A STUDY OF APOPTOSIS IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS' LYMPHOCYTES

Thesis

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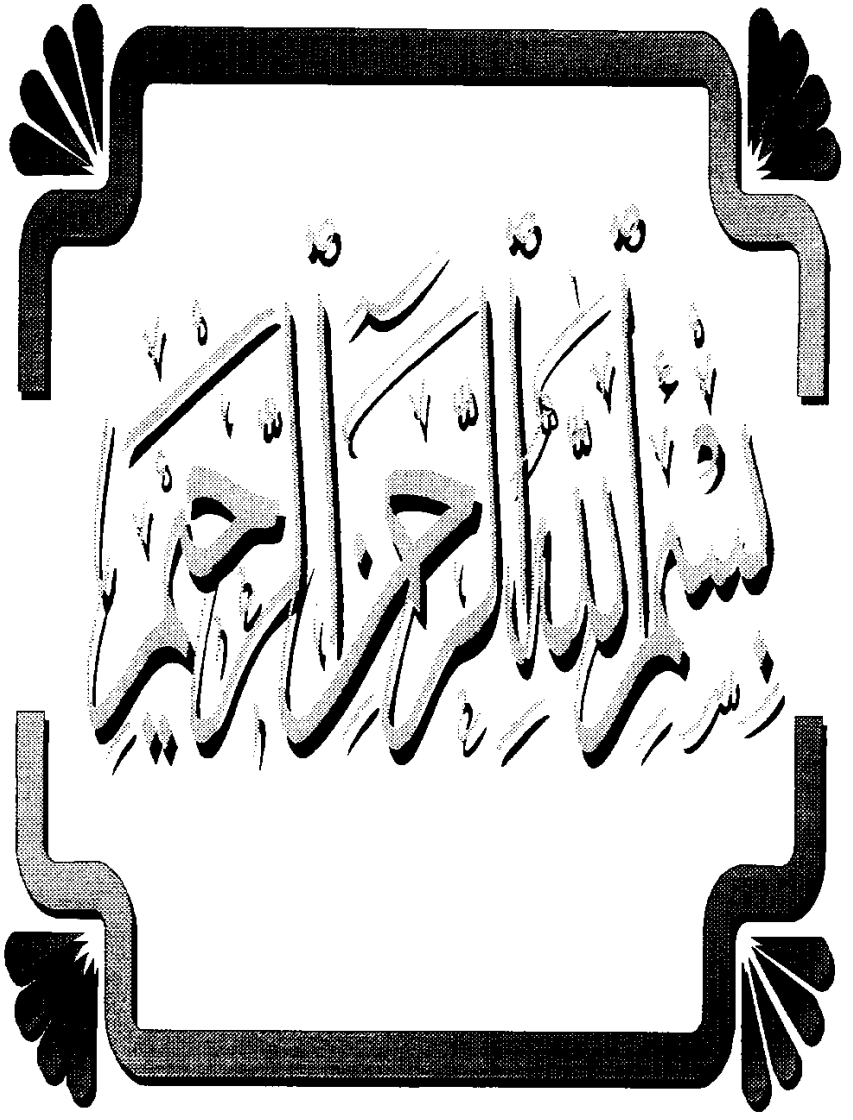

