

Time of Admission, Quality of PCI Care, and Outcome of Patients with ST-Elevation Myocardial Infarction

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Objective: Our study aimed to determine whether differences in hospital mortality between patients admitted in- and off-normal working hours with ST-elevation myocardial infarction (STEMI) could be reduced within the special logistical setting of Berlin.

Background: There is a debate whether patients with acute myocardial infarction admitted to hospital outside normal working hours experience higher mortality rates than those admitted within normal working hours.

Methods: This study analyzes data from the Berlin Myocardial Infarction Registry and comprises 2131 patients with STEMI treated with percutaneous coronary intervention (PCI) in 2004-2007. The results for patients admitted during in- and off-normal working hours were compared.

Results: There was significant difference in door-to-balloon time (median in-hours: 79 min.; median off-hours: 90 min., $p < 0.001$) and in hospital mortality (in-hours: 4.3%; off-hours: 6.8%, $p = 0.020$) between STEMI patients admitted in- and off-hours for treatment with PCI. After adjustment, admission off-hours remained an independent predictor for in-hospital death for patients (OR = 2.50; 95% CI: 1.38-4.56). In patients with primary care from physician-escorted Emergency Medical Services (EMS), door-to-balloon time was reduced by 10 minutes for in-hours as well as off-hours patients. The difference in hospital mortality between off-hour and in-hour admission was reduced to a non-significant OR = 1.61 (95% CI: 0.79-3.27).

Conclusions: Patients admitted off-hours experienced longer door-to-balloon times and greater hospital mortality than did those admitted in-hours. The differences observed between patients admitted in-hours and off-hours were reduced through physician-escorted EMS that prepared patients' treatment paths.