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Adhesion molecules and arginase enzyme: Promising therapeutic targets for human ulcerative colitis

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Background & Aim: Ulcerative colitis (UC) is a chronic inflammatory bowel disease (IBD). The hallmark of UC lesions is infiltration of the intestine by mononuclear cells, predominantly lymphocytes. This cellular infiltration is the result of increased leukocyte recruitment and proliferation in the inflamed colon. Adhesion molecules are cell surface-expressed glycoproteins that mediate cell-cell and cell-extracellular matrix interactions. They play a prominent role in leukocyte recruitment. Adhesion molecules therefore represent promising therapeutic targets for human inflammatory diseases, including UC. The arginase (AR) has gained attention in studies focusing on the pathophysiology of IBD. The aim of the present descriptive study is to investigate the serum level of the adhesion molecules (ICAM and E-selectin) and arginase enzyme of patients diagnosed with UC in central hospital, Arar, Saudi Arabia to illustrate the magnitude of UC problem in northern border region of Saudi Arabia and to confirm the role of adhesion molecules and arginase in pathogenesis of UC in these patients.

Methodology: The study is a retrospective study of 24 cases of UC diagnosed and followed up in central hospital in Arar, Saudi Arabia, from January 2015 to July 2015. Samples of blood were taken from the diagnosed cases for measurement of serum levels of ICAM, E-Selectin and arginase enzyme by enzyme-linked immunosorbent assay (ELISA) in addition to C-reactive protein (CRP).

Results: Comparing to control groups formed by individuals without clinical and/or laboratory signs of UC, UC patients showed significant increased levels ($p<0.001$) of sICAM-1, E-selectin and CRP in serum samples. On the other hand, arginase serum levels decreased significantly in sera of UC patients.

Conclusion: In conclusion, the present work confirmed the role of adhesion molecules notably ICAM and E-selectin and the acute phase biomarker CRP in pathogenesis of UC and suggested a protective effect of arginase enzyme in reducing inflammation in colitis. Anti-adhesion molecules targeting ICAM and E-selectin may be promising for treatment of UC.

Notes: