ECHOCARDIOGRAPHIC EVALUATION OF CARDIAC PERFORMANCE AND ITS RELATION TO PULMONARY FUNCTION TESTS IN ASTHMATIC CHILDREN

THESIS

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بسم الله الرحمن الرحيم

« قالوا سبحانك لا علم لنا إلا ما

علمتنا إنك أنت العليم الحكيم »

صدق الله العظيم

(سورة البقرة آية ٣٢)

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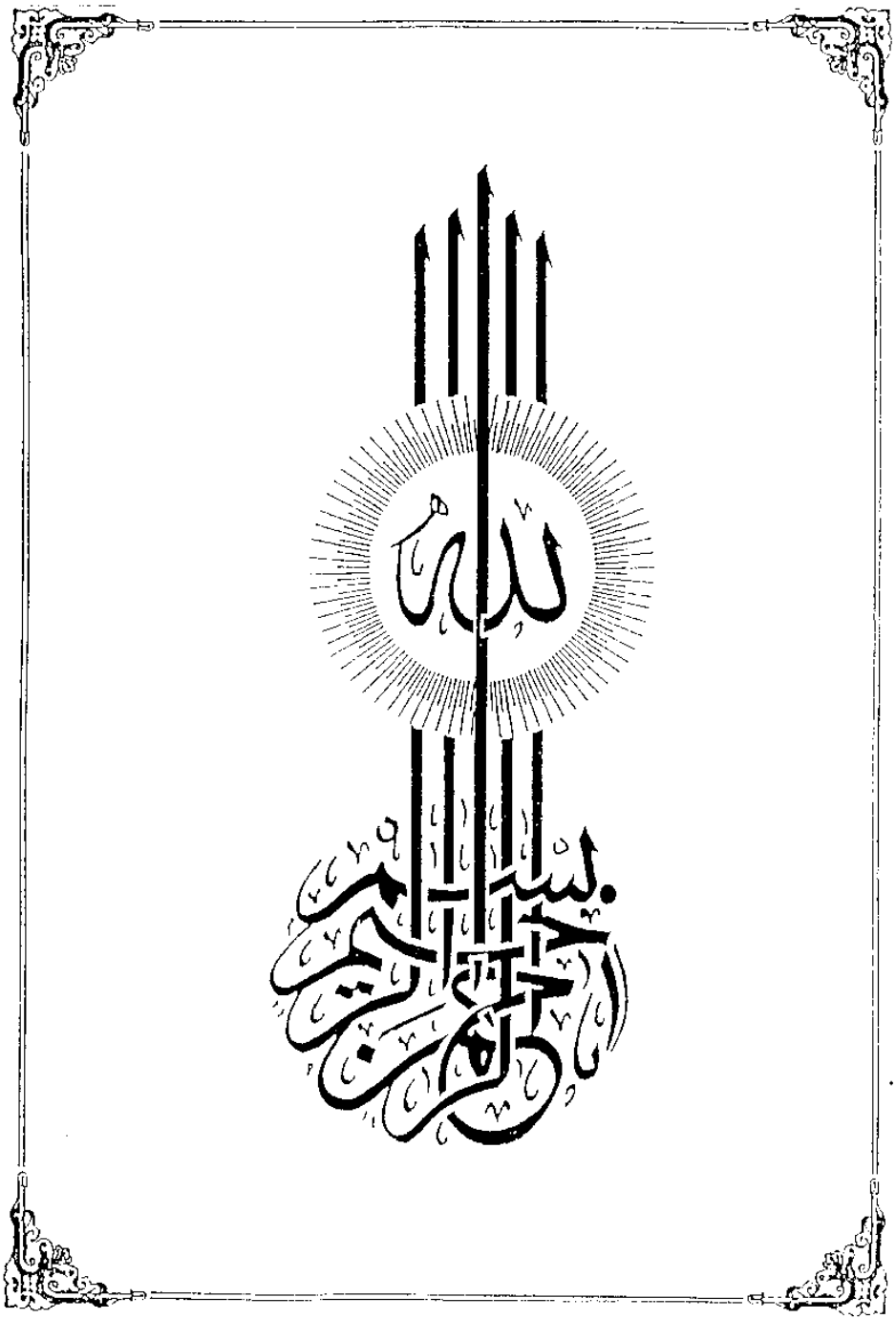

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Affectionately Dedicated To ...

The Soul of My Father

The Soul of My Professor

Professor Dr. Abd El Khalik Khattab

And To My Family

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Essam Heikal

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ABBREVIATIONS

A-mode	Amplitude mode
A-wave	Late peak filling velocity
A.S.E.	American Society of Echocardiography
A/D	Analogue-digital
AC	Aortic closure
AMV	Anterior mitral valve leaflet
ANOVA	Analysis of variance test
AO	Aorta
ARV	Anterior right ventricular wall
AV	Aortic valve
B	B-lymphocytes
B-mode	Brightness mode
C3	Complement number 3
CC	Closing capacity
Ccw	Chest wall compliance
cDNA	Desoxyribonucleic acid
C_{dyn}	Dynamic compliance
C_L	Lung compliance
cm	Centimeters
C_{st}	Static compliance
C_T	Total compliance of the respiratory apparatus
CV	Closing volume
CW	Chest wall
E-wave	Early peak filling velocity
ECG (EKG)	Electrocardiogram
EDD	End diastolic dimension
EDV	End diastolic volume
EF%	Ejection fraction percent
EN	Endocardium of the left ventricle
EO	Eosinophils

