EFFECTS OF CHILDHOOD BRONCHIECTASIS ON CARDIAC FUNCTIONS

Thesis

Submitted For Fulfillment Of Master Degree In Pediatrics

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2015

بسم الله الرحمن الرحيم

قَالُوا سُبْحَانَكَ لاَ عِلْمَ لَنَا
إِلاَّ مَا عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم
سورة البقرة الآية (32)

Acknowledgement

First of all thanks to "Allah" the kind and the merciful, who gave me the power to perform and complete this work. I would like to express my sincere and deepest gratitude to **Dr. Amal Mahmoud El Sisi** *Professor of Pediatrics, Faculty of Medicine, Cairo University, for her supervision, and valuable guidence.*

I wish to thank **Dr. Reem Ibrahim Ismaiel** *Assistant Professor of Pediatrics, Faculty of Medicine, Cairo University for her generous help in performing the echocardiography of this study, her gracious supervision, and valuable guidence through the whole research*

I am grateful to **Dr. Noussa Ragab Mohamed** *Assistant Professor of Pediatrics, Faculty of Medicine, Cairo University, for her continious encouragement, valuable advice, and guidence.*

I wish to express my sincere thanks and appriciation to **Dr. Mona Mostafa El Falaki** *Professor of Pediatrics, Faculty of Medicine, Cairo University, for her help in diagnosis of patients in this study.*

Special thanks to **Dr. Nahla Atia Atia Said** *Fellow colleague of Pediatrics, Faculty of Medicine, Cairo University, for performing pulmonary function tests and interpretation.*

My deep thanks to my family and my husband for their constant support, patience, and encouragement.

Finally, my sincere gratitude goes to all the examined group of this study for their cooperation.

Marwa Aly Mahmoud

Abstract

Bronchiectasis is a common structural end-point of many chronic respiratory diseases. Chronic hypoxia in these patients eventually may lead to pulmonary hypertension and consequently cor pulmonale. We enrolled thirty one patients with bronchiectasis as well as fourteen healthy control subjects were studied using echocardiography. Trans-thoaracic two dimensional (2D) guided (Mmode) and Doppler echocardiography were performed for all patients. Right ventricular systolic and diastolic functions were impaired in most of our patients. Left ventricular diastolic function was impaired while left ventricular systolic function was preserved. The clinical score correlated significentely with most of parameters measured for the right ventricle and also correlated with R5.

Key words: Bronchiectasis; Echocardiography; Ventricular dysfunction.

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Abbreviations

3D	three-dimensional
6MWT	6 minute walk test
A. Fumigates	Aspergillus fumigatus
ABPA	Allergic bronchopulmonary aspergillosis
AIHA	Autoimmune haemolytic anaemia
Am	Late diastolic mitral annular velocity
ANOVA	Analysis of variance
Ao	Aorta
AOMV	Aorta maximum velocity
ASE	American society of echocardiography
ASL	Airway surface liquid
AT	acceleration time
At	late diastolic tricuspid annular velocity
ATD	α1-antitrypsin deficiency
ATS/ERS	American Thoracic Society/ European Respiratory Society
AV	Atrioventricular
AVV	Atrioventricular valve
BAL	bronchoalveolar lavage
BDR	bronchodilator response
BMI	body mass index
BMPR	bone morphogenic protein receptor type II
CAV1	caveolin-1
CBAVD	congenital bilateral absence of the vas deferens
CCBs	calcium channel blockers
CF	cystic fibrosis
CFRD	cystic fibrosis–related diabetes mellitus
CFTR	cystic fibrosis transmembrane conductance regulator
cGMP	cyclic GMP
CHD	congenital heart disease
c-HRCT	Chest high-resolution computed tomography
CNS	central nervous systeem
CO	cardiac output
COPD	Chronic obstructive pulmonary disease
CPA	chronic pulmonary aspiration
CPET	cycle ergometry cardiopulmonary exercise testing
CPT	Chest physiotherapy

