Culprit only PCI versus Multivessel PCI in primary intervention for patients with Acute ST-segment elevation Myocardial Infarction and multivessel disease.

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بسم الله الرحمن الرحيم

" وَ فِي أَنفُسِكُم أَفَلَا تُبصِرُونَ "

صدق الله العظيم

(الذاريات ٢١)

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LIST OF ABBREVIATIONS

ACC/AHA	American College of Cardiology/AmericanHeart Association.
ACS	Acute coronary syndrome
ADP	Adenosine diphosphate.
AMI	Acute Myocardial Infarction.
BNP	Brain natriuretic peptide.
CO	Culprit-only.
CRP	C-reactive protein
DAPT	Dual antiplatelet therapy.
DM	Diabetes Mellitus
ECG	Electrocardiography.
FH	Family History
FMC	First Medical Contact

HbA1c	Hemoglobin A1c.
HDL	High-density lipoprotein.
hs-CRP	High sensitivity C-reactive protein.
ICAM-1	Intercellular adhesion molecule-1.
LAD	Left anterior descending artery
LBBB	Left bundle branch block
LCX	Left circumflex artery
LDL	Low-density lipoprotein.
MACE	Major Adverse Cardiac Events.
MVR group	MultivesselRevascularizarion group
NO	Nitric oxide
NSTEMI	Non-ST segment elevation myocardial infarction
NT-pro BNP	N-terminal fragment of pro-brain natriuretic peptide.
OM	Obtuse Marginal branch

PCI	Percutaneous coronary intervention
PDA	Posterior descending artery
QCA	Quantitative Coronary Angiography
RCA	Right coronary artery
SR group	Staged Revascularizarion group
STEMI	ST segment elevation myocardial infarction
TNF	Tumor necrosis factor.
UA	Unstable angina
URL	Upper reference limit.
VCAM-1	Vascular cell adhesion molecule-1.
VF	Ventricular fibrillation
VT	Ventricular Tachycardia
VWF	Von Willebrand factor.

INTRODUCTION

Acute myocardial infarction is one of the most important causes of acute emergencies all over the whole world ***(Iqbal MJ et al., 2008).***

Myocardial infarction is either *non-ST segment elevation myocardial infarction* (NSTEMI) or *ST segment elevation myocardial infarction* (STEMI) ***(Grech ED et al., 2003).***

Most cases of STEMI are caused by occlusion of a major coronary artery and it represents about 30% - 40% of patients with ACS.Coronary occlusion and reduction in coronary blood flow are usually due to physical disruption of an atherosclerotic plaque with subsequent formation of an occluding thrombus. Concomitant coronary vasoconstriction and microembolization may be involved to some extent ***(Fuster V et al., 2005).***

Primary percutaneous intervention (PCI) was found to be the treatment of choice for acute ST elevation myocardial infarctionand according to the American College of Cardiology/AmericanHeart Association (ACC/AHA) guidelines,

STEMI patients presenting to a hospital with PCI capability should be treated with primary PCI within 90 minutes of first medical contact***(Qarawani D et al., 2008).***

Staged PCI is the recommended strategy for patients with multivessel disease and stable hemodynamics according to the ACC/AHA guidelines, however some other studies found that multivessel PCI during acute myocardial infarction is feasible and safe and that complete revascularization resulted in limiting the infarct size and improving the acute clinical course ***(Khattab AA et al., 2008) (Qarawani D et al., 2008).***

Our study aimed at detecting the safety of the complete revascularization strategy in patients with STEMI and multivessel disease provided that the non-culprit lesions are simple lesions which according to the ACC/AHA criteria of coronary artery lesions are considered of high periprocedural success rate and low complication rate***(Kini AS, 2007).***

AIM OF THE WORK

To compare the in-hospital and short term (6 month) outcomeof Staged PCI strategy (i.e. culprit lesion only PCI during the primary PCI followed by PCI to other significant lesions in a later session) versus multivessel PCI strategy in the setting of primary intervention in patients presenting with acute ST segment elevation myocardial infarction and multivessel disease (with non culprit lesions of type A or B only) with no hemodynamic compromise.

Acute ST-segment Elevation Myocardial Infarction – Definition and Pathogenesis

Acute **myocardial infarction** (**AMI** or **MI**), commonly known as a **heart attack**, is a disease state that occurs when the blood supply to a part of the heart is interrupted. The resulting ischemia or oxygen shortage causes damage and potential death of heart tissue. It is a medical emergency, and the leading cause of death for both men and women all over the world ***(Luepker et al., 2003).***

Definition of Myocardial Infarction:

Recent "**Universal Definition of Myocardial Infarction**" put by the recent 2012 ESC guidelines ***(Thygesen K et al., 2012)***as :-

- Detection of rise and/or fall of cardiac biomarkers (preferably troponin) with at least one value above the 99th percentile of the upper reference limit (URL) together with evidence of myocardial ischemia with at least one of the following:

1- Symptoms of ischemia;

2- ECG changes indicative of new ischemia (new ST-T changes or new left bundle branch block [LBBB]);

3- Development of pathological Q waves in the ECG;

4- Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality**.**

5- Identification of intracoronary thrombus by angiography or autopsy.

- Sudden, unexpected cardiac death, involving cardiac arrest, often with symptoms suggestive of myocardial ischemia, and accompanied by presumably new ST elevation, or new LBBB, but death occurring before blood samples could be obtained, or at a time before the appearance of cardiac biomarkers in the blood.

Risk Factors:

1- Non-modifiable risk factors:

- Older age
- Male gender ***(Wilson et al., 1998)***