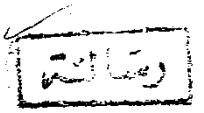
SERUM LEVELS OF TUMOR NECROSIS FACTOR IN DIFFERENT STAGES OF SCHISTOSOMAL INFECTIONS

THESIS
SUBMITTED FOR PARTIAL FULFILMENT OF
MD DEGREE IN
CLINICAL AND CHEMICAL PATHOLOGY



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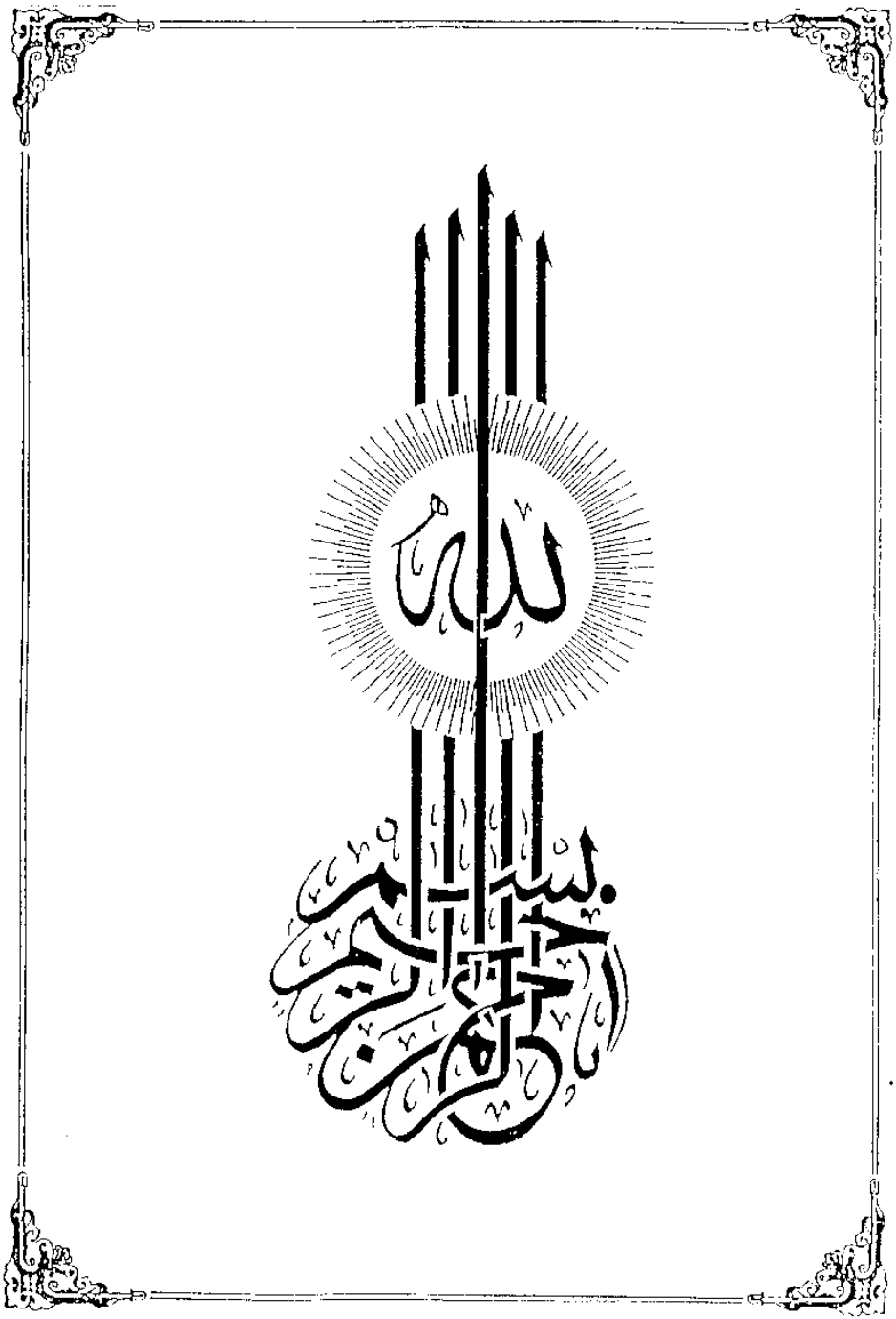
TO MY PARENTS,
DALIA &
OMAR



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List of tables:

Table (1): Stimulants, sites of production and secondary mediators produced by TNF.

Table (2): Concentration-dependent effects of TNF:

Table (3): Immunopathology of the schistosome egg granuloma (Stadecker, 1992):

Table (4): Descrptive statistics for control group

Table (5): Descrptive statistics for group-I

Table (6): Descrptive statistics for group-II

Table (7): Descrptive statistics for group-III

Table (8): Results of SEA antibodies as evaluated by Dot ELISA:

Table (9): Comparative study between control and group-1 (active group) using student t'test for all studied parameters

Table (10): Comparative study between control and group-2 (closed complicated mansoni) using student t'test for all studied parameters

Table (11): Comparative study between control and group-3 (S. haematobium) using student t'test for all studied parameters

Table (12): Comparative study between group-1 and group-2 using student t'test for all studied parameters

Table (13): Comparative study between group-1 and group-3 using student t'test for all studied parameters

Table (14): Comparative study between group-2 and group-3 using student t'test for all studied parameters

Table (15): One Way Sided-Analysis of variance study for all studied parameters between the three groups

Table (16): Data for control group

Table (17): Data for active schistosomal infection (group-1).

Table (18): Data for closed complicated schistosoma mansoni (group-2).

Table (19): Data for closed complicated schistosoma haematobium (group-3).

