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A Shot Review of the Cytokine Array

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Abstract

Chronic nephrotoxicity, which is believed to be mediated by a number of cytokines including transforming growth factor-betal, is a side effect of long-term cyclosporine (CsA) medication. Innate immunity, apoptosis, angiogenesis, cell proliferation, and differentiation are all processes in which cytokines are known to be crucial. Most disease processes, including cancer, heart disease, and nephrotoxicity, are known to include them. We used a cytokine array to assess cytokine alterations in a rat model of chronic nephrotoxicity caused by CsA.

Keywords: Chronic nephrotoxicity; Innate immunity; Cytokines; Immune effector cells

Introduction

Cell signalling substances called cytokines control how the immune system reacts to inflammation and infection. Numerous cytokines are released into circulation and can be detected in blood, saliva, and other bodily fluids like urine. These bodily fluids' cytokine levels can be changed to detect pathological or physiological conditions [9]. Therefore, cytokines can be very useful indicators for tracking the diagnosis, prognosis, progression, and response to treatment of diseases. In the past, numerous diseases including malignancies, viral disorders, and autoimmune diseases have been linked to various patterns of cytokine expression [1].

Immune effector cells known as cytokine-induced killer (CIK) cells demonstrate considerable non-major histocompatibility complex (MHC)-restricted lysis of target tumour cells. They are characterised by coexpression of CD3 and CD56 markers. These CD3+CD56+ CIK cells are known as NK-like T cells because they express NK receptors (C-type lectin and killer immunoglobulin-like receptors) and exhibit more potent cytolytic activity than the CD3+CD56 cell subgroup [2]. Cells with the distinctive CD3+CD56+ phenotype are easily multiplied over 1000 times from preexisting T cells in well-defined culture conditions with cytokines, and they make up roughly one-third to half of the total cell number in three to four weeks. It has been demonstrated that CIK cells have powerful in vitro cytolytic activity against a number of tumour targets [3].

Biomarkers are thought to be an effective, noninvasive tool for more accurate diagnoses, accurate risk assessment, and suitable management [4]. They may involve healthy biologic activities, pathogenic processes, or pharmacologic responses to a therapeutic intervention [5]. It is becoming more widely acknowledged that biomarkers have significant clinical utility. Recently, an increasing number of studies using a variety of inclusion criteria have examined individual PH medicines in COPD. It is uncommon to find distinct PH indicators for COPD, nevertheless. Therefore, it is crucial to find specific biomarkers for early detection of PH related to COPD [6].

Materials and Methods

The dynamic change in the cytokine profile following TB infection was monitored using a cytokine array. By ELISA assay, the various cytokine expressions were verified. The effectiveness of a single cytokine or cytokine mixture for diagnosis was assessed using ROC curve studies [7].

Result

The innate immune system, apoptosis, angiogenesis, cell proliferation, and differentiation are all processes in which cytokines are known to be crucial. They have been linked to a number of diseases, including renal illness. Numerous cytokines are known to play a role in both allograft rejection and nephrotoxicity following transplantation [8-10].

Conclusion

Our current analysis identifies molecular processes that are specific to CIK effectors on stimulation with cytolytic-susceptible (AML) or cytolytic-resistant (ALL) targets, as well as molecular regulatory pathways that are shared by all CIK effector cells. These findings may help researchers develop research plans for the use of CIK effector cells in cancer immunotherapy.

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Conflict of Interest

None

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