كلية الطب

جـــامعة الفـــيوم
Fayoum University

Interleukin-37 polymorphism (rs3811047) in Egyptian patients with Ulcerative Colitis

Thesis

Submitted for Fulfillment of M.Sc. Degree

in Medical Biochemistry &Molecular Biology

By

Yasmeen Ali Mostafa Hassan

M.B.B.Ch

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Summary

Ulcerative colitis is a chronic inflammatory bowel disease affecting the colon and rectum. Patients present with bloody diarrhea, abdominal cramps, and urgency.

The exact etiology is not clear; it may results from a combination of environmental factors, genetic predisposition, dysbiosis, and dysregulated immunological responses.

Various cells and cytokines participate in the pathogenesis of the disease. Also, epigenetic modifications, affecting gene expression without altering the DNA sequence, have an important role in UC pathogenesis.

Interleukin-37 (IL-37) is a member of the Interleukin-1 family, it was called IL-1 family member 7 (IL-1F7). IL-37 is an anti-inflammatory cytokine that suppress immunological responses through a dual mechanism of action.

Interleukin-37 polymorphism (rs3811047) is one of the IL-37 genes variant. Many genetic studies have demonstrated that IL37 gene SNP rs3811047 G>A is related to the susceptibility to autoimmune diseases, such as AS, disease activity of RA, and gastric cardiac adenocarcinoma.

The aim of our study was to investigate the association of interleukin-37 polymorphism (rs3811047) with ulcerative colitis.

The study included 40 ulcerative colitis patients and 40 age and sex matched healthy subjects. Laboratory measurements were performed at Medical Biochemistry & Molecular Biology Department, Faculty of Medicine, Fayoum University.

After the approval of the ethical committee, all subjects were submitted to an informed consent, detailed history taking, and clinical assessment using Partial MAYO score for evaluating the severity of the disease.

Results revealed a statistically significant increase of IL-37 levels in the serum of UC cases in comparison with control subjects with a p-value < 0.004. In addition, there was a statistically significant correlation with the disease severity represented by the Partial MAYO score with a p-value < 0.004.

Our data revealed a statistically significant increased risk between GG genotype and UC (p value <0.03). The recessive model showed a strong statistically significant association (p value <0.018).

Also, results showed a strong statistically significant association between Partial MAYO score and IL-37 polymorphism (rs3811047) (p value <0.001).

Additionally, results showed a statistically significant association between IL-37 level in serum and GG genotype (p value <0.002).

There were statistically significant higher WBCs, platelets and ALT in UC patients compared to control subjects.

Our findings suggest the possible involvement of IL-37 and its gene polymorphism (rs3811047) in the pathogenesis of the disease and that it can serve as a potential diagnostic marker and a potential therapeutic target.