Door-to-Balloon Time and Mortality among Patients Undergoing Primary PCI

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BACKGROUND

Current guidelines for the treatment of ST-segment elevation myocardial infarction recommend a door-to-balloon time of 90 minutes or less for patients undergoing primary percutaneous coronary intervention (PCI). Door-to-balloon time has become a performance measure and is the focus of regional and national quality-improvement initiatives. However, it is not known whether national improvements in door-to-balloon times have been accompanied by a decline in mortality.

Full Text of Background...

METHODS

We analyzed annual trends in door-to-balloon times and in-hospital mortality using data from 96,738 admissions for patients undergoing primary PCI for ST-segment elevation myocardial infarction from July 2005 through June 2009 at 515 hospitals participating in the CathPCI Registry. In a subgroup analysis using a linked Medicare data set, we assessed 30-day mortality.

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RESULTS

Median door-to-balloon times declined significantly, from 83 minutes in the 12 months from July 2005 through June 2006 to 67 minutes in the 12 months from July 2008 through June 2009 (P<0.001). Similarly, the percentage of patients for whom the door-to-balloon time was 90 minutes
or less increased from 59.7% in the first year to 83.1% in the last year (P<0.001). Despite improvements in door-to-balloon times, there was no significant overall change in unadjusted in-hospital mortality (4.8% in 2005–2006 and 4.7% in 2008–2009, P=0.43 for trend) or in risk-adjusted in-hospital mortality (5.0% in 2005–2006 and 4.7% in 2008–2009, P=0.34), nor was a significant difference observed in unadjusted 30-day mortality (P=0.64).

**Full Text of Results...**

**CONCLUSIONS**

Although national door-to-balloon times have improved significantly for patients undergoing primary PCI for ST-segment elevation myocardial infarction, in-hospital mortality has remained virtually unchanged. These data suggest that additional strategies are needed to reduce in-hospital mortality in this population. (Funded by the National Cardiovascular Data Registry of the American College of Cardiology Foundation.)