

Title

The combined effect of chlorogenic acid and prednisolone in the experimental model of ulcerative colitis

Abstract

Ulcerative colitis (UC) is an idiopathic inflammatory disease of the large intestine. Currently, there is no definitive treatment for this disease, and the only way to control it is to prescribe anti-inflammatory drugs such as prednisolone. The aim of this study is to evaluate the effects of simultaneous and individual administration of chlorogenic acid and prednisolone on ulcerative colitis induced in Wistar rats.

Luminal instillation of acetic acid was used to induce colitis in female Wistar rats. Treatment groups daily received combination of prednisolone (1 mg/kg) and chlorogenic acid (50 mg/kg, orally) for 10 consecutive days. Then, the rats were euthanized and tissue specimens were collected for evaluation of nitric oxide, myeloperoxidase, malondialdehyde, IL-1, IL-6, and TNF- α were monitored in colonic homogenates. Eventually, the relative mRNA expression of I κ B α and NF- κ Bp65 was investigated using reverse-transcriptase PCR (RT-PCR) in colonic homogenates.

Both medications could reduce the mortality rate and the clinical scores of ulcerative colitis. There was no statistically significant difference between the two groups treated with prednisolone and chlorogenic acid on the last day. Also, the myeloperoxidase activity, nitric oxide level and malondialdehyde intensity were decreased in the colons of Combined_treated animals to a greater extent compared to the prednisolone group. Nonetheless, combined-treated significantly reduced the levels of IL-6, and IL-1 compared to prednisolone. Both medications caused a significant decrease in the mRNA level of NF- κ Bp65, though the mRNA level of I κ B α did not show significant changes between the groups.

Keywords:

chlorogenic aci, Ulcerative colitis, Acetic-acid, Wistar rat