Re-auditing the Adequacy of cervical spine (c-spine) imaging in trauma referrals from the emergency department

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INTRODUCTION

• Adequate, good quality plain radiograph series of the cervical spine to include; anterior-posterior, lateral and odontoid peg views can be used in conscious trauma patients to exclude unstable cervical spine fractures 99% of the time(1).
• If this is not possible, further imaging, CT C-spine or MRI C-spine are required to safely clear cervical spines(2, 3).
• Unconscious trauma patient need direct CT Spine imaging

STANDARDS AND TARGET

• 100% of the cases should have an adequately visualised c-spine to include these 3 views. Otherwise, further view, CT or MRI are required to confidently clear the C-spine.

METHOD

• 100 cases were reviewed in Round 1
• 50 cases were reviewed in round 2.
• Patients were identified by the lead radiographer using the PACS system.
• The following parameters were collected for each consecutive cases as per RCR Audit Recipe
  • Plain film view series
  • Radiology report
  • Adequacy
  • Further reported advise
  • Further Imaging and modality if performed
• Chi-Square testing was used to calculate the statistical significance of the rounds.

REFERENCES

2. Royal College of Radiologists. Making the best use of clinical radiology.

RESULTS AND DISCUSSION

• There is a marked improvement in plain radiograph adequacy.
• Adequate plain radiograph rates improved statistically from 40% in round 1 to 70% in round 2 (P-Value = 0.001 using Chi-squared 2 variable analysis).
• The commonest pitfall to inadequate views remains the inadequate visualisation of the C7-T1 junction.
• In a large proportion of cases, patients remain to be cleared of c-spine injuries with sub-optimal images, however the rate has dropped from 28% in round 1 to 18% in round 2 (not statistically significant P-Value = 0.18).
• In round 1, 85% of the additional imaging used the swimmer’s view, this offers little diagnostic benefit(4). In round 2, 100% of the reimaging was either CT or MRI.
• A low threshold for further imaging using CT and MRI to clear c-spines remains a priority.

FIVE SECOND SUMMARY

• If the plain film views are technically inadequate or suspicious, a low threshold for further imaging with further advise for further imaging is required.
• Further advise on further recommended imaging modalities should be provided by the reporting radiologist.
• Unconscious trauma patient need direct CT Spine imaging.