Educational Research (ISSN: 2141-5161) Vol. 12 (4)

Available online @http://www.interesjournals.org/ER

Short Communication

An investigation of the anti-inflammatory effects of gabapentin on acetic acid-induced colitis in rats

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Abstract

Inflammatory bowel disease (IBD) is a chronic inflammatory gastrointestinal disease with treatment options that exhibit low efficacies and result in marked side effects. Therefore, the challenge for alleviating IBD complications is remained to be resolved. The present study aims to evaluate the anti-inflammatory effects of gabapentin on acetic acid-induced colitis in rats.

In the present study, the induction of colitis was done by intracolonic instillation of 2 mL of 3% acetic acid solution. Rats were randomly divided into 6 groups including the normal group, colitis control group, gabapentin-treated groups (25, 50, and 100 mg/kg; i.p.), and dexamethasone-treated group (1mg/kg; i.p.). Based on the macroscopic assessment besides histological and biochemical findings [myeloperoxidase (MPO), pro-inflammatory cytokines], the efficacy of gabapentin was investigated.

Gabapentin (50 and 100 mg/kg), and dexamethasone significantly decreased macroscopic and microscopic colonic lesions induced by acetic acid in rats compared to the colitis control group. These results were confirmed by reduced levels of MPO activity and colonic concentrations of interleukin-6, interleukin-1 beta, and tumor necrosis factor-alpha, in the inflamed colon tissue.

Our data demonstrated that gabapentin exerts beneficial effects in experimental colitis which might be due to its anti-inflammatory activities and therefore could be a potential therapeutic agent for the treatment of IBD.

Biography

Dr. Azadeh Motavallian has completed her PhD from Isfahan University of Medical sciences, Iran. She is an Assistant Professor in Pharmacololgy at Guilan University of Medical Sciences. She has published more than 15 papers in in peer-reviewed scientific journals and receivd the best Academic Rewards (Elected Professor and Top Researcher) from Guilan University of Medical Sciences in 2014 and 2019.

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Cite this article: Azadeh Motavallian, An investigation of the anti-inflammatory effects of gabapentinon acetic acid-induced colitis in rats; May 28, 2021; Dubai, UAE.