

THE EFFECTS OF TNF-ALPHA BLOCKERS (INFLIXIMAB AND ETANERCEPT) ON INFLAMMATION PROCESS IN EXPERIMENTAL COLITIS MODEL

ABSTRACT

Purpose: The purpose of this study is to evaluate the effects of anti-TNF agents (infliximab and etanercept) on inflammation in colitis model produced by TNBS-E in rats.

Material and Methods: This experimental study was carried out in Experimental Animals Research Laboratory of Medical Faculty by the permission of Adnan Menderes University Animal Experiments Ethics Committee. In this study, 50 female Wistar-albino rats weighing between 190-280 gr were used. Rats were divided into five groups as follows; Group I: control group, Group II: TNBS-E colitis group, Group III: TNBS-E colitis treated with 5 mg/kg infliximab, Group IV: TNBS-E colitis treated with 5mg/kg etanercept, Group V: TNBS-E colitis treated with both 5 mg/kg infliximab and 5 mg/kg etanercept. A mixture of 37% ethanol and 25 mg TNBS was given by rectal route to create colitis. Drugs in the treatment group were administered subcutaneously in the second and sixth days. The subjects were sacrificed on the seventh day. Blood and colonic tissue samples were taken for biochemical analysis (TNF-alpha, interleukin-6, glutathion, glutathion peroxidase, catalase, superoxide dismutase in plasma and TNF-alpha, malondialdehyde, myeloperoxidase, superoxide dismutase, glutathion, glutathion reductase, glutathion peroxidase, catalase in tissue) and histopathologic evaluation.

Results: In our study, tissue TNF-alpha and myeloperoxidase levels significantly decreased in all three treatment groups (infliximab, etanercept, infliximab+etanercept) ($p < 0,05$). Plasma TNF-alpha levels significantly decreased in etanercept and infliximab+etanercept treatment groups ($p < 0,05$). Etanercept treatment significantly reduced plasma interleukin-6 levels ($p < 0,05$). While plasma glutathion levels in all three treatment groups decreased significantly, plasma catalase levels also decreased by etanercept and infliximab+etanercept treatments ($p < 0,05$). Histopathological scores of etanercept and infliximab+etanercept treatment groups showed significant improvement ($p < 0,05$).

Conclusion: It has been shown that anti-TNF agents have significant effects on experimental colitis and etanercept may be a good alternative in anti-TNF treatment. Further studies may help to demonstrate the effects of etanercept in clinical practice.

Key words: TNBS-E colitis, inflammatory bowel disease, infliximab, etanercept.