List of figures:

Fig. (1) A model for the down-regulation of the p60 and p80 form of the TNF receptors.

Fig. (2) Possible roles of the two TNF receptors in cellular signaling.

Fig. (3) A model proposed by Opdenakker and Van Damme (1994) to describe the pathophysiology of MS in detail and the role of TNF.

Fig. (4) DOT-ELISA and DOT-DIA protocols:

Fig. (5) Comparative study for TNF among all studied groups.

Fig. (6) Comparative study for IgE among all studied groups.

Fig. (7) Comparative study for absolute eosinophil count among all studied groups.

List of abbreviations:

Ag:	antigen
AGE:	advanced glycosylation endproducts
AML:	acute myeloid leukaemia
APM:	apical plasma membrane
BCG:	Bacille Calmette-Guerin
BSA:	bovine serum albumin
CD:	cluster of differentiation
C5a:	complement 5a protein
DIC:	dissiminated intravascular coagulopathy
DNA:	deoxyribonucleic acid
ELAM:	endothelial-leukocyte adhesion molecule
En:	envelope
Fab:	fraction antigen binding
Fc:	fraction crystallizable
FCS:	fetal calf serum
GM:	granuloma macrophage
GM-CSF:	granulocyte monocyte-colony stimulating factor
GVHD:	graft versus host disease
HBV:	hepatitis B virus
HCV:	hepatitis C virus
HIV:	human immunodeficiency virus
HPLC:	high performance liquid chromatography
ICAM:	intercellular adhesion molecule
IDDM:	insulin dependant diabetes mellitus
IL-1:	interleukin
IL-1β:	interleukin 1 beta
IL-4:	interleukin 4
IL-6:	interleukin 6
IL-8:	interleukin 8
IL-10:	interleukin 10
IFN-τ:	interferon gamma
IgE:	immunoglobulin E
IgG:	immunoglobulin G
IgM:	immunoglobulin M

J-HR:	Jarisch-Herxheimer reaction
KD:	kilo dalton
LCF:	liver cell failure
LPL:	lipoprotein lipase
LPS:	lipopolysaccharide
mAbs:	monoclonal antibodies
M-CSF:	macrophage-colony stimulating factor
M-ECEF:	monocyte eosinophil cytotoxicity enhancing factor
MHC:	major histocompatibility complex
mRNA:	messenger ribonucleic acid
MS:	myelosclerosis
NC:	nitrocellulose
NK:	natural killer
OPD:	O-phenylene diamine
PASL:	platelet activating suppressing lymphotoxin
PBMC:	peripheral blood monocytes
PBS:	phosphate buffer saline
PTCL:	peripheral T cell lymphoma
RA:	rheumatoid arthritis
SEA:	soluble egg antigen
TBS:	tris buffer saline
T_H1:	T-helper 1
T_H2:	T-helper 2
TNF-α:	tumor necrosis factor-alpha
TNF-BP:	TNF binding proteins
TNF-R:	TNF receptor
VOD:	veno-occlusive disease

Contents:

INTRODUCTION AND AIM OF THE WORK	1
REVIEW OF LITERATURE	
I. Tumor Necrosis Factor	4
II. Schistosoma Life Cycle	42
III.Antigenic Structure of Human Schistosomes	47
IV. Tumor Necrosis Factor and Schistosomiasis	64
MATERIAL AND METHODS	71
RESULTS	86
DISCUSSION	100
SUMMARY AND CONCLUSIONS	107
APPENDIX	110
REFERENCES	114
ARABIC SUMMARY	

INTRODUCTION AND AIM OF THE WORK

Introduction:

Tumor necrosis factor (TNF-alpha) or cachectin is a monokine initially described as a tumoricidal agent. Activated macrophages constitute the major cellular origin of TNF ***(Aggarwal et al., 1985c)***.

The gene coding for human TNF lies on the short arm of chromosome 6, closely linked to the gene coding for lymphotoxin (a closely related lymphokine) and both genes, as such, are HLA linked ***(Beutler, 1990)***.

TNF is produced as a prohormone and is further cleaved to yield the biologically active polypeptide ***(Beutler and Cerami, 1987)***. Purified TNF is an acidic and hydrophobic protein having a pH of 4.7.

TNF has emerged as a mediator of general inflammation besides playing an important part in diverse human disease processes. It is directly toxic to vascular endothelial cells and is an endogenous pyrogen capable of inducing fever ***(Cannon et al., 1990)***.

TNF is capable of stimulating synovial-cell production of prostaglandin E_2 and collagenase. Excess production may lead to the loss of bone and cartilage in rheumatoid arthritis. Similarly, inflammatory diseases of the central nervous system, gastrointestinal tract, lungs, kidneys and other tissues depend on TNF release.

TNF also acts to induce the biosynthesis and release of specific proteins, including class-1 major histocompatibility antigen, granulocyte-monocyte colony stimulating factor and interleukin-I ***(Wakefield et al., 1991)***.

Raised serum levels of TNF were found in parasitic infections. It has been suggested that TNF may serve as an important antigen-dependent host defense mechanism against parasitic agents. It is elevated in the majority of patients with plasmodium flaciparum malaria and in leishmaniasis patients. TNF also exerts a direct anti-tryponosomal effect ***(Scuderi et al., 1986)***.

As regards Schistosoma infection, TNF was found to induce macrophage killing of schistosomula of Schistosoma mansoni and also exhibits a larvicidal activity against the larvae of the parasite ***(James et al., 1990)***.

Aim of the Work:

Our aim is to study the serum levels of TNF and its relation to eosinophil count and IgE in the different stages of schistosomal infections.

REVIEW OF LITERATURE