as immunohistochemistry for inducible nitric oxide (iNOS) were performed. Total colitis score was calculated and both morphometric and statistical studies were performed.

Results: Rectal instillation of 2% acetic acid resulted in severe mucosal inflammation with partial loss of goblet cells. Unfolding of the mucosal folds was evident with shortening & degeneration of the crypts and inflammatory cellular infiltration. In addition, significant decrease in Pas reaction together with significant increase in iNOS immunoreactivity was observed. Treatment with propolis, mesalamine and mesalamine plus propolis resulted in restoration of the mucosal architecture with histological variations in each group. The PAS reaction significantly increased while the iNOS immunoreactivity significantly decreased in the treated groups when compared to the experimental colitis group.

Conclusion: Propolis was more efficient in its protective action against experimental colitis than mesalamine and that their combination was more advantageous than when either agent was administered alone.

Keywords: Inflammatory bowel disease, experimental colitis, propolis, mesalamine, iNOSm PAS, immunohistochemistry.

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