Joint Trust Guideline: The Assessment and Management of Adult Inpatients (following a fall) with Actual or Suspected Head Injury

A Clinical Guideline

For use in:	James Paget University Hospital and Norfolk & Norwich University Hospital
By:	Nursing and Medical Staff
For:	Adults suffering head injury after an inpatient fall
Division responsible for document:	Surgical
Key words:	Neurological observations, inpatient fall, head injury
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Assessed and approved by the:	Clinical Guidelines Assessment Panel (CGAP) If approved by committee or Governance Lead Chair's Action; tick here √
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Ratified by or reported as approved to (if applicable)**:**	Clinical Safety and Effectiveness Sub-Board
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To be reviewed by:	Dr Ruth Rallan
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Version No:	2
Compliance links: *(is there any NICE related to guidance)*	NICE (Sept 2019) Clinical Guideline 176
If Yes - does the strategy/policy deviate from the recommendations of NICE? If so why?	No

This guideline has been approved by the both James Paget University Hospital Trust's Clinical Guidelines Assessment Panel as an aid to the diagnosis and management of relevant patients and clinical circumstances. Not every patient or situation fits neatly into a standard guideline scenario and the guideline must be interpreted and applied in practice in the light of prevailing clinical circumstances, the diagnostic and treatment options available and the professional judgement, knowledge and expertise of relevant clinicians. It is advised that the rationale for any departure from relevant guidance should be documented in the patient's case notes.

The Trust's guidelines are made publicly available as part of the collective endeavour to continuously improve the quality of healthcare through sharing medical experience and knowledge. The Trust accepts no responsibility for any misunderstanding or misapplication of this document.

Version and Document Control:

Version Number	Date of Update	Change Description	Author
2	19/03/2020	References and document updated	Dr R Rallan

This is a Controlled Document

Printed copies of this document may not be up to date. Please check the hospital intranet for the latest version and destroy all previous versions.

Quick reference

Commence Neurological observations if witnessed head injury (any trauma except superficial facial injury) and **any of the following** are present:

- External bruising, swelling or laceration to head
- Symptoms suggesting brain injury (vomiting, headache, dizziness, altered consciousness or behaviour)
- On *therapeutic* anti-coagulation* (not Deep Vein Thrombosis (DVT) prophylaxis)
- Pain or tenderness of head

Consider Cspine immobilisation +/- imaging (see full guideline below)

Glasgow Coma Scale (GCS) 15/15 when found

½ hourly neurological observations for 2 hours
Then 1 hourly neurological observations for 4 hours
Then 2 hourly neurological observations to continue 24 hours or until reviewed by doctor
If GCS drops at any time change observations to ½ hourly

Request urgent medical review if **any** of:

- Agitation / change in behaviour
- GCS falls by 3 points (eyes / verbal) or 2 points (motor)
- Any other fall in GCS if sustained for 30 minutes or more
- Persistent vomiting or severe headache

GCS < 15/15 when found

Urgent medical review (<15 minutes)
½ hourly neurological observations to continue until Computerised Tomography (CT) scan or
GCS reaches 15: then follow protocol above

• For patients who are normally confused with no change in usual behaviour & have GCS 14/15 (E4 V4 M6) post fall, follow the GCS 15/15 protocol above

CT Head (within 1 hour) if any of the following are present[2]

- GCS < 13 initially or GCS < 15 at 2 hours post injury
    - Unless GCS 14/15 (E4 V4 M6) in a patient who is normally confused and shows no change in normal behaviour 2 hours post injury
- Suspected skull fracture (including basal skull)
- Post-traumatic seizure
- Focal neurological deficit
- >1 episode of vomiting within four hour period

CT Head (within 8 hours) if any of the following are present

- Loss Of Consciousness (LOC) or amnesia since injury *plus* any of:
    - Age ≥65 years *or*
    - History of bleeding disorder *or*
    - Dangerous mechanism of injury (fall from height ≥1m or 5 stairs) *or*
    - >30 minutes of amnesia for events before injury
- On **therapeutic anticoagulation*** (even if no other indication)

*unfractionated heparin, Low Molecular Weight Heparin (LMWH), warfarin and Direct Oral AntiCoagulants (DOAC) (rivaroxaban, dabigatran, apixaban, edoxaban)

Objective/s

To provide guidance for nursing and medical staff on appropriate neurological observations and the urgency of medical review and CT brain scan following an inpatient fall in an adult, in line with current National Patient Safety Agency (NPSA) and National Institute for Health Care and Excellence (NICE) recommendations[1,2]

Rationale

The guideline was initially written and piloted as part of a local initiative to improve post-fall care. In 2011 the NPSA highlighted the importance of identifying injury following inpatient falls to reduce harm[1]. They recommended that all hospitals have a post-fall protocol/guideline to include the frequency and duration of neurological observations and advice on the urgency of medical review, in line with NICE guidance[2].

