FLOW CYTOMETRIC PHAGOCYTOSIS SCREENING METHOD IN CHILDREN WITH β-THALASSEMIA MAJOR

THESIS

Submitted for Partial Fulfillment of the Requirement for the Degree of Master in Clinical Pathology

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CAIRO, 1995

ACKNOWLEDGMENT

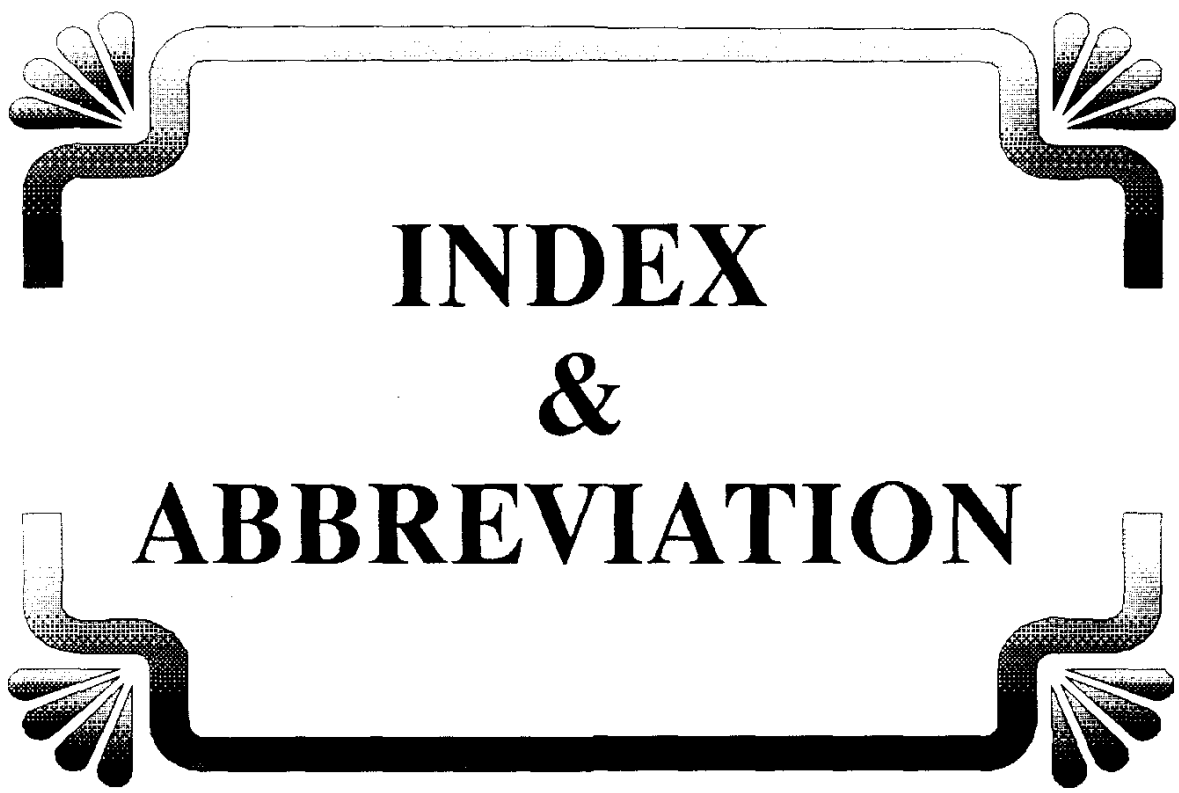
First of all, **thank God** who supplied me the power and will to finish this work.

I wish to express my sincere and deep gratitude to ***Prof. Dr. Salwa M. Yossef***, Prof. of Clinical Pathology, Faculty of Medicine, Ain Shams University, for her great effort, close supervision, precious advice unlimited patience, and continuous guidance during the production of this thesis.

I wish to express my deep thanks to ***Dr. Mohsen S. El-Alfy***, Ass. Prof. of Pediatrics, Faculty of Medicine, Ain Shams University, for his keen supervision and expert advice.

I am really grateful to ***Dr. Aisha Aly O. Fakeir***, Ass. Prof. of Clinical Pathology, Faculty of Medicine, Ain Shams University, for the time she dedicated for the production of this thesis. I have to admit that I was lucky to have the chance to work with her.

