

Specific opportunities for improvements - trauma-1

Add a Subtitle if Needed

Maja Martos

Trauma is the most common cause of death among Swedes during the first four decades of life [riddez2013?] Yet a systematic review covering trauma-related studies in Nordic countries the years 1995–2018, show that they fall behind when it comes to number of publications on the subject compared with other economically similar countries. [jeppesen2020?]

In the same time, Nordic countries differ from other countries with colder climate, few cases of serious trauma annually and long distances to trauma centres as few hospitals are equipped to treat trauma-1 patients. [jeppesen2020?] In Sweden, the Karolinska University hospital covers the regions of Stockholm, Gotland, Södermanland and Västmanland, equivalent to 3 million residents. This is just on par with the minimum number of patients needed to be recognized as a quality trauma centre internationally. The hospital is also the only facility in Sweden to qualify as a trauma-1 hospital according to American standards [KarolinskaTraumaCentrum2018?]

From 2010, The Swedish Trauma society holds a national registry over patients suffering serious trauma in Sweden, where serious trauma is defined as traumatic events leading to either a trauma alarm or a new injury severity score (NISS) over 15. In 2021, a total of 10,528 patients (an increase of 17% from 2020) were registered. Of these, 90% were assigned to blunt traumas such as falls, traffic accidents and blunt force traumas with objects and the rest to penetrating trauma such as gun shots and stabbing. [Swe-Trau_årsrapport_2021?]

To detect non-optimal treatment, trauma patients with fatal outcome are evaluated by a multidisciplinary review board appointed by the hospital. The group consists of a surgeon, an anaesthetist, a trauma nurse and a specialist from the relevant specialty, dependent on specific injury e.g., intracranial, orthopaedic or thoracic/vascular. Competences involved in the direct care of the patient are free to attend the conference but should not take part in the review. The aim of the review is to determine cause of death and whether the outcome was anticipated. The review should further be used as the basis for identifying opportunities for improvement (OFI) and following interventions to prevent avoidable deaths [fortydligadeDodsanalys2019?] The Karolinska University Hospital holds a register of trauma patients treated at the hospital, where OFI is registered as a binary variable (yes/no) for each patient registered.

Opportunities for improvement OFI

Both anticipated (preventable) and unanticipated (non-preventable) mortality can be presented with-or without opportunities for improvement (OFI). OFI include all aspects of the medical chain e.g. prehospital care, under triage, delays, etc where there are opportunities for optimisation

Clinical prediction models

Several prediction models (e.g., NEWS) are applied in the clinic to help health care workers distinguish between seriously injured trauma patients and stable ones. For the models to be clinically useful, they should be user-friendly and guide important decisions in stressful and time scarce situations, why they often include few parameters and have binary outcomes. While user-friendly, these generic models lack precision and are static throughout different settings, making them difficult to evaluate with respect to patient outcome. [baker2017?] To improve survival for trauma-1 patients, we therefore want to identify specific opportunities for improvement by studying patient outcomes and specific opportunities for improvement assessed by the multidisciplinary review board at the Karolinska University Hospital.

***Aim Identify specific opportunities for improvement related to blunt multisystem trauma with traumatic brain injury, blunt multisystem trauma without traumatic brain injury, penetrating trauma, and isolated severe traumatic brain injury, through assessment of clinical patient cohorts.*

Methods

Study design

A registry-based cohort study linking data from the Swedish trauma registry SweTrau and trauma care quality data base at the Karolinska University Hospital in Solna. The combined data will further be assessed through multinominal logistic regression to identify specific opportunities for improvements (OFI), identified by the multidisciplinary review board at the Karolinska University Hospital. All data will be managed and analysed in R software using ...

Obejectives

Participants

Variables

The primary outcome will be specific opportunities for improvements ...

Data soures/measurement

Bias Study size

Quantitative variables

Statistical methods