

# Increased Mortality With Early Surgical Revascularization in Acute ST-Elevation Myocardial Infarction (STEMI) After Fibrinolysis: An Analysis of the GUSTO V Study



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## Introduction

- The failure rate of fibrinolysis to restore patency of the infarct related artery remains high.
- A substantial proportion of patients require either percutaneous coronary intervention (PCI) or surgical revascularization following failed fibrinolysis
- The long term safety of coronary artery bypass grafting (CABG) following fibrinolysis has been shown, however, this is balanced by increased risk in the short term.
- The optimal timing for CABG following fibrinolysis for STEMI remains poorly defined.

## Objective

To identify the optimal timing of CABG following pharmacologic reperfusion therapy for patients presenting with STEMI.

## Methods

The GUSTO V study has been previously described. Briefly 16,588 patients presenting within 6 hours of STEMI were randomized to either full dose reteplase or half dose reteplase and full dose abciximab.

### Patient Selection

Patients were enrolled from 820 hospitals across 20 hospitals from July 7, 1999 until February 16, 2001.

The primary endpoint of the study was all cause 30 day mortality. We sought to assess the effect of time to CABG on 30 day and 1 year mortality.

From this population, all patients who underwent coronary artery bypass grafting within 7 days of randomization were selected and analyzed.

### Statistical Analysis

Patients who underwent CABG were divided into quartiles of hours from randomization to surgery. Multivariable Cox regression analysis was used to assess the effect of timing of CABG on both short (30 days) and long term (1 year) mortality. We used SAS version 9 software (SAS Institute Inc, Cary, NC) to analyze all data. All comparisons were considered significant at  $p < 0.05$ .

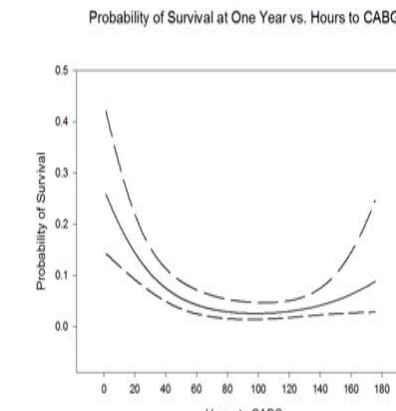
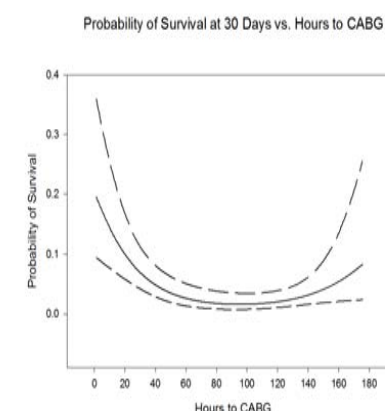
Quartile 1: 1.3-58.2 hours  
 Quartile 2: 58.6-90.4 hours  
 Quartile 3: 90.6-121.5 hours  
 Quartile 4: 122.1-175.6 hours

## Results

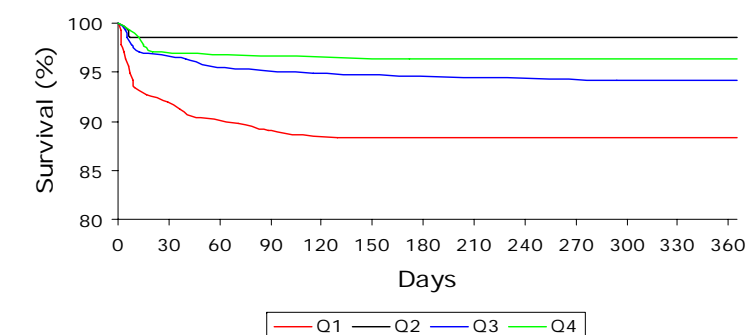
### Baseline Characteristics

- 548 (3.3%)** underwent CABG within 7d of randomization. Those who underwent CABG were more likely to have had hypertension, diabetes, prior MI, prior revascularization and been on aspirin while being less likely to have had prior CHF.
- Among quartiles, there was no significant difference in age, systolic BP, Killip class, history of prior CABG, current tobacco use, cardiogenic shock, mechanical complications or number of infarcts.
- 59 (10.76%)** underwent CABG within 24 hrs of randomization.

	Death Within 30 Days	Alive at 30 Days	P value
CABG within 7 days of randomization	2.4	3.4	0.11
CABG < 24 hrs of randomization	0.9	0.3	<0.01
Mean time to CABG within 7 days ± SD (days)	3.2+/-2.5	6.1+/-1.5	<0.01
	Death Within 1 year	Alive at 1 year	P value
CABG within 7 days of randomization	2.3	3.4	0.03
CABG < 24 hrs of randomization	0.9	0.3	<0.01
Mean time to CABG within 7 days ± SD (days)	4.2+/-2.7	6.1+/-1.5	0.03



### Kaplan-Meier Estimate of Survival Patients by time to CABG in quartiles



## Conclusions

- On average, patients undergoing CABG within 30 hours of pharmacologic reperfusion experienced higher 30 day and 1 year mortality rates
- It may be prudent to adopt a more conservative approach to surgical revascularization immediately after fibrinolysis in STEMI.