Special thanks to ***Dr. Afaf A. Abdel Ghaffar***, Lecturer of Clinical Pathology, Faculty of Medicine, Ain Shams University, for her continuous help and kind supervision.



INDEX & ABBREVIATION

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ADDC	Antibody-dependent cytotoxicity
ANOVA	Analysis of variance procedures
AO	Acridine orange
APC	Accessory presenting cell
C	Complement
Ca^{++}	Calcium
CF-DA	Carboxylfluorescin diacetate
CIC	Circulatory immune complexes
CL	Chemiluminescence
CR	Complement receptor
CSF	Colony stimulating factor
DCFH-DA	Dichlorofluoroescin diacetate
DNA	Deoxyribonucleic acid
EB	Ethidium bromide
E. Coli	*Escherichia coli*
ECF-L	Eosinophil chemotactic factor-L
EDTA	Ethylene diamine tetra-acetic acid
ESF-A	Eosinophil-specific factor-A
Fab	Antigen binding fragment
Fc	Crystallizable fraction
FCM	Flowcytometry
$(FCR)^2$	Crystallizable fraction receptor
FITC	Fluorescin isothiocyanate
FMLP	Formyl methionyl leucyl phenylalanine
G-CSF	Granulocyte colony stimulating factor
GM-CFU	Granulocyte-macrophage colony forming unit
GM-CSA	Granulocyte-macrophage colony stimulating activity
GM-CSF	Granulocyte-macrophage colony stimulating factor
HBA	Hemoglobin A
HBF	Fetal hemoglobin
HETE	Hydroxyeicosatetraeonic acid
HHT	Hydroxyhepatotrieonic acid
HLA	Human leucocytic antigen
HMP	Hexose monophosphate

H_2O_2	Hydrogen peroxide
Ia	Immune antigen
IFN-γ	Interferon-γ
IgA	Immunoglobulin A
IgE	Immunoglobulin E
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IL	Interleukin
LDCF	Lymphocyte-derived chemotactic factor
M-CSF	Macrophage colony stimulating factor
Mg^{++}	Magnesium
MCH	Major histocompatibility complex
MIP-1	Macrophage inflammatory protein-1
MPO	Myeloperoxidase
NADP	Nicotinamide adenine dinucleotide phosphate
NADPH	Nicotinamide adenine dinucleotide phosphate oxidase
NBT	Nitroblue tetrazolium
NK	Natural killer cells
O_2	Oxygen
PI	Phagocytic index
PG	Prostaglandin
PMNs	Polymorphonuclear cells
R.E.S.	Reticulo-endothelial system
ROI	Reactive oxygen intermediate
SAS	Statistical analysis system
SHAM	Salicyl hydroxamic acid
SOD	Superoxide dismutase
TGF-β	Transforming growth factor beta
TNF	Tumor necrosis factor

INTRODUCTION
&
AIM OF THE WORK

INTRODUCTION

Homozygous β-thalasemia is a severe disease, which causes the death of about 100,000 children in the world per annum ***(Lehman and Huntsman, 1974)***.

The incidence of homozygous β-thalassemia has been found to be 0.285% in children examined in Cairo ***(Kamel, 1960)***.

Phagocytic killing is the primary mechanism through which the immune system eliminates gram-positive and gram-negative organisms and pathogenic fungi. The phagocytic process is not a simple fucntion. It can be divided into four stages: chemotaxis, attachment, engulfment, and killing and ingestion. It has a critical role in host defence ***(Griffin, 1982)***.

Deficiencies in phagocytic function, whether primary or secondary can result in life threatening infection with microorganisms that otherwise display relatively low virulence or invasive tendency ***(Martin and Bhakdi, 1991)***.

Flowcytometry has been used to measure rates of uptake of particles by populations of phagocytosing cells. Measurement has been made on filter-feeding microroganisms ***(Lavin et al., 1990)***.

AIM OF THE WORK:

The aim of this work is to evaluate the phagocytic function in children with β-thalassemia major using a rapid screening flocytometric method.

Another aim of this work is to compare this rapid screening flowcytometric method to the traditional method as tests for phagocytic function.