Developing a ‘Direct to CT’ Protocol for Helicopter Emergency Medical Service (HEMS) Trauma Patients arriving at a Major Trauma Centre

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BACKGROUND

Whole body multislice CT has become an integral part of the initial assessment of trauma patients. It provides rapid, accurate diagnosis of a wide range of injuries and is often the rate limiting step in determining definitive care for the patient. Minimising delays to diagnostic imaging is one of the prime objectives in trauma resuscitation. The information from CT alters management in up to 25% of patients1 and reducing time to CT reduces time to emergency surgery. For patients with major haemorrhage limiting the number of transfers is also desirable.

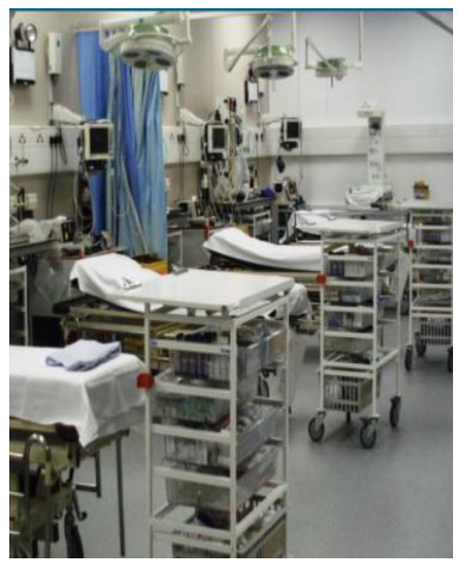
We outline the development of a protocol to scan HEMS patients on arrival at a Major Trauma Centre by delivering them directly to the CT Scanner.

PROCESS DEVELOPMENT

Stakeholders from the Emergency Department, Trauma Service, Radiology and HEMS devised the initial protocol which was refined following wider review. After ratification by the Trauma Clinical Advisory Group and the Novel Procedures Committee a trial period was agreed, followed by a phased introduction with regular review.

Trauma patients treated by HEMS are considered eligible unless immediate interventions are required, or the trauma team leader expresses clinical concerns. Patients are received by the trauma team in the CT scanner, the scan is performed and reported by a consultant radiologist immediately. The patient is then transferred directly to theatre, critical care or the resuscitation area in the Emergency Department.

FIGURE 1



RESUS

INJURY

CT SCAN

EVALUATION

To date 152 patients have followed the pathway, 83% were male with a mean age of 44 years. Blunt Injuries accounted for 92% with a mean ISS of 20, and 56% had an ISS > 15. There have been no adverse events reported and the proportion of scans showing no significant abnormality has not changed significantly since the introduction of the protocol (25% vs 23%).
Subjective feedback from the HEMS teams and hospital staff has identified inconsistencies in the trauma team attendance to CT handovers, and issues relating to differing levels of experience of the procedure amongst nursing staff. It is hoped these issues can be addressed through additional training.
A review is underway to evaluate the effect the protocol has had on time to theatre, critical care and total time in the emergency department.

DISCUSSION

The role of the trauma team review in Resus is to conduct a primary survey identify significant injuries, optimise ventilation, and provide adequate fluid resuscitation before rapidly moving the patient to immediate intervention (surgery or interventional radiology) or to CT. A prehospital doctor and paramedic team can address these issues on scene and during transport, identifying the patients suitable to be transferred directly to CT, reducing the time to definitive care.
The protocol is an example of collaboration between services to improve the transition from the prehospital phase to inpatient care, and shows a novel practice development can be implemented safely and effectively to improve patient care. Determining the impact of immediate CT on patient outcome is challenging, but at least one randomised control trial is underway (ASPECT2).

CONCLUSIONS

Integration of prehospital services into hospital protocols minimises time to definitive care

With effective training and clinical governance a ‘Straight to CT’ protocol involving multiple services can be safely introduced

More studies are needed to assess the impact on time to definitive care and outcome

REFERENCES

References:
1. Salim A, Sangthong B, Martin M, Whole body imaging in blunt multisystem trauma patients without obvious signs of injury: results of a prospective study. Arch Surg. 2006 May;141(5):468-73