CTEPH	Chronic thromboembolic pulmonary hypertension
DecT	deceleration time
DHF	diastolic heart failure
DIOS	distal intestinal obstruction syndrome
DLCO	Diffusing capacity of the lungs for carbon monoxide test
Dnase	human deoxyribonuclease
EDV	end-diastolic volume
EF	ejection fraction
Em	early diastolic mitral annular velocity
ENG	endoglin
ET	ejection time
Et	early diastolic tricuspid annular velocity
ET-1	Endothelin-1
ETA	endothelin receptors type A
ETB	endothelin receptors type B
FB	Foreign body
FDA	Food and Drug Administration
FEES	fiberoptic-endoscopic evaluation of swallowing
FEV_1	forced expiratory volume in 1 second
FVC	forced vital capacity
HIV	human immunodeficiency virus.
HPOA	hypertrophic osteoarthritis
HR	heart rate
HRCT	high-resolution computed tomography
HS	Hypertonic saline
IBAs	Inhaled β-agonists
ICS	inhaled corticosteroids
ICT	isovolumic contraction time
Ig	Immunoglobulins
IgA	Immunoglobulin A
IL	Interleukin
IL-8	interleukin-8
ILD	interstitial lung diaese
IOS	Impulse oscillometry
IRT	immunoreactive trypsinogen
IRT	isovolumic relaxation time
ITP	idiopathic thrombocytopenia
IVIg	intravenous immunoglobulin treatment
IVRT	Isovolumic relaxation time

IVSd	interventricular septal thickness
JVP	Jugular venous pressure
LA	left atrium
LABA	Long acting β-agonist
LTB4	leukotriene B4
LTOT	Long term oxygen therapy
LV	left ventricle
LVDd	left ventricular diastolic diameter
LVPWd	Left ventricular posterior wall
LVRS	Lung volume reduction surgery
MAE	mitral annulus excursion
MAPSE	Mitral annular plane systolic excursion
MBL	mannose binding lectin
mPAP	Mean pulmonary artery pressure
MPI	myocardial performance index
MRI	magnetic resonance imaging
NAC	N-Acetylcysteine
NBS	Newborn Screening
NCFB	non cystic fibrosis bronchiectasis
NK	natural killer
NO	nitric oxide
NP	nasopharyngeal
NPD	Nasal potential difference
NSAIDs	Non steroidal anti-inflammatory drugs
NTHi	Nontypeable Haemophilus influenzae
NYHA	New York Heart Association
NZ	New Zealand
P. aeruginosa	pseudomonous aeroginosa
PA	pulmonary artery
PA	Posteroanterior
PAD	primary antibody deficiency
PAH	Pulmonary arterial hypertension
PAMPs	pathogen associated molecular patterns
PAP	pulmonary artery pressure
PC	pulmonary circulation
PCD	Primary ciliary dyskinesia
PCR	Polymerase chain reaction
PCWP	pulmonary capillary wedge pressure
PDE 5 inhibitor	phosphodiesterase 5 inhibitor

Peak A	**peak flow velocity during atrial contraction**
Peak E	**Peak velocity at early diastole**
PEF	**peak expiratory flow**
PH	**pulmonary hypertension**
PMNs	**polymorphonuclear neutrophils**
PPHN	**persistent pulmonary hypertension of the newborn**
PRMC	**Pulmonary radioaerosol mucociliary clearance**
PRRs	**pattern recognition receptors**
PVR	**pulmonary vascular resistance**
PVRi	**pulmonary vascular resistance indexed for body surface area**
QS	**quorum sensing**
R	**resistance**
RA	**right atrium**
RHC	**Right heart catheterization**
RV	**residual volume**
RV	**right ventricle**
RV-ASI	**Right ventricular automated systolic index**
RVDD	**Right ventricular diastolic diameter**
RVFAC	**Right ventricular fractional area change**
RVMPI	**right index of myocardial performance**
SF	**shortening fraction**
SIL	**Sildenafil**
SLPI	**secretory leukocyte proteinase inhibitor**
SP-A	**surfactant protein-D**
SPSS	**statistical program for social science**
SR	**Strain rate**
SV	**stroke volume**
SVR	**systemic vascular resistance**
TAPSE	**Tricuspid annular plane systolic excursion**
TAPSE	**Tricuspid annular plane systolic excursion**
TBM	**tracheobronchomegaly**
TDI	**tissue Doppler imaging**
TEF	**tracheoesophageal fistula**
TGF	**transforming growth factor**
TLC	**total lung capacity**
TMP-SMX	**Trimethoprim sulphamethoxazole**
TNF	**tumour necrosis factor**
TPG	**transpulmonary gradient**

TR	**tricuspid regurgegradient**
TR	**peak tricuspid regurgitation gradient**
TTE	**Transthoracic doppler-echocardiography**
V/Q	**ventillation perfusion**
VSS	**Video fluoroscopic swallowing studies**
VTI	**velocity time integral**
WU	**Wood Units**
X	**reactance**
XLA	**X-linked agammaglobulinemia**
α1-PI	**α1-protease inhibitor**

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