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شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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Levels Of Interleukin –12 And Interleukin –18 In The Sera Of Patients With Systemic Lupus Erythematosus

A thesis submitted in partial fulfillment of
Msc. Degree in Medical Biochemistry

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بسم الله الرحمن الرحيم

"رب أوزعني أن أشكر نعمتك

التي أنعمت علي و على

والدّي و أن أعمل صالحاً

ترضاه وأصلح لي في ذريتي

إني تبت إليك و إني من

المسلمين"

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Abstract

Systemic lupus erythematosus (SLE) is one of the autoimmune diseases characterized by multisystem involvement with associated auto-antibody and cytokine production. This study was carried out in the Faculty of medicine, Cairo University. It aimed at a studying the Levels of interleukin-12 (IL-12) and interleukin-18 (IL-18) in the sera of patients with SLE and whether these levels reflect disease activity and the presence of organ manifestation or not. It included 60 female patients with SLE (30 patients with active SLE, group I and 30 patients in remission, group II) and 20 age and sex-matched female controls (group III). This study revealed that serum levels of IL-12 and IL-18 were significantly higher in SLE patients, whether in activity or remission, than controls. Also, serum levels of IL-12 and IL-18 were significantly higher in patients in activity than in remission. In general, levels of IL-12 and IL-18 did not reflect system involvement. There was a significant negative correlation between IL-12 and complement C3. Also, There was a significant negative correlation between IL-18 and both complement C3 and C4. There was a significant positive correlation between serum IL-12 and IL-18 in SLE patients whether in activity or remission.

Key words:

Systemic lupus erythematosus (SLE), interleukin-12 (IL-12), interleukin-18 (IL-18)

Contents

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Abbreviation	Full name
MHC	Major histocompatibility complex
NFkB	Nuclear factor kB
NIK	NFkB-inducing kinase
NK cell	Natural killer cell
NKSF	Natural killer cell stimulatory factor
NOD	Non-obese diabetic
PBMCs	Peripheral blood mononuclear cells
PHA	Phytohemagglutinin
ProIL-18	Precursor form of IL-18
r	Pearson correlation coefficient
r^2	Coefficient of determination
SAC	Staphylococcus aureus Cowan
SD	Standard deviation
SLE	Systemic lupus erythematosus
snRNP	Small nuclear ribonucleoprotein
STAT	Signal transducer and activator of transcription
Th1	T helper lymphocytes type 1
TGF	Transforming growth factor
TNF	Tumor necrosis factor
TRAF-6	TNF receptor-associated factor-6
U1-RNP	U1-ribonucleoprotein

Introduction And Aim Of The Work

Introduction

Systemic lupus erythematosus (SLE) is a disease of unknown cause, with an estimated prevalence between 4 and 250 per 100,000 population. SLE can occur at any age, but has its onset primarily between ages 16 and 55. It occurs more frequently in women. It may produce variable combinations of fever, rash, hair loss, arthritis, pleuritis, pericarditis, nephritis, anemia, leukopenia, thrombocytopenia, and central nervous system (CNS) disease. The clinical course is characterized by periods of remissions and acute or chronic relapses *(Schur, 2000).*

SLE is a disease characterized by B cell hyperactivity, auto-antibody production and immune complex deposition in vital organs. To explain the mechanisms responsible for immune dysregulation in SLE cytokines have received increasing attention. *(Robak et al., 1996)*

Interleukin-12 (IL-12) is a cytokine that induces the synthesis of T helper1 (Th1)-derived cytokines (interferon-gamma (IFN-gamma), IL-18 and IL-2). The significance of IL-12 in human autoimmunity is not clear. The levels of interleukin-12 in patients with active SLE were examined by *Tokano et al. (1999).* They found that the levels of IL-12 were significantly higher than in normal subjects. Patients with pulmonary involvement had high levels of IL-12, and steroid therapy decreased the IL-12 levels in some patients.