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Genetic polymorphisms of inflammatory molecules in Tunisian inflammatory bowel diseases

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Introduction

As chemokines and adhesion molecules play a major role in the process by which leukocytes are recruited from the bloodstream into sites of inflammation [1], genetic variation in these production or activity molecules may influence susceptibility to inflammatory diseases [2-4].

Aim

To detect a possible association between the functional polymorphisms of these molecules and susceptibility to Crohn's disease (CD) and ulcerative colitis (UC) in Tunisian population.

Materials and methods

We have analysed polymorphisms of CCR5-Δ32, CCR5-59029-A/G, CCR2-V64I, MCP-1 G/A (-2518), ICAM-1 G241R, PECAM-1 V125L, E-selectin L554F and L-selectin F206L in 194 Inflammatory bowel disease (IBD) patients and 169 healthy blood donors using PCR-RFLP and PCR-SSP methods. The patients were classified in 126 patients with CD and 68 patients with UC.

Results

A significant increase in allele frequency of 206L of L-selectin was observed in IBD patients compared with controls (OR: 1.53; 95%CI: [1.05-5.60]; p=0.02) but does not constitute factor influencing clinical manifestations. The genotypic and allelic frequencies of chemokine polymorphisms did not reveal significant differences between patients and controls, and among CD and UC patients. However, analysis of CD patients revealed that those carrying A/A and/or A/G CCR5-59029 genotypes are more frequently in remission compared to those with G/G genotype (OR: 0.4; 95%CI: [0.174-0.928]; p=0.03). Also, the frequency of the 64I CCR2 muted allele was statistically higher in CD patients in remission disease than those in active form (OR: 0.267; 95%CI: [0.09-0.78]; p=0.01). Adjustment for known covariates factors (age, gender and immunosuppressive regimen) confirmed these univariate findings and revealed that the A/G CCR5-59029 and V64I CCR2 genotype were associated to remission form of CD (OR: 2.63 ; 95%CI: [1.01-6.80] ; p=0.047 and OR: 4.64 ; 95%CI: [1.01-21.31]; p=0.049 respectively).

Conclusion

The present study supports the involvement of chemokine receptor (CCR2 and CCR5) polymorphisms on the susceptibility to clinical course of IBD in Tunisian patients. However, further studies are needed to confirm the association of these diseases with allele L206 of L-selectin gene.

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