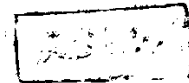


**EFFECT OF IRON CHELATION ON NATURAL KILLER
(NK) CELLS & TRANSFERRIN RECEPTORS IN
THALASSAEMIC PATIENTS**

Thesis



**Submitted for partial fulfillment of the M.D in
Clinical and Chemical Pathology**

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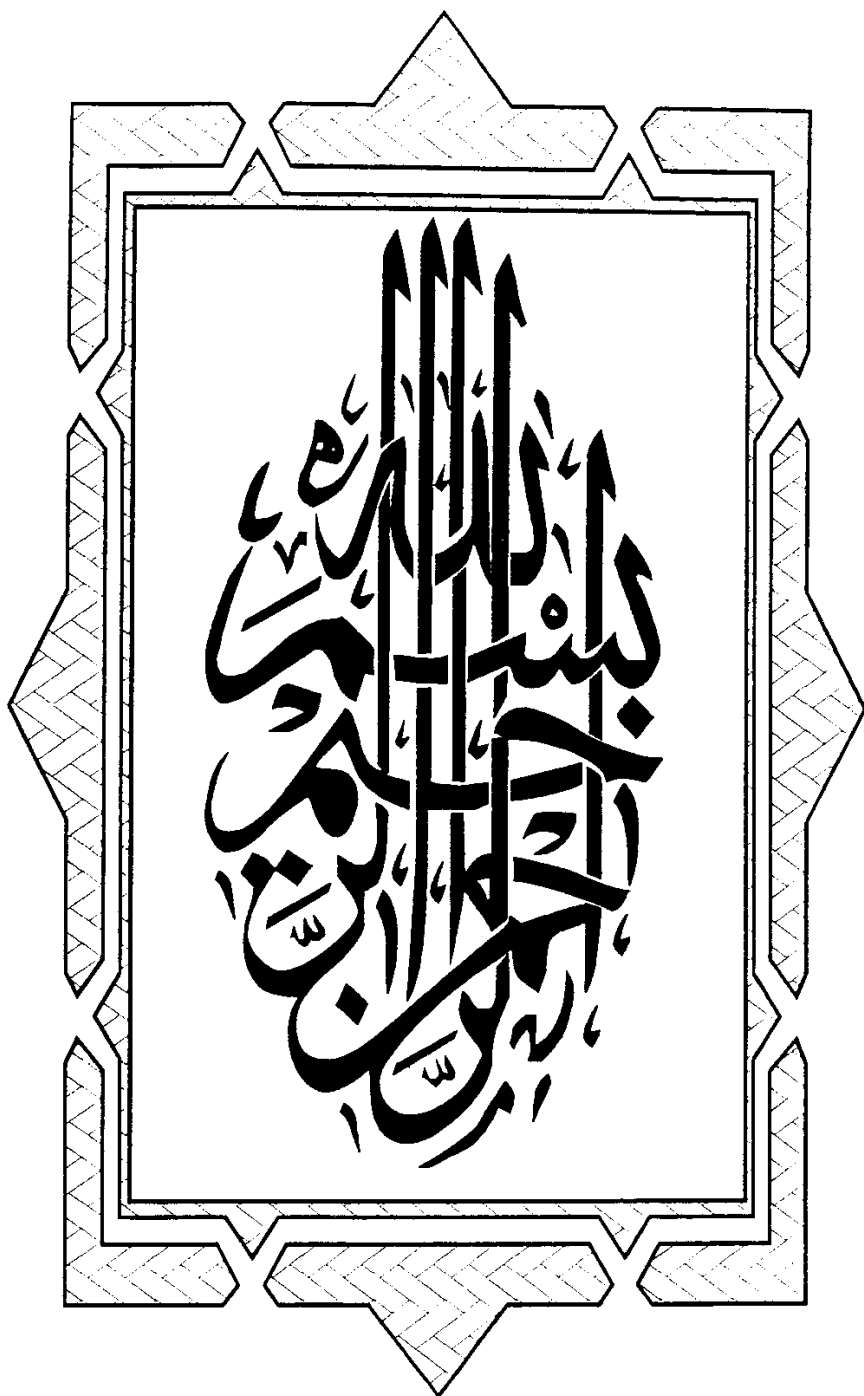
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ABSTRACT

Patients with severe thalassemic disorders receive chronic blood transfusion which leads to severe iron overload, iron chelation is used regularly to reduce the rate of iron overload.

