CARDIAC CHANGES DUE TO CHEMOTHERAPY IN CHILDHOOD LEUKEMIA

THESIS

Submitted for partial fulfilment of

M.D. Pediatrics

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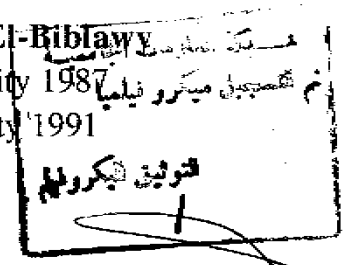

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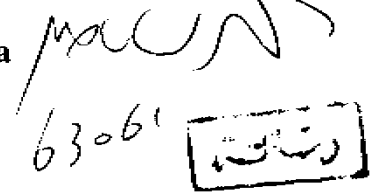

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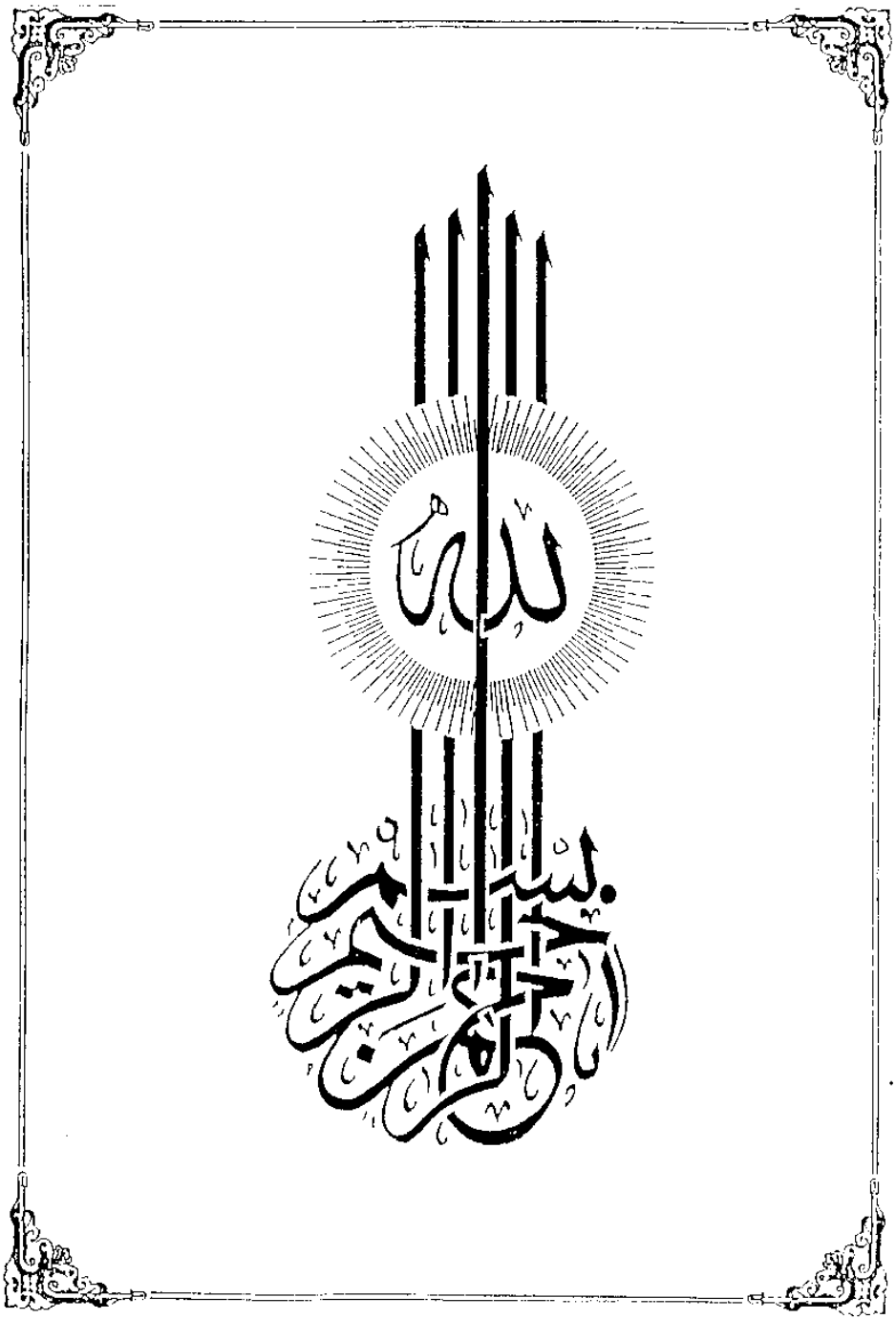
بسم الله الرحمن الرحيم

﴿ سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم ﴾

صدق الله العظيم

[البقرة : ٣٢]



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To ...

