TRENDS IN DOOR-TO-BALLOON TIME AND OUTCOMES FOLLOWING PRIMARY PCI FOR STEMI

Poster Contributions
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Session Title: Percutaneous Coronary Intervention for AMI: Predictors of Outcome
Abstract Category: 1. Acute Coronary Syndromes: Clinical
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Background: US guidelines recommend a door-to-balloon time (DTBT) of ≤90 minutes for patients presenting with ST-elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PPCI). System improvements to reduce DTBT were implemented across the period of this study and included regular peer-based review of results, reductions in system delay through electronic transmission of ECGs from the field and the bypassing of emergency departments.

Methods: We assessed temporal trends in DTBT from 2006-2010 in 1,921 STEMI PPCI’s from the Melbourne Interventional Group registry, Australia. We excluded STEMI’s presenting >12 hours, rescue PCI’s and patients transferred from a non-PCI capable hospital.

Results: The median (IQR) DTBT decreased from 95 (74 to 130) minutes in 2006 to 75 (51 to 100) minutes in 2010, p (for trend)<0.001, and the proportion of those achieving a DTBT of ≤90 minutes increased from 45% to 67%, p (for trend)<0.001 across the same period. Clinical presentation was similar across the years apart from an increase in those presenting following out-of-hospital cardiac arrest (OHCA), 3.6% to 9.4%, p (for trend)<0.001 or with cardiogenic shock (CS), 7.7% to 9.6%, p (for trend)=0.07. In-hospital, 30-day and 12-month mortality and MACE were all significantly worse when the DTBT exceeded 90 minutes (all p<0.001). Despite the decrease in overall DTBT, in-hospital and 30-day mortality and MACE tended to increase across the years. However, when OCHA and CS cases were excluded (n=292), any trend towards worse outcomes disappeared. No significant trend in symptom-to-door time (STDT) was observed across the years, nor was it associated with outcomes. Multivariate analysis showed a DTBT of ≤90 minutes was associated with improved survival at 12-months (OR 0.48; 95% CI: 0.33-0.73, p=0.001).

Conclusions: Our program of system improvements resulted in a decline in the median DTBT despite an increase in patients with OCHA and shock being treated. DTBT of ≤90 minutes is associated with improved outcomes at 30-days and 12-months. There remains room for improvement to achieve the recommendation that at least 75% of patients be treated with a DTBT of ≤90 minutes.