In our study, we assessed the in-vivo role of the iron chelating agent DFO on NK cell number and marker expression of proliferating antigens CD71 and CD25 on the surface of MNCs in B thalassemia major patients receiving iron chelator desferrioxamine (DFO).

This study was conducted on 25 patients with B-thalassemia major receiving iron chelating agent desferrioxamine (DFO), five of them were splenectomized. The results were compared to those of 10 normal control children of matching age group.

Our study showed no significant difference in NK cell number between patients group and control as well as between the two patients subgroups. CD25 and CD71 were significantly higher in the patients compared to the control group. There was significant decrease of CD4/CD8 ratio in thalassemic patients compared to the control group.

In conclusion, chelation therapy through its manipulation of iron metabolism and its responsibility for the expression of TfR and IL-2R may readjust the aberrant immunologic mechanisms in these patients.

Abstract

LIST OF ABBREVIATIONS

ACD:	Acid-citrate-dextrose.
AIDS:	Acquired immune deficiency syndrome.
ALLs:	Acute lymphoblastic leukaemias.
BFU-E:	Burst forming unit-Erythroid.
CDs:	Cluster designations.
CFU-GM:	Colony forming unit-granulocyte-monocyte.
CMV:	Cytomegalovirus.
CTLs:	Cytolytic T lymphocytes.
DNA:	Deoxyribonucleic acid.
DTH:	Delayed type hypersensitivity.
EBV:	Epstein-Barr virus.
EDTA:	Ethylene diamine tetra-acetic acid.
ELISA:	Enzyme linked immunosorbent assay.
FCM:	Flow cytometry.
FcR:	Fragment crystalizable receptor.
FITC:	Fluorescein isothiocyanate.
FS:	Foreward scatter.
GM-CSF:	Granulocyte-Monocyte colony stimulating factor.
HBV:	Hepatitis B virus.
HCV:	Hepatitis C Virus.
HIV:	Human immunodeficiency virus.
HLA:	Human leucocyte antigen.
HPFH:	Hereditary persistence of foetal hemoglobin.
HPLC:	High performance liquid chromatography.

List of Abbreviations

	<u>Inter</u>
ICAM:	Intracellular adhesion molecule.
IFN:	Interferon.
Ig:	Immunoglobulin.
IL:	Interleukin.
K-gene:	Kappa-gene.
LCA:	Leucocyte common antigen.
LFA:	Leucocyte function associated antigen.
LGL:	Large granular lymphocyte.
LSM:	Lymphocyte separation media.
MABs:	Monoclonal antibodies.
MCV:	Mean cell volume.
MCHC:	Mean corpuscular haemoglobin concentration.
MHC class I and II:	Major Histocompatibility complex class I and II.
MNCs:	Mononuclear cells.
mRNA:	Messenger ribonucleic acid.
NGF:	Nerve growth factor.
NK:	Natural killer.
PB:	Peripheral blood.
PBS:	Phosphate buffer saline.
PMT:	Photomultiplier tube.
PTP:	Post-thymic precursors.
RBCs:	Red blood cells.
RD1:	Rhodamine.
RDW:	Red cell distribution width.
RES:	Reticulo-endothelial system.
SS:	Side scatter.
TC:	T cytotoxic.
TCR:	T cell receptor.
TdT:	Terminal deoxynucleotidyl transferase.
Tf:	Transferrin.
TfR:	Transferrin receptor.
Th:	T helper.
TIBC:	Total iron binding capacity.
TNF:	Tumour necrosis factor.
TNK:	T cells with natural killer activity.

List of Abbreviations

TS:	T suppressor.
T4/T8 ratio:	Helper/suppressor ratio.
VCAM-1:	Vascular cell adhesion molecule-1.
WDL:	Well differentiated lymphoma/ leukaemia.
ZPP:	Zinc protoporphyrin.

List of Abbreviations

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