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قسم

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

Role of intracoronary adenosine in prevention of no reflow during Primary PCI in STEMI patients guided by MVO in CMR

Thesis

Submitted for Partial Fulfillment of MD Degree in Cardiology

By

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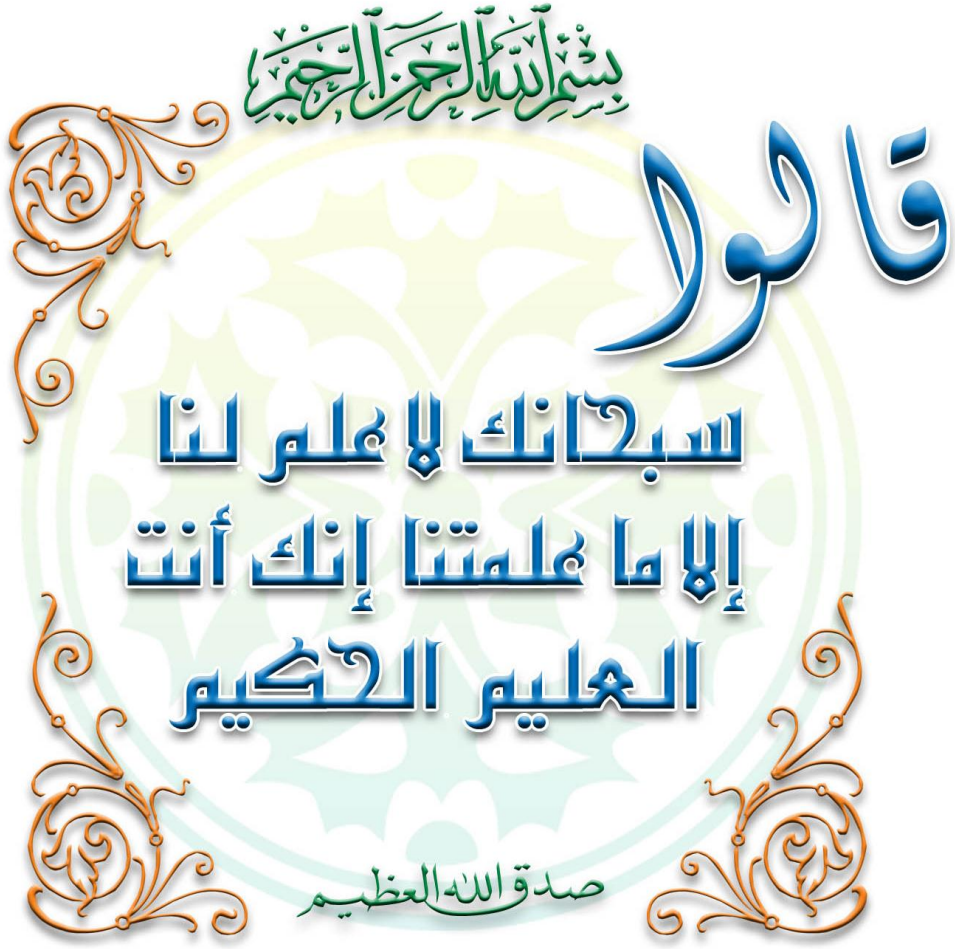
2021



سورة البقرة الآية: ٣٢

Acknowledgment

First and foremost, I feel always indebted to **ALLAH,**
the Most Kind and Most Merciful.