Broad recommendations

Please see reference page. This should be laminated and placed prominently in all relevant ward areas. Instructions on how to assess GCS are found on the back of all neurological observations charts.

The duty of the attending medical doctor is to assess the patient for:

- Medical stability (starting with ABC).
- Need for immobilisation of cervical spine (if GCS<15 on initial assessment, neck pain/tenderness, focal neurological deficit or paraesthesia in extremities). If advice /equipment required for immobilisation, contact the Spinal ward (Gateley NNUH) or Emergency Department (ED).
- Acute injury sustained during the fall, including the severity of head injury, need for urgent CT brain scan +/- C-spine imaging; and any other injuries that may have occurred e.g. hip fracture.
- Brief consideration of the circumstances and cause for fall, including consideration that the fall may have been due to an acute illness. Also see Clinical guideline CA5016 Trustdocs ID No: 7506 for more detail on assessment of the underlying causes of falls.

Investigation of suspected cervical spine injury

- CT Cervical Spine if **any** of the following is present:
    - GCS <13 on initial assessment
    - Patient intubated
    - Patient having other body areas scanned (head injury/ multiple trauma)
    - Clinical suspicion of cervical spine injury and **one** of the following:
        - **Age >65yrs with new neck pain post trauma**[+]
        - Dangerous mechanism of injury
        - Parasthesia in limbs or other focal peripheral deficit
        - Significant facial or occipital bruising
        - Distracting injury elsewhere
        - Persistent pain for >48hrs even if previous XR normal
    - C-spine XR technically inadequate or suspicious or abnormal

- If CT not indicated and **any** of the following is present
    - Patient is sitting comfortably *or*
    - Patient has walked since injury *or*
    - Patient has no midline cervical tenderness *or*
    - Delayed onset of neck pain

Then assess clinically whether patient is able to rotate neck 45º left & right

- if able to do so, no imaging needed
- If **not** able, need CT C-spine if >65yrs, or C-spine XR (AP, lateral and PEG) in younger pts[+]

[+]Older patients are at higher risk of cervical fracture with low trauma and x-ray more likely to be inadequate, so CT is investigation of choice

Immobilisation of C-Spine should continue until assessment and/or imaging complete Based on Canadian C-spine rules[5]

Patients on therapeutic anticoagulation[4]

- If there is a strong suspicion of intracranial bleed in a patient on warfarin, anticoagulation should be reversed immediately (before CT) - see Clinical Guideline CA2085 V9 Trustdocs ID No: 1239.
- If there is a strong suspicion of intracranial bleed in a patient on a DOAC (Direct Oral AntiCoagulants - dabigatran, rivaroxaban, apixaban and edoxaban) contact Haematologist for advice.
- Delayed intracranial bleeding can occur in patients on warfarin (even when the initial CT scan is normal). Therefore, International Normalised Ratio (INR) should be monitored closely to achieve a target of 2.0 for 4 weeks following a significant head injury[4].

Clinical audit standards

- Cases can be identified through DATIX incident reporting. Possible audit criteria include:
- 100% of patients who fulfilled criteria for neurological observations had observations recorded in line with guidance.
- 100% of patients with indication for urgent CT brain had one performed within 8 hours.
- 100% of patients with GCS <14 had a medical review within 15 minutes of fall.
- 100% of patients were assessed by a doctor for injuries including and for the cause of fall.

Summary of development and consultation process undertaken before registration and dissemination

The authors listed above drafted this guideline on behalf of the Falls Steering Group which has agreed the final content. During its development it was has been circulated for comment to the OPM Clinical Governance Committee, all OPM Consultants and Nursing Sisters on OPM wards. A pilot protocol was trialed on Holt, Knapton, Dunston and Elsing wards and anecdotally has been found useful by nursing and medical staff.

This version has been endorsed by the Clinical Guidelines Assessment Panel.

Distribution list / dissemination method

All medical and surgical wards at the Norfolk and Norwich University Hospital. Brief staff training will be required in some hospital areas.

References / source documents

1. National Patient Safety Agency (January 2011) Rapid Response Report NPSA/2011/RRR001: Essential Care After an Inpatient Fall
2. NICE (Sept 2019) Clinical Guideline 176: Head Injury: Triage, assessment, investigation and early management of head injury in infants, children and adults
3. CA5016v4 Falls Guideline (2018) Norfolk and Norwich University Hospital Trustdocs ID No: 7506
4. BCSH guideline: (2011) Guideline on oral anticoagulation with warfarin

   Vol 154, 311-324 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2141.2011.08753.x/full
5. The Canadian C-spine rule for radiography in alert & stable trauma patients. Stiell IG et al JAMA 2001 Oct 17;286(15):1841-8 https://www.ncbi.nlm.nih.gov/pubmed/11597285
6. CA2085 v9 (2017) Management of Adult patients requiring anticoagulation with warfarin (including reversal). Norfolk & Norwich University Hospital