Effect of chemotherapy on some cytokines profiles and C-reactive protein in chronic leukemia patients

Thesis

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Presented by

Mahmoud Kamal Mohamed Singer

B.Sc. of Biochemistry (2004)

Faculty of Science, Ain shams university

Under the supervision of

Dr. Nadia Y.S. Morcos

Prof. of Biochemistry

Biochemistry Department

Faculty of Science

Ain Shams University

Dr. Magda M. Assem

Prof. & head of Clinical Pathology Department &

Head of Hematology Unit

National Cancer Institute

Cairo University

Dr. Abdel-Rahman B. Abdel-Ghaffar

Lecturer of Biochemistry

Biochemistry Department

Faculty of Science

Ain Shams University

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Mahmoud Kamal Singer

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List of Abbreviations

BC: Blast Crisis
ABL: A gene (whose last name was Abelson)
AICD: activation-induced cell death
ALL: Acute Lymphocytic Leukemia
ALT: Alanine amino transferase
AML: Acute Myeloid Leukemia
AP: Accelerated phase
AST: Alanine aspartate transferase
B-2M: β-2-Microglobulin
Bcl-2: membrane associated protein that prevents apoptosis
BCR: A gene of B-cell receptor synthesis
BP: Blast phase
CBC: Complete blood count
CD: Cluster designation
CFU: Colony forming unit
CLL: Chronic Lymphoid Leukemia
CML: Chronic Myeloid Leukemia
COL: colcemid
CP: Chronic phase
CRP: C - reactive protein
CSF: Colony stimulation factor
CTL: Cytotoxic T-lymphocyte
DAMP: Damage-associated molecular pattern
del: Gene deletion
ECM: Extracellular Matrix

ELAM-1: Endothelial leukocyte adhesion molecule-1
Fas receptor: Cell surface receptor protein of TNF receptor family
FdUr: fluorodeoxyuridine
FITC : Flouresenic isothiocyanate
FMC-7: monocloncal antibody of specific for normal B-cell
G-CSF: Granulocyte- colony-stimulating factor
GM-CSF: Granulocyte-monocyte colony-stimulating factor
HCL: Hairy cell leukemia
Hgb or Hb: Hemoglobin
ICAM: Intercellular adhesion molecule
IFN-γ: Interferon Gamma
IG : Immunoglobulin
IGIF : IFN-γ-inducing factor
IL : Interleukin
IL-6: Interleukin 6
IL-18: Interleukin 18
Kd : kilo Dalton
LAP : Leukocytic alkaline phosphatase
LDH : Lactate dehydrogenase
LPS: Lipopolysaccharide
M-CSF: Monocyte colony-stimulating factor
MHC: Major histocompatibility
MMPs: Matrix metalloproteinases
MYC: Transcription factor
NCI: National Cancer Institute
NF-kB: Nuclear Factor kappa-□

NK: Natural Killer Cell
NHL: Non hodgkin lymphoma
P210: Chimeric Protein Produced from Fusion gene BCR-ABL
Pe : Phytoerytherin
Ph: Philadelphia chromosome
PHA: phytohematoaglutenin
PLL: Prolymphocytic Leukemia
RAS: signal transduction molecule
Rb: Retinoblastoma gene
SmIg: surface Immunoglobulins specific for μ chain
SLL: Small lymphocytic lymphoma
STAT3: Signal transducer and activator of transcription 3
sTNF receptor: Soluble Tumor necrosis factor receptor
t (9; 22): translocation between chromosome 9 and 22
TH: T-helper Lymphocytes
TGF-β: Tumor growth factor beta
TLC: Total leukocytic count
TNF-α: Tumor Necrosis Factor –Alpha
VCAM: Vascular cell adhesion molecule
VEGF: Vascular endothelial growth factor
WBC: White blood cells
WHO: World Health Organization

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ABSTRACT

Background and Aim: Tumor necrosis factor (TNF)-alpha and other cytokines are involved in the pathogenesis of chronic leukemia, but their prognostic significance in these diseases is unknown. The aim of the current study was to assess the association between serum levels of various cytokines and clinical outcomes in patients with CML or CLL. **Methods:** Serum levels of TNF-α, interleukin (IL)-6, IL-18, and CRP, together with complete blood counts (CBC), liver and kidney function tests were measured in 25 patients with CML and 15 patients with CLL who presented for treatment at The Cancer Institute, Cairo, Egypt. The study also included 10 healthy control subjects. Statistical analyses were performed to test for correlations with clinical outcomes. **Results**: IL-6 and IL-18 levels were higher in all patients as compared to controls, with values > 6.05 pg/mL and > 95.7 pg/ml respectively, showing higher levels in CML patients. IL-6 level differed among CLL stages while IL-18 differed among CML stages. Both cytokines and CRP levels decreased after chemotherapy, where IL-6 reached normal level in 74% of CML patients and in 55% in CLL ones, corresponding normalization of IL-18 were 8% and 18% respectively. CLL