Limiting the Use of CT Brains for Investigation of Head Injury in a Major Trauma Centre

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Background

Head trauma is a common presentation to emergency departments. Exclusion of intracranial injury is required due to its significant morbidity and mortality. Unfortunately, exclusion is reliant on clinical history and CT scans which have risks to patients and both financial and logistical impacts on EDs. Because of this most hospitals (and ACEM) have guidelines to minimize the use of head CT scans, usually based on the Canadian CT Head rule. A rule that has been validated in multiple settings to be highly sensitive & specific in detecting injuries requiring neurosurgery. The audit looked at the use of CT scans for head injury presentations and adherence to local guidelines.

The RBWH is a tertiary hospital and major referral centre for the Metro North area of Brisbane. The Emergency and Trauma Centre (ETC) is a level 6 Adult ED and sees around 300 emergency patients per day and over 600 minor head injury patients a year.

Method

- RBWH Radiology department collated data for all CT heads performed, referred from RBWH ETC in July 2019 (450)
- Medical notes were then analyzed to remove all CTs not completed for investigation of head trauma (e.g. Stroke)
- Only isolated CT heads were included (i.e. CT Head + C-spine were not included) n=100
- Data collected included: pt URN, age, arrival time, CT requested time, CT performed time, CT reported time, mechanism of injury and whether they were indicated based on the RBWH guideline

Results

- average CT head will take 60 minutes to be completed from request time and a total of 100 minutes from being requested to having a report
- 100 CT heads ordered for head injury in 1 month
- 22% of CTs did not meet indications based on the RBWH & ACEM guidelines
- Potential to save 36hrs of waiting time per month in RBWH ED if guidelines are adhered to
- Most common presentations requiring CTs were young pts presenting post alcohol intoxicated falls and assaults and elderly people with mechanical falls
- Most common CT indications were anticoagulation and age
- Only 4 CTs showed an ICH, with 1 requiring neurosurgical management (burrholes for a Subdural haematoma)

Main findings

- Repeating the study at other trauma centres and comparing to urban district and rural hospitals with limited access to CT
- Repeating this audit following presentation of this data and advertising of guidelines
- Investigation into what the reasons are so many non-required CT heads are ordered
- Reviewing who orders CTs and if any interventions could reduce scans (e.g. SMO ordering)

Future work

- Repeating the study at other trauma centres and comparing to urban district and rural hospitals with limited access to CT
- Repeating this audit following presentation of this data and advertising of guidelines
- Investigation into what the reasons are so many non-required CT heads are ordered
- Reviewing who orders CTs and if any interventions could reduce scans (e.g. SMO ordering)