Does trauma system regionalization improve outcomes in patients with major traumatic injuries?

Zia Danesh Jummani[1*]
1. Burjeel Royal Hospital, Abu Dhabi, UAE
Correspondence to: Zia Danesh Jummani
*Burjeel Royal Hospital, Abu Dhabi, UAE
Email: ziadanesh@rediffmail.com
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Introduction:
Trauma system regionalization is a fundamental approach to trauma care leading to preventable deaths and decreased morbidity amongst major trauma care patients. A trauma system consists of all critical components of the patient pathway which include injury prevention, pre-hospital care, patient transfer, initial management, definitive management, and rehabilitation. Trauma care systems are operating in the USA, Germany, Australia, and the UK.

UAE initiated trauma registry and system development in 2010. Comparative analysis of trauma system would enhance strategy implementation by public health decision makers in enhancing trauma patient care outcome measures.

Aims / Objectives:
Systematic review of the evidence for the impact of trauma system regionalization on clinically important trauma outcome measures including mortality.

Materials / Methods:
Trauma registry data from TARN in the UK would be analyzed in addition to the literature search for the effect on trauma outcome measures pre-trauma and post-trauma system regionalization. The Al Ain Hospital (AAH) trauma registry data would be analyzed as reflection of UAE trauma practice. Data were obtained from the AAH trauma registry from January 2014 to March 2019 of 6210 patients.

Discussion:
The study showed various beneficial interventions such as pre-hospital care, trauma bypass, major trauma center, specialist and senior clinician assessment, upgraded hospital protocols, rehabilitation which was deemed instrumental in delivering the right care to the right patient at the right time and enhancing the quality of trauma care.

- Young male expat population were higher in UAE.
- Falls as a cause of the trauma are higher with 37.2% in UAE bringing into focus the need for health and safety preventative measure.
- Trauma centers in the UK cater to patients with higher ISS accounting for higher mortality and bed days.
- 24% of the UAE trauma patients had full trauma code activation and clinically managed either by an ED Specialist or Consultant.
- The majority of the patients were discharged with good GCS score and the mortality for the trauma patients was only 50 out of 6210 patients in the registry which surprisingly is far less as compared to UK TARN data of almost 11.7%. This could be because of the ISS score of less than 15 for almost 92.3% of all UAE trauma patients.

Conclusion:
Research is suggestive of improvement in trauma care services and risk-adjusted mortality for trauma patients with regionalization. For the UAE to realize benefits every critical component needs to be carefully studied and analyzed before its implementation along with cost-benefit analysis for authorities to decide and facilitate policies for the trauma system development and regionalization.

Reference / Recommendation:
Recommendations are based on citations, literature review, observations, data analysis and researcher's clinical practice in the Emergency Department.