Protective Effect of Ketamine against Acetic Acid-Induced Ulcerative Colitis in Rats

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Abstract:

Objective: Inflammatory bowel diseases (IBD), including Crohn’s disease and ulcerative colitis (UC), are chronic and recurrent disorders of the gastrointestinal tract with unknown etiology. Considering the adverse effects and incomplete efficacy of currently administered drugs, it is crucial to explore new drugs with more desirable therapeutic profiles. As non-competitive N-methyl-D-aspartate (NMDA) receptor antagonists have shown analgesic and anti-inflammatory properties in vitro and in vivo, this study aims to investigate the role of ketamine, a noncompetitive NMDA receptor antagonist, in acetic acid-induced rat colitis. Methods: Ketamine (10, 50 mg/kg), and dexamethasone (1 mg/kg) were given intraperitoneally 30 min before induction of colitis which was done by instillation of 2 ml of 4% acetic acid (vol/vol). At the 4th day of colitis induction, animals were sacrificed and distal colons were assessed macroscopically and microscopically. Furthermore, the mucosal contents of lipid peroxidation (LPO), reduced glutathione (GSH), nitric oxide (NO) and tumor necrosis factor-α (TNF-α) were assessed. Results: Ketamine (50 mg/kg) and dexamethasone significantly (p

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