

Off-Hour Primary Percutaneous Coronary Angioplasty Does Not Affect Outcome of Patients With ST-Segment Elevation Acute Myocardial Infarction Treated Within a Regional Network for Reperfusion

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OBJECTIVES: This study aims to evaluate whether results of "off-hours" and "regular-hours" primary angioplasty (primary percutaneous coronary intervention [pPCI]) are comparable in an unselected population of patients with ST-segment elevation acute myocardial infarction treated within a regional network organization.

BACKGROUND: Conflicting results exist on the outcome of off-hours pPCI.

Methods: We analyzed in-hospital and 1-year cardiac mortality among 3,072 consecutive ST-segment elevation myocardial infarction (STEMI) patients treated with pPCI between January 1, 2004, and June 30, 2006, during regular-hours (weekdays 8:00 AM to 8:00 PM) and off-hours (weekdays 8:01 PM to 7:59 AM, weekends, and holidays) within the STEMI Network of the Italian Region Emilia-Romagna (28 hospitals: 19 spoke and 9 hub interventional centers).

RESULTS: Fifty-three percent of patients were treated off-hours. Baseline findings were comparable, although regular-hours patients were older and had more incidences of multivessel disease. Median pain-to-balloon (195 min, interquartile range [IQR]: 140 to 285 vs. 186 min, IQR: 130 to 280 min; $p = 0.03$) and door-to-balloon time (88 min, IQR: 60 to 122 vs. 77 min, IQR: 48 to 116 min; $p < 0.0001$) were longer for off-hours pPCI. However, unadjusted in-hospital (5.8% off-hours vs. 7.2% regular-hours, $p = 0.11$) and 1-year cardiac mortality (8.4% off-hours vs. 10.3% regular-hours, $p = 0.08$) were comparable. At multivariate analysis, off-hours pPCI did not predict an adverse outcome either for the overall population (odds ratio [OR]: 0.70, 95% confidence interval [CI]: 0.49 to 1.01) or for patients directly admitted to the interventional center (OR: 0.79, 95% CI: 0.52 to 1.20).

CONCLUSIONS: When pPCI is performed within an efficient STEMI network focused on reperfusion, the clinical effectiveness of either off-hours or regular-hours pPCI is comparable.

Abbreviations and Acronyms

CI = confidence interval
DTB = door-to-balloon delay
ECG = electrocardiogram
IQR = interquartile range
OR = odds ratio
PCI = percutaneous coronary intervention
pPCI = primary PCI
STEMI = ST-segment elevation myocardial infarction
TIMI = Thrombolysis In Myocardial Infarction