

## Background

Admissions of severe TBI reach a peak during weekends, typically affecting younger patients. The term “weekend effect” with increased morbidity and mortality occurring during weekends has been related to various medical disorders and shows varying results in trauma patients. The aim of this study was to explore patient characteristics and outcome on weekend vs weekday admissions of severe TBI in Norway based on population-based data from a national trauma database.

## Methods

This study is an observational cohort study based on the prospectively maintained National Trauma Registry of Norway (NTR). The study period was between 01.01.2017 and 31.12.2020 and included all patients with an Glasgow Coma Scale (GCS)  $\leq 8$ , Abbreviated Injury Scale (AIS) score for head injuries of  $\geq 3$  or more and Injury Severity Score (ISS)  $\geq 13$ .

## Results

A total of 627 patients with severe TBI were included and most patients were admitted on weekdays (58%) compared to weekends (42%). Weekend admissions had a significantly younger patient cohort (50.0 years, IQR 29.5-65.0,  $P=0.013$ ) compared to weekdays (57.0 years, IQR 33.0-74.0). Weekday admissions had a significantly higher proportion of patients over 65 years ( $P<0.001$ ). During weekends, the most frequent causes of injury were high-energy falls ( $n=95$ , 36%), high-energy falls and road traffic incidents were equally predominant on weekdays ( $n=198$ ,  $n=201$  respectively, both 32%). Both groups had similar injury severity with a median GCS of 6 and majority of patients with critical AIS head injury severity (weekday  $n=222$ , 61% vs weekend  $n=155$ , 59%). The 30-day mortality of all patients was 39% ( $n=246$ ). There was a significant difference ( $p=0,025$ ) in mortality with weekday admissions demonstrating higher mortality (43% versus 34%).

## Conclusion

In this study there appeared to be no weekend effect and in fact weekday admissions were associated with higher mortality. Standardized trauma-care with all-hours rapid response likely plays a factor.