I'd like to express my respectful thanks and profound gratitude to **Prof. Dr. Mohamed Tarek Zaki,** *Professor of Cardiology, Faculty of Medicine - Ain Shams University for his keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.*

I am also delighted to express my deepest gratitude and thanks to **Prof. Dr. Wael Mahmoud El-kilany,** *Professor of Cardiology, Faculty of Medicine - Ain Shams University, for his kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.*

I am deeply thankful to **Prof. Dr. Ahmed Samir Ibrahim,** *Professor of Radiology, Faculty of medicine –Ain Shams University, for his great help, active participation and guidance.*

I wish to introduce my deep respect and thanks to **Dr. Ahmed Abdul Moneim Rezq,** *Lecturer of Cardiology, Faculty of Medicine - Ain Shams University, for her kindness, supervision and cooperation in this work.*

Ahmed Hatata

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List of Abbreviations

Abb.	Full term
ACC	American College of Cardiology
AHA	American Heart Association
AMI	Acute myocardial infarction
CA	Coronary angiography
CABG	Coronary artery bypass grafting
CAD	Coronary artery disease
CHF	Congestive heart failure
CKD	Chronic kidney disease
CMR	Cardiovascular magnetic resonance
EMVO	Early microvascular obstruction
ESC	European Society of Cardiology
FFR	Fractional flow reserve
FPP	First-pass perfusion
ICM	Ischemic cardiomyopathy
IJC	International Journal of Cardiology
IVUS	Intravascular ultrasound
LAD	Left anterior descending
LCX	Left circumflex
LMVO	Late microvascular obstruction
MGB	Myocardial Blush Grade
MI	Myocardial infarction
MO	Microvascular obstruction
MSI	Myocardial salvage index
MVO	Microvascular obstruction
PCI	Percutaneous coronary intervention
pPCI	Primary percutaneous coronary intervention
PSIR	Phase-sensitive inversion recovery

List of Abbreviations Cont...

Abb.	Full term
PTCA	Percutaneous transluminal coronary intervention
RCA	Right coronary artery
RCTs	Randomized controlled trials
STEMI	ST-elevation myocardial infarction

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INTRODUCTION

Microvascular obstruction (MO) or no-reflow phenomenon is an established complication of coronary reperfusion therapy for acute myocardial infarction. It is increasingly recognized as a poor prognostic indicator and marker of subsequent adverse LV remodeling. Although MO can be assessed using various imaging modalities including electrocardiography, myocardial contrast echocardiography, nuclear scintigraphy, and coronary angiography, evaluation by cardiovascular magnetic resonance (CMR) is particularly useful in enhancing its detection, diagnosis, and quantification, as well as following its subsequent effects on infarct evolution and healing. MO assessment has become a routine component of the CMR evaluation of acute myocardial infarction and will increasingly play a role in clinical trials of adjunctive reperfusion agents and strategies. This review will summarize the pathophysiology of MO, current CMR approaches to diagnosis, clinical implications, and future directions needed for improving our understanding of this common clinical problem. The contribution of microvascular injury in causing anatomic myocardial "no-reflow" was first described in the 1970's[1, 2, 3].

CMR techniques for microvascular obstruction:

The advent of fast CMR techniques in the 1990's facilitated the study of the temporal perfusion patterns within

Abstract

Background: Microvascular obstruction (MO) or no-reflow phenomenon is an established complication of coronary reperfusion therapy for acute myocardial infarction. It is increasingly recognized as a poor prognostic indicator and marker of subsequent adverse LV remodeling. Microvascular obstruction (MO) or no-reflow phenomenon is an established complication of coronary reperfusion therapy for acute myocardial infarction. It is increasingly recognized as a poor prognostic indicator and marker of subsequent adverse LV remodeling.

Results: There was no significant difference between two groups regarding TIMI and MBG score. There was a significant difference in myocardial salvage index and myocardium at risk with p value less than 0.001. Yet no increase in myocardial hemorrhage among the two groups. There was significant improvement in EF, LV mass and LV volumes in those who were given adenosine.

Conclusion: Adenosine improves no reflow on giving as a prophylactic drug. It improves the microcirculation thus increasing the salvaged myocardium improving micro vascular obstruction and does not increase the percentage of microvascular hemorrhage.

Keywords: STEMI, Coronary no-reflow, MVO, MV HGE, Salvage Index, TIMI, MBG adenosine.