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Silver Trauma in a Major Trauma Centre - A Service Review for 2017

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Abstract

Introduction: Elderly trauma (defined as > 65 years of age) now accounts for more than 20% of UK major trauma. There is an increase in the proportion of patients with major trauma aged 75 years or above, from 8.1% in 1990 to 26.9% in 2013. Older patients managed at trauma centres that treat a higher proportion of older people with injury have been shown to have lower in-hospital mortality rates. Late identification of injury has a number of adverse consequences; such as less involvement of senior medical staff, longer times to investigation and longer times to treatment. This service evaluation reviews patients > 65 years old presenting at a Major Trauma Centre in the North West of England in 2017.

Methods: Permission was granted by the Clinical Audit Department (CAMS 6455) at our institution. A case note review was undertaken of all patients who were included in our TARN records who were > 65 years old, with an ISS > 15 who activated the Trauma Team.

Results: Of the 127 cases analysed the mean age was 76.7 (range 65.1 - 99.4) with a median of 75.5. There were 77 Male patients and 50 Females and 44 recorded 3 or co-morbidities on arrival with 51 recording 3 or more medications. The trauma team leader was a consultant in all cases with 65 patients arriving out of normal working hours (between 1800 and 0800). There were 11 patients on a prescription of Warfarin (Octoplas was given to 4 of them) and 7 Patients on Novel Anticoagulants (Apixaban 5, Rivaroxaban 1, Dabigatram 1. Twenty-three patients died within 30 days of injury.

Conclusion: In 2017, patients ≥ 65 years old accounted for 38.2% of patients on the TARN database. Patients ≥ 65 years old with an injury severity score ≥ 15 accounted for 19.5% of cases. The most common mechanism was actually a fall from > 2 meters which is in contrast to the national TARN database review which quoted a fall from < 2 meters. The elderly may have significant comorbidities and so previous lessons learnt from the Defence Medical Services are not always appropriate.

Keywords: *Silver Trauma; Trauma Centre*

Introduction

Elderly trauma (defined as > 65 years of age [1]) now accounts for more than 20% of UK major trauma [2]. Elderly patients suffering severe injury at home indoors are frailer, and therefore more likely to succumb to their injuries, than those injured outdoors [3]. Kehoe and colleagues demonstrated an increase in the proportion of patients with major trauma aged 75 years or above, from 8.1% in 1990 to 26.9% in 2013 [4]. Dinh and colleagues observed an increase in the proportion of patients with major injury aged 65 years and older, from 20% in 1991 to 33% in 2010, at a single trauma centre in Australia [5]. Older patients managed at trauma centres that treat a higher proportion of older people with injury have been shown to have lower in-hospital mortality rates [6].

In 2017, the Trauma Audit and Research Network (TARN) published a report into major trauma in older people with an Injury Severity Score (ISS) > 15 [7]. Key findings were that two distinct types of major trauma are seen; high energy transfer trauma in younger patients and lower energy in the elderly where a fall of < 2m is was the commonest mechanism. Older people were more likely to be injured indoors, presenting during daytime hours. Time to CT head was 1.5 hours longer than younger patients. Late identification of injury has

a number of adverse consequences; such as less involvement of senior medical staff, longer times to investigation and longer times to treatment [7].

This service evaluation reviews patients > 65 years old presenting at a Major Trauma Centre in the North West of England in 2017.

Methods

Permission was granted by the Clinical Audit Department (CAMS 6455).

A case note review was undertaken of all patients who were included in our TARN records who were > 65 years old, with an ISS > 15 who activated the Trauma Team.

Results

The analysis of cases is described in figure 1. Of the 127 cases analysed the mean age was 76.7 (range 65.1-99.4) with a median of 75.5. There were 77 Male patients and 50 Females and 44 recorded 3 or co-morbidities on arrival with 51 recording 3 or more medications. The mechanism of injury is recorded in table 1. The trauma team leader was a consultant in all cases with 65 patients arriving out of normal working hours (between 1800 and 0800). There were 24 patients intubated in the Emergency Department, and 23 patients required critical care. There were 11 patients on a prescription of Warfarin (Octoplas was given to 4 of them) and 7 Patients on Novel Anticoagulants (Apixaban 5, Rivaroxaban 1, Dabigatran 1. Twenty-three patients died within 30 days of injury.

