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Tumor suppressor gene alteration as early markers in ulcerative colitis associated carcinoma and dysplasia

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Ulcerative colitis (UC), involves the colon and rectum. Inflammation and ulcers typically affect only the innermost lining in these areas. The etiology of UC is not fully elucidated the causes are likely based on combination of heredity and environmental factors. People who had UC for at least eight years have a higher risk of developing colon cancer. The risk is even greater when inflammation affects the entire colon, approximately 10% of UC develop colorectal neoplastic. In long standing UC, a dysplasia carcinoma sequences is widely accepted, the tumor genesis being considered associated with long term inflammation and oxidative stress causing DNA damage.The early marker of neoplastic progression is mutation in P53 gene is reported to be an early event in UC -associated carcinogenesis, as analyzed with reference to genetic instability, the other marker chromosomal alteration such as chromosome aberration, sister chromatid breaks or exchange and also detected by comparative genomic hybridization and flow cytometry. In this study, the colonic biopsies which collected from patients of UC and colon cancer were examined for gene expression of P53 gene and Bcl-2 gene on the levels of in situ hybridization. The results indicated accumulated mutations in P53 gene in the inflamed colonic biopsies, this give an indication for progression of carcinogenesis. While on the level on Bcl-2 gene, the results showed increasing in the activity of the gene, resulting in increase in gene expressing which is similar in gene expression in tissues of colon cancer biopsies. The extent of p53 gene was 33.3 in high grade, 63.93 in moderate grade and 2.77 in low grade. The extent of Bcl-2 was 75.03 in high grade, 24.97 in moderate grade in tissue of colon cancer while the intensity of P53 was 36.1in low grade, 55.6 in moderate grade and 8.3 in high grade, and the intensity of Bcl-2 was 41.63 in high grade, 55.53 in moderate grade and 2.76 in low grade in colon cancer tissues. The extent of P53 was 63.97 in high grade, 27.73 in moderate grade, 8.3 in low grade in UC tissues, while in Bcl-2 was 66.3 in high grade, 25 in moderate grade and 8.37 in low grade in UC tissues. The intensity of P53 was 18.47 in high grade, 47.2 in low grade and 33.3 in high grade in UC tissues and the intensity of Bcl-2 was 7.86 in high grade, 50.87 in moderate grade and 21.27 in low grade of UC tissues. In addition to some immunological tests to insight into the disturbance associated with clinical expression of UC. It was noticed that the immunoglobulins that include IgG, IgA, IgM, as well as some complements such as C3, C4 were increased in both UC and Colon cancer in the sera of the patients.

Conclusion: The detection of P53 gene and Bcl-2 gene in chronic UC and colon cancer give early detection for diagnostic and therapeutic and monitoring purposes.

Biography

Zainab Mohammed Taher Jaafar did his PhD in Biology and works in Ministry of Science and Technology, Head Department in the Biotechnology Center. He is interested in immunology field, especially in autoimmune diseases. He has more than 35 published articles in biological fields.

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