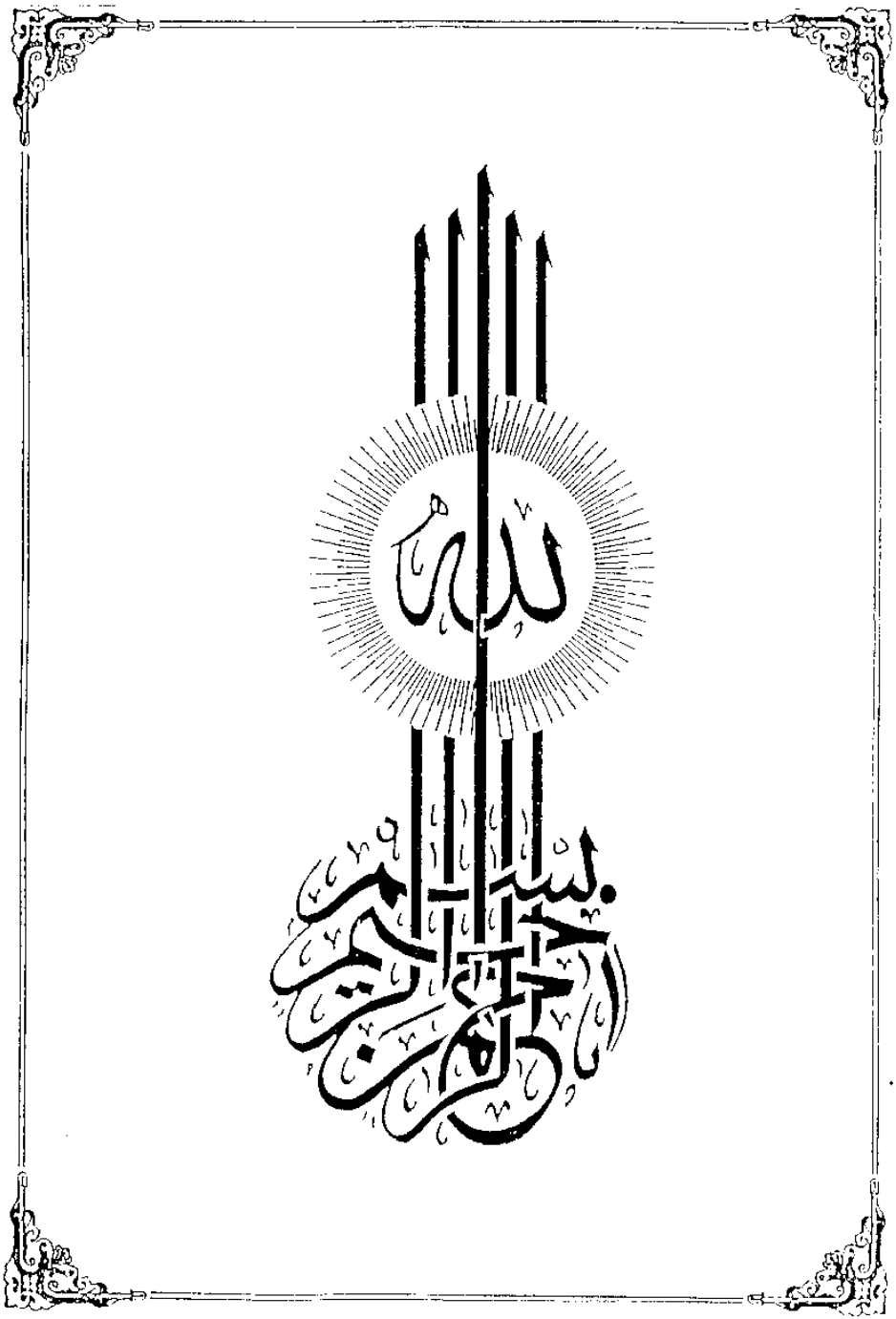

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LIST OF ABBREVIATIONS

Ab:	Antibody.
Ag:	Antigen.
ALS:	Amyotropic lateral sclerosis.
ANA:	Antinuclear antibody.
Anti-nDNA:	Native deoxyribonucleic acid antibody.
AO:	Acridine orange.
APC:	Antigen presenting cell.
BDNF:	Brain derived neurotrophic factor.
cAMP:	Cyclic adenosine monophosphate.
CBC:	Compete blood picture.
ced:	Cell death abnormal.
C-elegans:	Caenorhabiditis elegans.
ces:	Cell death specification.
CLL:	Chronic lymphocytic leukemia.
CNF:	Ciliary neurotrophic factor.
C-oncogenes:	Cellular oncogenes.
CTL:	Cytotoxic T lymphocyte.
deg:	Degeneration.
DNA:	Deoxyribonucleic acid.
dsDNA:	Double stranded DNA.
egl-1:	Egg laying defective.
ER:	Endoplasmic reticulum.
ESR:	Erythrocyte sedimentation rate.

FCS:	Fetal calf serum.
FDA:	Fluorescein diacetate.
FGFs:	Fibroblast growth factors.
gld:	Generalized lymphoproliferative disease.
GM-CSF:	Granulocyte/monocyte-colony stimulating factor.
GTP:	Guanosine triphosphate.
HBV:	Hepatitis B virus.
HCV:	Hepatitis C virus.
HIV:	Human immunodeficiency virus.
ICE:	Interleukin-1β converting enzyme.
IFN:	Interferon.
Ig:	Immunoglobulin.
IL-1:	Interleukin-1.
IM:	Infectious mononucleosis.
ISEL:	In site end labeling.
Lpr:	Lymphoproliferation.
mAb:	Monoclonal antibody.
MDCK:	Medin-Darby canine kidney.
mec:	Mechano-sensory abnormality.
MHC:	Major histocompatibility complex.
MNC:	Mononuclear cell.
mRNA:	Messenger ribonucleic acid.
NAIP:	Neuronal apoptosis inhibitory protein.
NGF:	Nerve growth factor.
NT-3:	Neurotrophin-3.

PBMCs:	Peripheral blood mononuclear cells.
PBS:	Phosphate buffered saline.
PCD:	Programmed cell death.
PDGF:	Platelet derived growth factor.
PHA:	Phytohemagglutinin.
PI:	Propidium iodide.
PS:	Phosphatidyl serine.
RA:	Rheumatoid arthritis.
Rb:	Retinoblastoma gene.
rh123:	Rhodamine 123.
SEM:	Scanning electron microscopy.
SIg:	Surface immunoglobulin.
SLE:	Systemic lupus erythematosus.
ssDNA:	Single stranded DNA.
TAC:	Tris-acetate EDTA.
TCR:	T cell receptor.
TdT:	Terminal deoxynucleotidyl transferase.
TEM:	Transmission electron microscopy.
TGF-β:	Transforming growth factor-β.
TNF:	Tumor necrosis factor.
TRPM:	Testosterone repressed prostate message.
TSP:	Thrombospondin.
TUNEL:	Terminal deoxynucleotidyl transferase mediated dUTP biotin nick end labeling.
UV:	Ultraviolet.
V-oncogene:	Viral oncogene.

ABSTRACT

Apoptosis is a form of cell death in which the cell actively participates by providing molecules that are directly or indirectly involved in the process. The aim of this study was to demonstrate the role of altered apoptosis of lymphocytes in the pathogenesis of systemic lupus erythematosus . This study was performed on 35 SLE patients, 27 were in activity while 8 had a controlled disease, and 10 control subjects of matching age and sex.

CD95 expression on freshly isolated PBMCs was assessed by flow cytometry. Lymphocytes were cultured for 48 hours and apoptosis was detected by in situ detection of apoptosis (by Apop Tag Kit) and confirmed by detection of DNA fragmentation (by agarose gel electrophoresis).

Accelerated in vitro apoptosis of lymphocytes was found in patient group when compared to normal individuals. There was significant positive correlation between disease activity and in vitro apoptosis. The three methods done for detection of apoptosis showed highly significant positive correlation.

We recommended in vitro double staining with marker of apoptosis and markers of both T and B lymphocytes to clearly define the role of altered lymphocyte apoptosis in the pathogenesis of the disease.

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