

Analysis of Interleukins as Potential Biomarkers in the Diagnosis of Colorectal Cancers

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ABSTRACT

Colorectal cancer (CRC) is one of the most prevalent cancers globally, accounting for nearly 10% of all cancers. Approximately 65% of CRC cases are considered to be sporadic with no family history or apparent genetic predisposition. The diagnosis of CRCs is challenging. More than one-third of patients are diagnosed when CRC has already spread to the lymph nodes and one out of five patients is diagnosed with metastatic CRC. The present clinical examinations, such as colonoscopy and fecal occult blood test are either invasive or show low sensitivity for polyps, especially smaller ones. Therefore, identification of non-invasive diagnostic and prognostic biomarkers is critical for the early detection of CRCs and curative treatment interventions, which can significantly reduce its morbidity and mortality. Interleukins play important roles in development and progression of the CRCs. Interleukin-6 (IL-6), interleukin-8 (IL-8) and interleukin-10 (IL-10) levels have been reported to increase in CRC patients. The studies on IL-6, IL-8 and IL-10 levels of CRCs have confined to Caucasian populations and levels of these cytokines have not been extensively investigated in South Asian populations. They have the potential of using as markers but are not being used in clinical practice, yet. Therefore, the aim of this study was to investigate the serum IL-6, IL-8 and IL-10 levels in a cohort of Sri Lankan patients. Blood samples from thirty five patients with CRCs and thirty five healthy volunteers were obtained after informed consent. The concentrations of IL-6, IL-8 and IL-10 were measured using ELISA according to manufacturer's protocols. The mean serum concentration of IL-6 was found to be significantly higher in the CRC patients than controls ($p < 0.05$). Although the mean serum concentration of IL-8 and IL-10 were higher in the CRC patients than controls the difference was not significant ($p > 0.05$). Interestingly, the mean serum [IL-6] in CRC patients were correlated with the disease stage (Stage I: 0.16pg/ ml; stage II: 7.01pg/ ml; stage III: 15.8pg/ ml, and stage IV: 35.48pg/ ml). This study provided preliminary evidence to use IL-6 as a potential biochemical marker to be used in the diagnosis of CRCs. However, it is necessary analyze more patient samples to validate the results of this study.

Keywords: Colorectal cancer, Interleukin-6, Interleukin-8, Interleukin-10, Diagnosis
