High-risk patients with ST-elevation myocardial infarction derive greatest absolute benefit from primary percutaneous coronary intervention: results from the Primary Coronary Angioplasty Trialist versus thrombolysis (PCAT)-2 collaboration.

Meta-analyses of randomized trials show that primary percutaneous coronary intervention (PPCI) results in lower mortality than fibrinolytic therapy in patients with myocardial infarction. We investigated which categories of patients with myocardial infarction would benefit most from the strategy of PPCI and, thus, have lowest numbers needed to treat to prevent a death. Individual patient data were obtained from 22 (n = 6,763) randomized trials evaluating efficacy and safety of PPCI versus fibrinolysis. A risk score was developed and validated to estimate the probability of 30-day death in individuals. Patients were then divided in quartiles according to risk. Subsequent analyses were performed to evaluate if the treatment effect was modified by estimated risk. Overall, 446 patients (6.6%) died within 30 days after randomization. The mortality risk score contained clinical characteristics, including the time from symptom onset to randomization. The c-index was 0.76, and the Hosmer-Lemeshow test was nonsignificant, reflecting adequate discrimination and calibration. Patients randomized to PPCI had lower mortality than did patients randomized to fibrinolysis (5.3% vs 7.9%, adjusted odds ratio 0.63, 95% CI 0.42-0.84, P2
hours, fibrinolysis remains a legitimate option in low-risk patients because of the small absolute risk reduction by PPCI in this particular cohort.