

**The Current Management and the Clinical
Outcomes of Patients Presented with Acute
ST Segment Elevation Myocardial Infarction
in East Cairo Hospitals, A Multicenter Study**

Thesis

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Cardiology*

By

Ahmed Ismail Abdelhakeem Mohamed Kotb
M.B.B.CH

Under Supervision of

Prof. Dr. Sameh Mohamed Shaheen

*Professor of Cardiology
Faculty of Medicine – Ain Shams University*

Dr. Mohamed Atef Hamza

*Assistant Professor of Cardiology
Faculty of Medicine – Ain Shams University*

Dr. Amr Mansour Mohamed Zaky

*Lecturer of Cardiology
Faculty of Medicine – Ain Shams University*

*Faculty of Medicine
Ain Shams University*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا انك لا تعلم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدق الله العظيم

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List of Abbreviations

Abb.	Full term
<i>ACC</i>	<i>American college of cardiology</i>
<i>ACCA</i>	<i>Acute Cardiovascular Care Association</i>
<i>ACE</i>	<i>Angiotensin-converting enzyme</i>
<i>ACEIs</i>	<i>Angiotensin converting enzyme inhibitors</i>
<i>AEDs</i>	<i>Automated external defibrillators</i>
<i>AHA</i>	<i>American heart association</i>
<i>ALS</i>	<i>Advanced life support</i>
<i>ALT</i>	<i>Alanine aminotransferase</i>
<i>AMI</i>	<i>Acute myocardial infarction</i>
<i>apo A-1</i>	<i>Apolipoprotein A-I</i>
<i>apo B</i>	<i>Apolipoprotein B</i>
<i>apoE</i>	<i>Apolipoprotein E</i>
<i>AST</i>	<i>Aspartate aminotransferase</i>
<i>BMI</i>	<i>Body mass index</i>
<i>BMS</i>	<i>Bare metal stents</i>
<i>CABG</i>	<i>Coronary artery bypass grafting</i>
<i>CAD</i>	<i>Coronary artery disease</i>
<i>CAMELOT</i>	<i>Comparison of Amlodipine vs Enalapril to Limit Occurrences of Thrombosis trial</i>
<i>CCU</i>	<i>Coronary care unit</i>
<i>CHD</i>	<i>Coronary heart disease</i>
<i>CK</i>	<i>Creatine kinase</i>
<i>CMRI</i>	<i>Cardiac magnetic resonance imaging</i>
<i>CPK</i>	<i>Creatine phosphokinase</i>
<i>CPR</i>	<i>Cardiopulmonary resuscitation</i>
<i>cTn</i>	<i>Cardiac troponin</i>
<i>CVD</i>	<i>Cardiovascular disease</i>
<i>D1</i>	<i>First diagonal branch</i>
<i>D2B</i>	<i>Door to ballon</i>

List of Abbreviations (Cont...)

Abb.	Full term
<i>DAPT</i>	<i>Dual antiplatelet therapy</i>
<i>DES</i>	<i>Drug eluting stents</i>
<i>DM</i>	<i>Diabetes mellitus</i>
<i>EAPCI</i>	<i>European Association of Percutaneous Cardiovascular Interventions</i>
<i>ECG</i>	<i>Electrocardiogram</i>
<i>ED</i>	<i>Emergency department</i>
<i>EgSC</i>	<i>Egyptian society of cardiology</i>
<i>EHS-ACS-II</i>	<i>The second Euro Heart Survey on acute coronary syndromes</i>
<i>EMS</i>	<i>Emergency medical services</i>
<i>ESC</i>	<i>European society of cardiology</i>
<i>ESRD</i>	<i>End stage renal disease</i>
<i>EU</i>	<i>European union</i>
<i>FBS</i>	<i>Fasting blood sugar</i>
<i>FITT-STEMI</i>	<i>Feedback Intervention and Treatment Times in ST-Elevation Myocardial Infarction</i>
<i>FMC-B1</i>	<i>Time from first medical contact to balloon inflation time</i>
<i>GRACE</i>	<i>Global Registry of Acute Coronary Events</i>
<i>HDL</i>	<i>High-density lipoprotein</i>
<i>HF</i>	<i>Heart Failure</i>
<i>HTN</i>	<i>Hypertension</i>
<i>IRA</i>	<i>Infarct-related artery</i>
<i>IV</i>	<i>Intravenous</i>
<i>LAD</i>	<i>Left anterior descending</i>
<i>LCX</i>	<i>Left circumflex</i>
<i>LDL</i>	<i>Low-density lipoprotein</i>
<i>LM</i>	<i>Left Main</i>
<i>Lp(a)</i>	<i>Lipoprotein(a)</i>

List of Abbreviations (Cont...)

