

A population based study on the night-time effect in trauma care

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Abstract

Background

The so-called off hour effect—that is, increased mortality for patients admitted outside normal working hours—has never been demonstrated in trauma care. However, most of the studies excluded transferred cases. Because these patients are a special challenge for trauma systems, we hypothesised that their processes of care could be more sensitive to the off hour effect.

Methods

The study design was retrospective, cohort and population based. We compared the mortality of all patients by daytime and night-time admittance to hospitals in an Italian region, with 4.5 million inhabitants, following a major injury in 2011. Logistic regression was used, adjusted for demographics and severity of injury (TMPM-ICD9), and stratified by transfer status.

Results

1940 major trauma cases were included; 105 were acutely transferred. Night-time admission had a significant pejorative effect on mortality in the adjusted analysis (OR=1.49; 95% CI 1.05 to 2.11). This effect was most evident in transferred cases (OR=3.71; 95% CI 1.11 to 12.43).

Conclusions

The night-time effect in trauma care was demonstrated for the first time and was maximal in transferred cases. This may explain why it was not found in previous studies where these patients were mostly excluded. Also, the use of population based data—whereby patients not accessing trauma centre care and presumably receiving poorer care were included—may have contributed to the findings.