My family.

My husband.

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LIST OF ABBREVIATIONS

A velocity	Late peak filling velocity
AAW	Anterior aortic wall
ALL	Acute lymphoblastic leukemia
AML	Acute myeloblastic leukemia
AMML	Acute myelomonocytic leukemia
AMOL	Acute monocytic leukemia
AMVL	Anterior mitral valve leaflet
ANLL	Acute non lymphoblastic leukemia
ANOVA	Analysis of variance
Ao root D	Aortic root dimension
AOV	Aortic valve
APS	Atriopulmonary sulcus
ARVW	Anterior right ventricular wall
AST	Aspartate aminotransferase
ATP	Adenosine triphosphate
ATVL	Anterior tricuspid valve leaflet
BFU	Burst forming unit
BMT	Bone marrow transplantation
C/T ratio	Cardiothoracic ratio
CALLA	Common acute lymphoblastic leukemia antigen
CFU	Colony forming unit
Ch	Chordae tendineae
cIg^{+a}	Cytoplasmic immunoglobulin positive
CK	Creatine kinase
CK-MB	Creatine kinase MB
CNS	Central nervous system
Cond	Conduction

CSF	Colony stimulating factor
CW	Chest wall
DNA	Deoxyribonucleic acid
E velocity	Early peak filling velocity
ECG	Electrocardiogram
EDD	End diastolic dimension
EDV	End diastolic volume
EF	Ejection fraction
ESD	End systolic dimension
ESV	End systolic volume
FAB	French American British
FAB-E	French American British Egyptian
FS	Fraction shortening
GEMM	Granulocytes, erythroid cells, macrophages, megakaryocytes
GM-CSF	Granulocyte-macrophage colony stimulating factor
H_2O_2	Hydrogen peroxide
Hb	Hemoglobin
HR	Heart rate
IFN	Interferon
IL	Interleukin
IVS	Interventricular septum
IVSd	Interventricular septal thickness
LA	Left atrium
LADs	Left atrial dimension
LAW	Left atrial wall
LDH	Lactate dehydrogenase
LV	Left ventricle
LVEF	Left ventricle ejection fraction
LVOT	Left ventricular outflow tract
LVPWd	Left ventricular posterior wall thickness

McAbs	Monoclonal antibodies
PA	Pulmonary artery
PAS	Periodic acid Shiff
PAW	Posterior aortic wall
PE	Pericardial effusion
Perc	Percentile
Ph+	Philadelphia chromosome positive
Plts	Platelets
PLVW	Posterior left ventricular wall
PMVL	Posterior mitral valve leaflet
PPM	Posterior papillary muscle
PV	Pulmonary valve
RA	Right atrium
RNA	Ribonucleic acid
RV	Right ventricle
RVDd	Right ventricular dimension
RVOT	Right ventricular outflow tract
SA	Surface area
sIg+a	Surface immunoglobulin positive
SV	Stroke volume
TdT	Terminal deoxynucleotidyl transferase
TLC	Total leukocytic count
TV	Tricuspid valve
WBC	White blood cell

Introduction and Aim of Work

INTRODUCTION AND AIM OF WORK

With advances in the effective treatment of childhood leukemias using combination chemotherapy, toxicities have emerged as major causes of morbidity and mortality during the therapy of these hematologic malignancies (*Balis*, 1988).

Anthracyclines are effective antineoplastic agents for treatment of many pediatric solid tumors and hematologic malignancies (*Marchandise et al.*, 1989). However, their use is limited by toxic cardiomyopathy resulting in irreversible myocyte damage with both acute and chronic effects (*Steinherz et al.*, 1991). The incidence of doxorubicin cardiotoxicity increases at cumulative doses greater than 550 mg/m^2 (*Steinherz et al.*, 1992).

Aim of the Work

The aim of this study is to identify anthracycline cardiotoxicity in different groups of patients who received variable percentages of the maximum cumulative dose of the drug to detect changes that might necessitate discontinuation of anthracycline therapy.