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شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

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بالرسالة صفحات لم ترد بالاصل

EVALUATION OF SERUM GRANULOCYTE COLONY STIMULATING FACTOR, INTERLEUKIN – 6 AND sCD14 FOR EARLY DIAGNOSIS OF NEONATAL SEPTECIEMIA

Thesis

Submitted for the Partial Fulfillment
of the M.D. degree in Clinical & Chemical Pathology

By

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CONTENT

LIST OF ABBREVIATION

APC	:	Antigen presenting cell
CARS	:	Compensatory anti-inflamatory response syndrome
CBMC	:	Cord blood mononuclear
CD	:	Cluster desination
CHO	:	Chinese hamster ovary
Con A	:	Concanavallin – A
CRP	:	C- reactive protein
CSF	:	Cerebro spinal fluid
DIC	:	Disiminated intravascular coaguloathy
Fc	:	Fragment crystallizable
GBS	:	Group B- streptococci
GM-CSF	:	Granulocyte mononuclear colony stimulating factor
HLA	:	human leukocyte antigen
ICE	:	Interleukin -1 beta converting enzyme
IgG	:	Immunoglobulin G
IL-6	:	Interleukin – 6
INF-gamma	:	Interferon gamma
LAK	:	lymphokine activated killers
LBP	:	Lipopolysacaride protein
LPS	:	Lipopolysacaride
Mab	:	Monoclonal Antibodies
M-CSF	:	Macrophage colony stimulating factor
MHC	:	Major histocompatability complex
MIP- 1 alpha	:	Macrophage inflamatory protein 1 alpha
Mphi	:	Mononuclear phagocytoces
MSR	:	Macrophage scavenger receptor
NK	:	Natural killer cell
NSP	:	Neutrophil storage pool
PDGF	:	Platelet derived growth factor
PHA	:	Phytohemagglutinin
SGA	:	Small gestational age
SIRS	:	Systemic inflamatory response syndrome
TCR	:	T cell receptor
TGF-beta 1	:	Tumour growth factor – beta 1
TNF- alpha	:	Tumour necrosis factor – alpha
VCAM-1	:	Vascular cytoplasmic adhesion molecule -1

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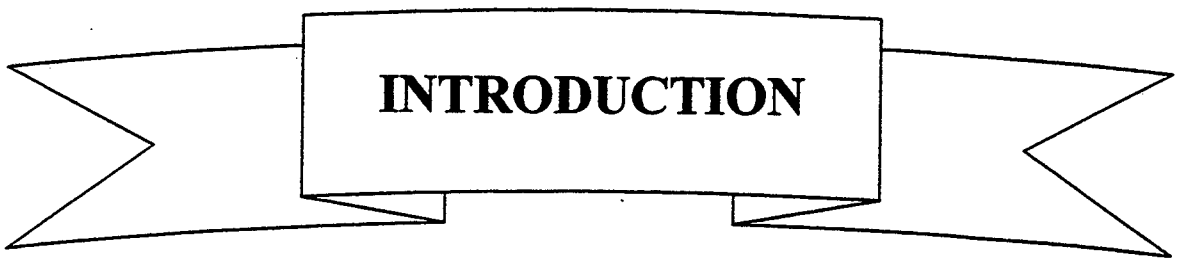
INTRODUCTION

INTRODUCTION

Bacterial infection is important cause of morbidity and death among neonates, especially those before term. The standard method of diagnosing a bacterial infection is culture of body fluids, especially blood. Bacterial culture requires up to 48 hours before the results are known. In addition, culture can suffer from poor sensitivity ***(Squire et al., 1979)***. Furthermore, if an infant is born to a mother who received antibiotics before delivery, culture results are usually negative, despite the presence of bacterial infection. In some cases common markers of infection such as physical signs and complete blood cell count, suffer poor sensitivity and specificity ***(Jahnke et al., 1985)***. Decreased total neutrophils count and the ratio of immature to mature forms of neutrophils found in the blood smear offer a some what more reliable estimate of likelihood of infection, but many investigators still report problems with sensitivity ***(Xanthou et al., 1970).***

C-reactive protein has received considerable attention as such marker; however studies suggest that it has poor sensitivity, especially if measured early in the course of infection ***(Proucyrous et al., 1993).***

Early diagnosis and treatment are critical to an improvement in the prognosis. However, the clinical symptoms are variable and non specific, necessitating the use of biological markers that react after the onset of infection to allow early diagnosis and optimal sensitivity and specificity so that both false positive results can be minimized. Bacterial sepsis stimulates the immune system and activates monocytes, macrophages,

fibroblasts and endothelial cells, which produce various cytokines ***(Jean et al., 1996).***

Defects in both the quantitative and qualitative aspects of the neonatal phagocytes contribute substantially to the immaturity of neonate's immune systems. The neonates lacks an adequate number of granulocyte bone marrow progenitor cells , and has a decreased neutrophil storage pool and an increased tendency to peripheral neutropenia during neonatal sepsis. Additionally, the neonatal granulocyte demonstrates altered physiological function such as chemotaxis, phagocytosis, oxidative metabolism, and bacterial killing ***(Mitchell et al., 1994)***.

Granulocyte colony stimulating factor is a polypeptide growth factor that regulates the production of neutrophilic granulocyte. This physiologic process serves the foundation for critical host defense systems. Granulocyte – colony stimulating factor play a role in the basal regulation of neutrophils production as well as to function as a pimary regulatory factor controlling the neutrophils response to inflammatory stimuli. Granulocyte colony stimulating factor appears to modulate certain neutrophilic function as well as the distribution of neutrophils and progenitor cells within the body ***(George et al., 1994).***

Attention has been directed to the role of interleukin – 6 as an important mediator of the inflammatory response. Interleukin – 6 is pleotropic cytokines involved in many aspects of immune system ***(Kishimoto,1989)***. It is synthesized and released in response to inflammatory stimuli by monocytes, endothelial cells, and fibroblasts and secondary to tumor necrosis factor and interleukin – 1 production.

Interleukin – 6 is the major inducer of hepatic protein synthesis including C-reactive protein, fibrinogen ***(Christian et al., 1994).***

CD14 is a myeloid cell differentiation molecule expressed on momocytes and neutrophils and it functions as receptor for lipopolysaccharide combined with lipopolysaccaride – binding protein, CD14 exists in two forms, membrane CD14 and a soluble CD14 found in serum and urine ***(Shunji et al., 1998)***. Soluble CD14 play a pathogenic role in sepsis ***(Blanco et al., 1996)***.