

**Assessment Of Right Ventricular Function In
Patients With Successful Primary Percutaneous
Coronary Intervention For Acute Anterior St
Elevation Myocardial Infarction Without Right
Ventricular Infarction By Echocardiography**

Thesis

Submitted for Partial Fulfillment of
the Master Degree in Cardiology

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Amir Mazen Elyan

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالَ

سُبْحَانَكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
الْعَلِيمُ الْعَظِيمُ

صدقة الله العظيم

سورة البقرة الآية: ٣٢



Dedication . . .

*I would like to dedicate this thesis to my **F**ather and my **M**other; and my future's **w**ife to them I will never find adequate words to express my gratitude.*



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List of Abbreviation

Abb.	Full term
ACAD	Atherosclerotic Coronary artery diseases
ACS	Acute coronary syndrome
AIVR	Accelerated idioventricular rhythm
AMI	Acute myocardial infarction
BMS	Bare metal stent
CABG	Coronary Artery by pass graft
CFR	Coronary flow reserve
CHF	Congestive heart failure
CMR	Cardiac magnetic resonance
CVS	Cerebrovascular stroke
DES	Drug eluting stent
DTB	Door to Ballon
DTB	Door to balloon time
EF	Ejection Fraction
FAC	Fractional area Change
IRA.	Infarct related artery
LVEDD	Left ventricular end diastolic dimension
LVEF	Left ventricular ejection fraction
LVESD	Left ventricular end systolic dimension
MBG	Myocardial blush grade
MCE	Myocardial contrast echocardiography
MI	Myocardial Infarction
MPI	Myocardial Performance Index
NSTEMI	Non ST. elevation myocardial infarction

List of Abbreviation

Abb.	Full term
PCI	Percutaneous coronary intervention
PIS	Pre-infarction syndrome
PTCA	Percutaneous Transluminal coronary Angioplasty
PTD	Pain to Door
PVD	Peripheral vascular diseases
RAA	Right atrial Area
RV	Right ventricle
RVEDD	Right Ventricular End Diastolic Dimension
RVOT	Right Ventricular Outflow Tract
RVRAC	Right Ventricular Fractional Area Change
ST resolution	ST segment elevation resolution
STEMI.	ST. Elevation myocardial infarction
TAPSE	Tricuspid Annular Plane Systolic Excursion
TDI	Tissue Doppler Imaging
WMSI	Wall motion Score Index

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Introduction

Right ventricular (RV) involvement after an acute left ventricular (LV) myocardial infarction (MI) has been shown to be associated with higher morbidity and mortality (1). The prevalence of RV involvement in acute LV MI has been reported to range from 50% to 80% in postmortem and animal studies but is frequently underestimated in the clinical setting owing to the diagnostic limitations of the electrocardiogram (ECG) and echocardiography (2).

Quantitative assessment of RV function is often difficult using the various noninvasive imaging modalities owing to the inherently complex geometry of the right ventricle (3). Echocardiography remains the most commonly used technique for RV function assessment in clinical practice because of its widespread availability. The myocardial performance index (MPI) of RV based on conventional Doppler echocardiography has been proven to be useful in the evaluation of RV function and it is recommended as one of the initial quantitative measurements of RV diastolic function and may be a sensitive tool for detecting “occult” RV dysfunction in acute LV MI (4).

Nevertheless, the conventional Doppler-derived MPI has one important limitation, namely, that the interval between the end and onset of tricuspid inflow and the ejection time are measured sequentially and not on the same cardiac cycle. In contrast, tissue Doppler imaging (TDI) can simultaneously measure these important time intervals on the same cardiac cycle, making the TDI derived MPI superior in the estimation of global RV function (5).

Aim of study

The aim of the study is to assess right ventricular function in patient with successful primary percutaneous coronary intervention for acute ST elevation myocardial infarction without right ventricular infarction.

Methods

This study will include 40 consecutive patients who will be admitted to the cath lab in Ain Shams university hospitals with first acute ST elevation myocardial infarction (STEMI) without right ventricular infarction, eligible for reperfusion therapy via primary percutaneous coronary intervention (PCI).