



CWIS Chest Wall Injury Summit 2023

Oral Presentation Abstract Submission

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Title of Presentation Healthcare utilisation outcomes in patients with blunt chest wall trauma following discharge home from the Emergency Department: a retrospective, population-based, data-linkage study

Background

Whilst much is published reporting clinical outcomes in the patients with blunt chest wall trauma who are admitted to hospital from the ED, less is known about the patients' recovery when they are discharged directly home, without admission. The primary aim of this study was to investigate the healthcare utilisation outcomes (≤ 12 weeks) in adult patients with blunt chest wall trauma, discharged directly from ED in a trauma unit in the UK. Secondary aims were to investigate the impact of age, sex and social deprivation on outcomes in the same patient cohort.

Methods

This was a longitudinal, retrospective, single-centre, observational study incorporating analysis of linked datasets, using the Secure Anonymised Information Linkage (SAIL) databank for admissions to a trauma unit in the Wales, between 1st January 2016 and 31st December 2020. All patients aged ≥ 16 with a primary diagnosis of blunt chest wall trauma discharged directly home were included. The data source used for this study was the SAIL Databank, a secure repository both established and managed by Swansea University Medical School in Wales. Welsh Index for Multiple Deprivation (WIMD) deciles were used for analysis of deprivation. Data was analysed using a negative binomial regression model

to demonstrate comparisons between healthcare utilisation and outcomes for a 12-week periods pre and post-injury. Ethical approval was obtained from the Health Information Research Unit's Information Governance Review Panel.

Results

A total of 3205 presentations to the ED were included in the final analysis. A total of 57% of patients were male, with the predominant injury mechanism being a low velocity fall (50%). 93% of the cohort sustained between 0-3 rib fractures. Only 4% of the cohort were reported to have COPD, and 4% using pre injury anticoagulants. 85% of cases were referred to primary care for follow-up on discharge from the ED. Deaths were reported in 1% of cases. On regression analysis, the number of inpatient admissions, outpatient appointments and primary care contacts all significantly increased in the 12-week period post injury, when compared with the 12-week period pre-injury (OR: 1.63 95% CI: 1.33 1.99, $p < 0.001$; OR: 1.28, 95% CI: 1.14 1.43, $p < 0.001$; OR: 1.02. 95% CI: 1.01 1.02, $p < 0.001$ respectively). Risk of healthcare resource utilisation increased significantly with each additional year of age, COPD and pre-injury anti coagulant use (all $p < 0.01$).

Conclusion

In patients with blunt chest wall trauma discharged directly home from the ED, there is a significant increase in healthcare resource utilisation in the first 12-weeks post-injury compared to the 12-week period pre-injury, and this risk increases significantly with increasing age, COPD and pre-injury anti-coagulant use. Number of rib fractures did not impact outcomes. The results of this study demonstrate the need for appropriate signposting and follow-up for patients with blunt chest wall trauma presenting to the ED, not requiring admission to the hospital.