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Does cisapride, as a $5HT_4$ receptor agonist, aggravate the severity of TNBS-induced colitis in rat?

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Background and Aims: There is a pressing need for research that will lead to the reveal of targets designed to analyse the possible pathways for pharmacological intervention in the treatment of IBD. $5HT_4$ receptor is a group of receptors, with extensive distribution in GI tract. Because of the probable involvement of serotonin in inflammatory conditions of intestine and the important role of $5HT_4$ receptors in GI function, the investigation of the role of $5HT_4$ receptors will be interesting. The aim of this study was to investigate the effects of cisapride, a $5HT_4$ receptor agonist, in an immune-based animal model of IBD.
Methods: Two hours subsequent to induction of colitis using trinitrobenzenesulfonic acid (TNBS) in rats, Cisapride (2mg/kg, intraperitoneally [i.p]; 4mg/kg, orally [p.o]) and dexamethasone (1mg/kg, ip; 2mg/kg, p.o), administrated for 6 days. Animals were thereafter sacrificed; macroscopic, histological, biochemical (myeloperoxidase [MPO]) assessments and ELISA test (tumor necrosis factor-alpha, interleukin-6 and interleukin-1 beta) were carried out on distal colon samples.
Results: Our data showed that dexamethasone treatment (i.p, p.o) significantly decreased macroscopic and microscopic colonic damages and also MPO activity and colonic levels of inflammatory cytokines, but there were no significant differences in aforementioned parameters between cisapride (i.p or p.o) and TNBS-treated rats.
Conclusions: It can be deduced that there is the maximum level of involvement of serotonin pathway in TNBS-induced colitis and administration of cisapride cannot further aggravate colitis through activation of this pathway. Based on the present study further researches are required for investigation the exact roles of $5HT_4$ receptors in the pathogenesis of ulcerative colitis.

Keywords: Cisapride; Inflammatory bowel diseases; TNBS-induced colitis; 5-HT_4 receptor