Correlation between Impulse Oscillometry Parameters and Echocardiography Findings in Chronic Left-sided Heart Failure

Thesis

Submitted for partial fulfillment of master degree in chest diseases and tuberculosis

By

ShymaaEbrahim Mohamed Salah

M.B., B.CH

Supervised by

Professor/ LaylaAshor Mohamed Helala

Professor of Chest Diseases
Ain Shams University

Doctor/Ahmed AbdElGawadElmasry

Assistant Professor of Chest Diseases
Ain Shams University

Doctor/NermineMounirRiad

Lecturer of Chest Diseases
AinShamsUniversity

Faculty of medicine
AinShamsUniversity

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بسم الله الرحمن الرحيم

وَقُلْ رَبِّ أَدْخِلْنِي مُدْخَلَ صِدْقٍ وَأَخْرِجْنِي مُخْرَجَ صِدْقٍ وَاجْعَلْ لِي مِنْ لَدُنْكَ سُلْطَانًا نَصِيرًا (80)

(سورة الإسراء، الآية 80)

Aim of the Work

The aim of this work is to study airway resistance and reactance in chronic left-sided heart failure patients measured by impulse oscillometry and correlate itto echocardiography findings.

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List of abbreviation

ACC	American college of cardiology
ACE	Angiotensin converting enzyme
ACEIs	**Angiotensin-converting enzyme inhibitors**
ACS	acute coronary syndrome
AF	Atrial fibrillation
AHA	American heart association
AHF	acute heart failure
ANP	Atrial natriuretic peptide
ARB	Angiotensin receptor blocker
ARVC	arrythmogenic right ventricular cardiomyopathy
AV	atrio-ventricular
AX	Reactance area
BMI	Body mass index
BNP	Brain naturetic peptide
Ca	Capacitance
CABG	Coronary artery bypass grafting
CAD	coronary artery disease
CAO	Chronic airway obstruction
CBC	Complete blood count
CHF	chronic heart failure.
CLdyn	Dynamic lung compliance
CMR	Cardiac magnetic resonance imaging
CO2	Carbon dioxide
COPD	Chronic obstructive pulmonary disease
CPFT	conventional pulmonary function test
CRT	Cardiac resynchronization therapy
CV	Co efficient of variation
DCM	Dilated cardiomyopathy
e	Tissue velocities
e’	early diastolic myocardial velocities
ECG	Electro-cardiogram
EF	Ejection fraction
ESC	European society of cardiology
F	the frequency of oscillation

Fdr	Frequency dependence of resistance
FEF50(any number)	Forced expiratory flow at 50% of FVC
FEV1	Forced expiratory volume in one second
FOT	Forced oscillation technique
FRC	Functional residual capacity
Fres	The resonant frequency
FVC	Forced vital capacity
Hb	Hemoglobin
HCM	Hypertrophic cardiomyopathy
HF	heart failure
HF-PEF	heart failure with preserved ejection fraction
HF-REF	heart failure with reduced ejection fraction
HS	SignificanceHighly
Hz	Hertz
I	Inertance
ICD	Implantable cardioverter defibrillator
ICS	Inhaled corticosteroid
INR	International normalized ratio
IOS	Impulse oscillometry
JVP	Jugular venous pressure
KPas	Kilopascal
L	Liter
LA	Left atrium
LV	Left ventricle
LVEF	left ventricular ejection fraction
LVH	Left ventricular hypertrophy
M mode	Motion mode
MI	Myocardial infarction
N	Number
NO	Nitric oxide
NS	Non Significance
NSAID	Non-steroidal anti-inflammatorydrugs
NT-proBNP	N-terminal pro-brain natriuretic peptide
NYHA	NewYork heart classification
PCWP	pulmonary capillary wedge pressure
PFTs	Pulmonary function tests
PLVEF	preserved left ventricular ejection fraction

PRN	Pseudo Random Noise
R20	Resistance at 20 HZ
R5	Resistance at 5 HZ
RBCs	Red blood cells
RBS	Random blood sugar
RCM	Restrictive cardiomyopathy
Rrs	Respiratory resistance
RV	Residual volume
S	Second
S3	third heart sound
SD	Standard of deviation
Sig.	Significance
SPECT	Single-photon emission computed tomography
TDI	tissue Doppler imaging
TLC	Total lung capacity
TNF	Tumour necrosis factor
TOE	Transoesophageal echocardiography
V/Q	Ventilation perfusion ratio
V˙ e/V˙co2	the ventilatory equivalent for carbon dioxide
X5	Reactance at 5 Hz frequency
Xrs	Reactance
Z	Impedance
Z5	Impedance at 5 Hz frequency
Zrs	Respiratory impedance

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