

# **IMPACT OF DIABETES MELLITUS ON MYOCARDIAL REPERFUSION AFTER PRIMARY ANGIOPLASTY IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION**

*Thesis Submitted by*

**Samir El Hadidy Tawfik, M.Sc.**

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## ***Supervisors***

**Prof. Dr. Waheed Radwan, MD**

**Prof. of Critical Care,  
Critical Care Department,  
Cairo University**

**Prof. Dr. Ashraf Wadie, MD**

**Prof. of Critical Care,  
Critical Care Department,  
Cairo University**

**Prof. Dr. Ahmed Battah, MD**

**Ass. Prof. of Critical Care,  
Critical Care Department,  
Cairo University**

**Prof. Dr. Emad El Din Omar, MD**

**Ass. Prof. of Critical Care,  
Critical Care Department,  
Cairo University**

**Cairo University**

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## Abstract

**Background:** Cardiovascular complications account for the majority of deaths in patients with DM. Despite recent advances in medical therapy for acute myocardial infarction, patients with DM continue to have substantially worse clinical outcomes after AMI than patients without these metabolic abnormalities. This may, in part, be due to abnormal myocardial perfusion after reperfusion therapy.

**Methodology:** The study was conducted retrospectively on 138 patients and prospectively on 40 patients with AMI who were subjected to primary PCI, including 133 male and 45 female with a mean age  $54.51 \pm 10.6$  years (range 24 to 81 years). Patients with previous myocardial infarction, ischemic cardiomyopathy, previous CABG, who developed cardiogenic shock and who had conditions on ECG confounding the interpretation including left bundle branch block (LBBB), pacing and ectopy, all were excluded from the study. All studied patients' data were collected from medical records and angiographic films & reports that included demographic, clinical data on admission and basic angiographic characteristics; ST segment resolution (STR) and myocardial blush grade (MBG) were used to assess myocardial reperfusion; LV systolic function recovery (using EF and WMSI) were assessed in prospectively studied patients.

**Results:** There was a significant difference between the diabetic and non diabetic patients regarding post PCI TIMI flow in the retrospective part of the study (P value= 0.026) while this difference was insignificant in the prospective part of the study (P value= 0.109). Diabetic patients had impaired myocardial reperfusion after primary PCI in comparison to non diabetic patients, as measured by STR (p value = 0.036 in prospective part & p value = 0.000 in retrospective part) and myocardial blush grading (p value = 0.005 in prospective part & p value = 0.000 in retrospective part). Recovery of LV global and regional systolic function (assessed by EF and WMSI) was much better in non diabetic patients (p= 0.003 & 0.007 on the 5<sup>th</sup> and 30<sup>th</sup> day respectively and p= 0.014 & 0.007 on the 5<sup>th</sup> and 30<sup>th</sup> day respectively). There was significant correlation between ST segment resolution and MBG (Correlation Coefficient= 0.663 & P value= 0.000), and between MBG and recovery of LV systolic function (Correlation Coefficient= 0.670 & P value= 0.000).

**Conclusions:** Despite recent advances in medical therapy for acute STEMI and improved clinical outcomes with primary PCI, patients with DM continue to have substantially sub-optimal myocardial reperfusion. Diabetes Mellitus is a major clinical predictor of worse outcome following primary PCI. ST segment resolution (STR) and MBG are excellent assessment tools of myocardial reperfusion and good predictors of LV functional recovery after primary PCI in patients with acute STEMI.

**Key words:** DM, AMI, myocardial reperfusion, STR, MBG&LV function recovery.