Abb.	Full term
<i>LV</i>	<i>Left ventricle</i>
<i>LVEF</i>	<i>Left Ventricular Ejection Fraction</i>
<i>MACCE</i>	<i>Major adverse cardiac and cerebrovascular events</i>
<i>MI</i>	<i>Myocardial infarction</i>
<i>MINOCA</i>	<i>Myocardial infarction with non obstructive coronary arteries</i>
<i>MOH</i>	<i>Ministry of health</i>
<i>MR</i>	<i>Mitral regurgitation</i>
<i>MRA</i>	<i>Mineralocorticoid receptor antagonist</i>
<i>NSL</i>	<i>Non-significant lesions</i>
<i>NSTEMI</i>	<i>non ST elevation myocardial infarction</i>
<i>OM</i>	<i>Obtuse Marginal</i>
<i>p.o.</i>	<i>Per os</i>
<i>PCI</i>	<i>Percutaneous Coronary Intervention</i>
<i>PPCI</i>	<i>Primary percutaneous coronary intervention</i>
<i>PPCI CC</i>	<i>Primary percutaneous coronary intervention capable center</i>
<i>PTCA</i>	<i>Percutaneous transluminal coronary angioplasty</i>
<i>RBBB</i>	<i>Right Bundle Branch Block</i>
<i>RCA</i>	<i>Right coronary artery</i>
<i>SaO₂</i>	<i>Oxygen Saturation</i>
<i>SFL</i>	<i>Stent for Life</i>
<i>SK</i>	<i>Streptokinase</i>
<i>STEMI</i>	<i>ST elevation myocardial infarction</i>
<i>SWMA</i>	<i>Segmental wall motion abnormalities</i>
<i>TC</i>	<i>Total cholesterol</i>
<i>Tch</i>	<i>Total cholesterol</i>
<i>TG</i>	<i>Triglycerides</i>

List of Abbreviations (Cont...)

Abb.	Full term
<i>TIMI</i>	<i>Thrombolysis in Myocardial Infarction</i>
<i>TT</i>	<i>Thrombolytic therapy</i>
<i>UA</i>	<i>Unstable angina</i>
<i>UFH</i>	<i>Unfractionated Heparin</i>
<i>URL</i>	<i>Upper Refence Limit</i>
<i>VSR</i>	<i>Ventricular septal rupture</i>

ABSTRACT

Patients who arrived at a PCI-capable center and were treated by a primary PCI had significant reduction in MACCE and all cause mortality during their hospital stay compared to those who received thrombolysis at a non-PCI capable center.

Follow up data at 6 months included bleeding, re-infarction, Angina or HF requiring re-hospitalisation, stroke and all cause mortality.

Patients who arrived at PCI-capable center and were treated by a primary PCI had significant reduction in re-infarction, Angina and HF requiring re-hospitalisation and all cause mortality compared to those who arrived at a non-PCI capable center and received thrombolysis and those who were transferred from a non-PCI to a PCI-capable center for the purpose of a primary PCI.

Keywords: *Thrombolysis in Myocardial Infarction - ST elevation myocardial infarction*

INTRODUCTION

Worldwide, coronary artery disease (CAD) is the single most frequent cause of death. Over seven million people every year die from CAD, accounting for 12.8% of all deaths. Every sixth man and every seventh woman in Europe die from myocardial infarction. The in-hospital mortality of STEMI patients in the national registries of the European society of cardiology (ESC) countries varies between 6% and 14% (*Steg et al., 2012*).

Reperfusion therapy is the cornerstone of the treatment of patients with acute STEMI. It aims at reducing mortality and morbidity by achieving patency of the epicardial infarct related artery and by restoring myocardial tissue perfusion either pharmacologically or mechanically (*Ryan et al., 1999*).

Percutaneous coronary angioplasty was first developed in 1977 by Andreas Gruentzig. The first procedure took place Friday Sept 16, 1977 at Zurich, Switzerland (*Meier et al., 2003*). Primary percutaneous coronary intervention (1ry PCI) is now classified as class I indication in STEMI in the guidelines of the European Society of Cardiology (ESC) (*Ibanez et al., 2017*).

However, many hospitals all over the world do not have CathLabs that are available and functioning with On-Call teams with primary PCI program 24/7, so they either give fibrinolysis or transfer the patients to a tertiary center to undergo a primary PCI (PPCI).

There is no definite protocol regarding the management of STEMI patients in Egypt with a remarkable variability between different hospitals.

Till the time being there is no precise data available regarding the management and outcomes of patients presented with STEMI in East Cairo hospitals. This Study was undertaken in East Cairo hospitals to track the different aspects of the current clinical management and the clinical outcomes of STEMI patients.