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EP	Epicardium of the left ventricle
ERV	Expiratory reserve volume
ESD	End systolic dimension
ESV	End systolic volume
$FEF_{25\%}$	Forced expiratory flow after 25% of the FVC has been exhaled
$FEF_{25-75\%}$	Mean forced expiratory flow during middle half of FVC
$FEF_{50\%}$	Forced expiratory flow after 50% of the FVC has been exhaled
$FEF_{75\%}$	Forced expiratory flow after 75% of the FVC has been exhaled
FEF_{max}	Maximum flow achieved during a forced exhalation, i.e., during the FVC maneuver
FEF_x	Forced expiratory flow, (where x is the duration on FVC curve)
FET_x	Forced expiratory time for a specified portion of the forced vital capacity.
FEV_t	Forced expiratory volume (timed)
$FEV_t/FVC\%$	Forced expiratory volume (timed) to forced vital capacity ratio
$FIF_{25\%}$	Forced inspiratory flow after 25% of the FVC has been inhaled
$FIF_{50\%}$	Forced inspiratory flow after 50% of the FVC has been inhaled
$FIF_{75\%}$	Forced inspiratory flow after 75% of the FVC has been inhaled.
FIF_x	Forced inspiratory flow, (where x is the duration on FVC curve)
FIVC	Forced inspiratory vital capacity
FRC	Functional residual capacity
FS%	Percentage fractional shortening
FVC	Forced vital capacity
G_{aw}	Conductance
H.L.A.	Human Histocompatibility Complex

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H.R.	Heart rate
HCO_3^-	Bicarbonate level in the blood
i.e.	That is to say
IC	Inspiratory capacity
IC	Isovolumetric contraction
IgE	Immunoglobulin E
IL	Interleukin
IRV	Inspiratory reserve volume
IVC	Inspiratory vital capacity
IVS	Interventricular septum
LA	Left atrium
Lambda (λ)	Wavelength
LAW	Left atrial wall
LS	Left septum
LV	Left ventricle
LVD	Left ventricular dimension
LVET	Left ventricular ejection time
LVIVRP	Left ventricular isovolumetric relaxation period
LVOT	Left ventricular outflow tract
M-mode	Motion mode
$M_{1, 2, 3}$	Muscarinic subtypes of receptors in the respiratory system
MC	Mast cells
MC	Mitral closure
Mc	Mitral closure
MEFV	Maximal expiratory flow-volume
MHz	Mega Hertz (frequency unit)
MMEF	Maximum mid expiratory flow
mmHg	Millimeters of Mercury
MV	Mitral valve
MVV_x	Maximum voluntary ventilation
NCA	Neutrophil chemotactic activity
OS	Opening snap
PA	Pulmonary artery

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$PaCO_2$	Arterial carbon dioxide tension
PaO_2	Arterial oxygen tension
PAW	Posterior aortic wall
Pc	Pulmonary Closure
PEF	Peak expiratory flow
PEP	Pre ejection period
PER	Pericardium
PFT	Pulmonary function tests
PLA	Posterior left atrial wall
PLV	Posterior left ventricular wall
PMV	Posterior mitral valve leaflet
PPM	Posterior papillary muscle
PRF	Pulse repetition frequency
PV	Pulmonary valve
PWT	Posterior wall thickness of left ventricle
Q-S	Electromechanical systole
RASF	Rapid acceleration of systolic flow of right ventricle
RAST	Radioallergosorbent test
R_{aw}	Airway resistance
RS	Right septum
R_T	Total respiratory resistance
RV	Residual volume
RV	Right ventricle
RV/TLC%	Residual volume to total lung capacity ratio
RVEDD	Right ventricular systolic dimension
RVEDV	Right ventricular diastolic volume
RVESV	Right ventricular end systolic volume
RVET	Right ventricular ejection time
RVH	Right ventricular hypertrophy
RVIVRP	Right ventricular isovolumetric relaxation period
RVOT	Right ventricular outflow tract
RVPEP	Right ventricular pre-ejection period
RVWT	Anterior right ventricular wall thickness

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S	Sternum
$S_{1, 2, 3, 4}$	First, second, third and fourth heart sound
SG_{aw}	Specific conductance
ST	Septal thickness. At end systole (S) and at end diastole (D)
T	T-lymphocytes
T	Transducer
T.R.	Tricuspid regurge
TC	Tricuspid closure
TLC	Total lung capacity
TM-mode	Time-motion mode
TV or Vt	Tidal volume
TV	Tricuspid valve
V_A	Alveolar gas volume
VC	Vital capacity
VIP	Vasoactive inhibitory peptide
V_L	Actual volume of the lungs
VLA-1	Very late activation antigen
$V_{max\ x}$	Forced expiratory flow related to total lung capacity
ΔP	Change in pressure
ΔV	Change in flow in liters per second

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