Radiology Registrars in the Hot Seat: Accuracy of Trauma CT Cervical Spine reports issued during on calls

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Introduction

- CT Cervical Spine (C-Spine) scans are frequently performed within a trauma setting during on call periods.
- Initial provisional reports are issued by Radiology Registrars. These are subsequently checked and verified by Consultant Radiologists.
- Timely and accurate interpretation of the CT scans plays an important role in patient treatment and outcome following cervical spine injury.
- Discordant reports between radiology residents and Consultant Radiologists can occur due to a variety of factors. These include cognitive, perceptual, and communication errors as well as satisfaction of search [1].
- A number of previous studies comparing CT reports between Consultants and radiology trainees have been published. These demonstrated overall CT discrepancy rates varying between 8-25%, with major amendments recorded as being between 0.8-4.5% [2, 3, 4, 5].
- The aim of this study was to determine the discrepancy rate between the provisional report and the final report and the impact of discordant reports on patient management.

Methodology

- A retrospective observational study of consecutive CT C-Spines reported by Registrars while on call from November 2014 - November 2015.
- Preliminary Registrar reports were compared with the final report issued by the Consultant.
- Any discordancy was recorded and independently reviewed by 2 experienced Musculoskeletal Radiology Consultants.
- Discrepancies between the two reports were classified as major, significant and minor.

Results

- 630 CT Scans were included in this study.
- 34 discrepancies were found giving an overall error rate of 5.4%. There were 3 misses (0.5%) classified as major, 14 significant (2.2%) and 17 minor (2.7%).
- There were 3 false positive errors. No significant association in discrepancy rate between various training years was identified.
- We present the three major discrepancies found during this study (Cases 1-3).

Conclusion

- The incidence of major discrepancies at our institution is low and comparable to published research.
- They did not significantly impact patient management.
- Our study provides an insight into common errors made by Registrars.
- We highlight the importance of sufficient training for Registrars. This includes preparation for on calls by highlighting frequent errors made and the preceding cause for these. It is imperative to provide adequate training, identify common mistakes and the cause for the mistakes prior to starting on call.

Case Studies

Case 1

79 year old Female with a known history of Osteoporosis fell down 5 steps. She complained of immediate neck pain. Clinical examination revealed C2 tenderness. The CT C-Spine was reported as normal by the radiology resident on call. Checking and verification of the scan by the Consultant revealed a fracture through the right C4/C5 facet joint with widening (Fig. 1 and Fig. 2), a fracture through the left C5 foramen transversarium and Clay Shoveller’s fractures at C4 and C5 (Fig. 3).

Case 2

81 year old female presented to the A&E Department with neck pain and multiple areas of bruising to the head after a fall whilst intoxicated. He was tender at C5-C7. The CT C-Spine was reported as normal by the radiology resident. Checking of the scan by the Consultant Radiologist demonstrated a fracture through the right C5 foramen transversarium (Fig 4).

Case 3

A 35 year old female was involved in a road traffic accident (RTA). She had a whole body trauma CT scan. The Radiology Resident reported the CT C-Spine as normal. Checking by the Consultant Radiologist revealed an undisplaced fracture through the left occipital condyle (Fig 5).

References