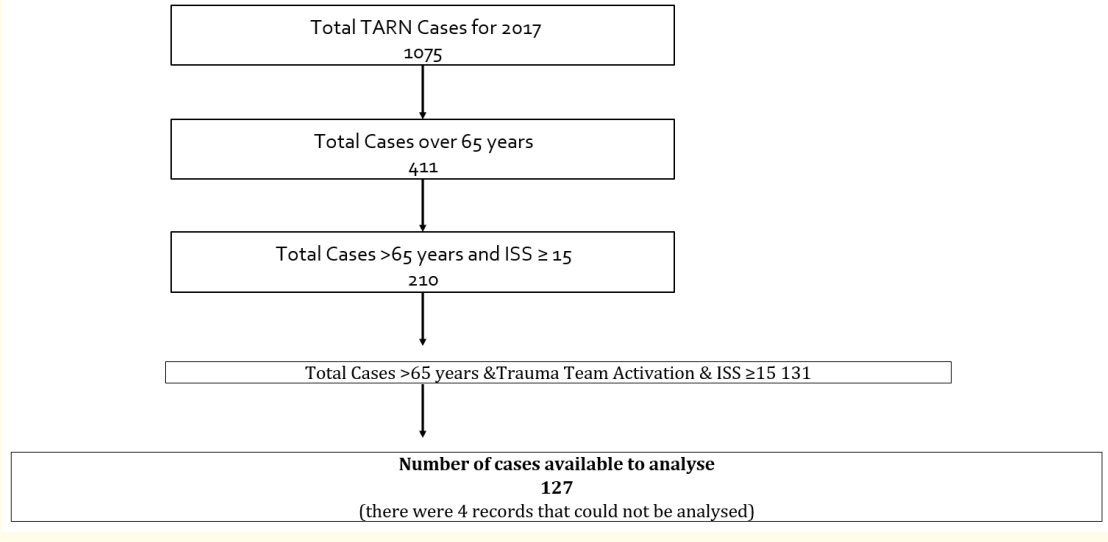

Figure 1

Mechanism of injury	
Blow	4
Crush	1
Fall < 2m	32
Fall > 2m	67
Vehicle Collison/Incident	23

Table 1: *Mechanism of injury of Silver Trauma patients analysed.*

Of the 114 CT Scan performed at Aintree, 54.4% were performed in less than 30 minutes of arrival and 84.2% within 45 minutes. Guidelines from the National Institute for Health and Care Excellence (NICE) recommend a CT scan within one hour from arrival [9] and this was achieved in 90.4% of cases. Seventy-five patients (59.1%) had a documented head injury and 28 (22.0%) patients were classified as being in haemorrhagic shock on arrival. There were 10 patients who were transferred directly to theatre for operations listed in table 2.

Injuries Sustained	Operation Performed
Road traffic incident. Right middle lobe contusion. Right 2 - 8 rib fractures and Left 2nd rib fracture. Right mesenteric haematoma. Right iliac crest fracture. Right open tibial plateau fracture.	External fixation right tibia
Fell from ladder	Thoracic Stent of Transectional Aorta
Road traffic incident. Crush Injury.	Paravertebral Catheter Insertion
Fall from 8 stairs. C6 Spinous process fracture. Rib fractures with flail segments	Open reduction and internal fixation to ribs
Road traffic incident. Head on Collision	Wash out ankles. Ex-Fix application to bilateral ankles.
Road traffic incident. (Paedestrian). Traumatic Brian Injury.	Ex-Fix Ankles and open reduction and internal fixation to left ulnar.
Fall from roof.	Trauma Laparotomy. (Splenectomy)
Road traffic incident. Crush Injury	Trauma Laparotomy. (Splenectomy)
Road traffic incident. (Paedestrian)	Open reduction and internal fixation to right ankle, pelvis and left femur.
Fall from 4 - 6 steps.	Open reduction and internal fixation left ribs (flail segment)

Table 2: *There were 10 patients who were transferred directly to theatre (7.9%).*

Discussion and Conclusion

In 2017, patients ≥ 65 years old accounted for 38.2% of patients on the TARN database at Aintree University Hospital, this review is only of 2017. Patients ≥ 65 years old with an injury severity score ≥ 15 accounted for 19.5% of cases. A recent national database review [7] quoted a figure of 30% but they used 60 years as their cut off. In our case series, 'major silver trauma' now accounts for one fifth of our trauma workload as per the TARN database. It is well known that the elderly may have significant comorbidities and so previous lessons learnt from the Defence Medical Services [8] are not always appropriate. At Aintree University Hospital, 44 patients (34.5%) recorded ≥ 3 comorbidities and 51 patients (40.2%) had ≥ 3 medications recorded on their initial clerking. Length of stay data was not available and 3 patients died within 30 days of admission.

The most common mechanism was actually a fall from > 2 meters which is in contrast to the national TARN database review [7] which quoted a fall from < 2 meters. Despite half our patients presenting outside of normal working hours they all received consultant delivered care. This is important for robust decision making in complicated patients. Of the 114 CT Scans performed at Aintree, 54.4% were performed within 30 minutes of arrival and 84.2% within 45 minutes of arrival. The NICE guidelines for the management of head injury suggest a timing of < 1 hour [9] and this was achieved in 90.4% of cases.

'Silver Trauma' is now high on the agenda and its increase in the trauma workload is part of the changing face of trauma in England [4]. To ensure that our trauma teams are confident in dealing with 'Silver Trauma', we will now ensure that there is a dedicated 'Silver Trauma' scenario included into our in-house high-fidelity trauma course [10]. We will also consider if an increased workload of elderly trauma should require an elderly medicine physician to be part of the trauma team for patients over 65 years of age in the future.

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