Quality of care, mortality and missed guideline recommended opportunities for the treatment of STEMI: A national cohort study.

Title

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Purpose

More patients than ever survive hospitalisation with ST-elevation myocardial infarction (STEMI). Yet, around half the patients who are eligible for treatments during their admission do not receive them. We aimed to study the cumulative effect of missed guideline recommended care opportunities during the hospital stay, their impact on mortality, and whether patient and hospital-level factors were associated with them.

Methods

Prospective national cohort study comprising 59,811 STEMI surviving to hospital discharge across 234 hospitals in England and Wales, 2007-2010. A nine-factor score (representing guideline recommended STEMI care opportunities) was calculated for each hospital. Mixed effects models were used to estimate the strength of associations.

Results

Across the pathway of care, pre-hospital ECG and timely reperfusion had the greatest contribution to missed care opportunities, followed by cardiac rehabilitation and ACEi prescription at discharge (Figure 1). More opportunities for care were missed in females than males (11.1% vs. 8.8%, \( P<0.05 \)), higher risk patients (11.8% vs. 7.1%, \( P<0.05 \)) and those aged greater than 85 years (12.5% vs. 7.8%, \( P<0.05 \)). Early missed care opportunities (pre-hospital ECG and timely reperfusion) were significantly
associated with further missed opportunities for care (discharge prescription and cardiac rehabilitation). Missed care opportunities were greater in lower volume hospitals, and those with no PCI facilities or fewer cardiology beds. Hospital median 30-day and 1-year mortality rates increased from lowest hospital score quintile to highest: 1.2% vs. 1.6% (aOR 1.43 95% CI 1.02 to 2.01) and 7.2% vs. 10.7%, (aOR 1.04 95% CI 0.84 to 1.28), respectively.

**Conclusion**

Missed guideline recommended care opportunities for STEMI are common among patients who are eligible to receive them, accumulate over the hospital stay and are associated with higher mortality rates. Beyond readily identifiable patient factors, potentially modifiable hospital characteristics are also associated with quality of acute cardiovascular care and outcomes.

**Figure 1.** The median hospital missed opportunity for the individual components of the missed opportunity score.