

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Management of Patients with Devastating Brain Injury

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1 Introduction

Devastating brain injury is defined by the Neurocritical Care Society as any neurological condition that is assessed at the time of hospital admission as an immediate threat to life or incompatible with good functional recovery AND where early limitation or withdrawal of therapy is being considered.

The most common causes within Newcastle are likely to be from:

- Traumatic brain injury
- Subarachnoid haemorrhage
- Intracerebral haemorrhage
- Stroke
- Hypoxic brain injury

2 Guideline scope

This document applies to all patients admitted to Newcastle Hospitals who have a devastating brain injury according to the above definition.

3 Main Body of the guideline

3.1 Recommendations

Early prognostication of patients with 'devastating brain injury' can be inaccurate and is no longer considered to be best practice. Instead, a period of observation and physiological stability should be sought to help aid the decision making process. This will allow

- Clear communication with family members
- More appropriate palliative care regimes
- More detailed neurological assessment such as brainstem death testing
- Consideration of organ donation as part of end of life planning

Ordinarily, it would be appropriate to intubate such patients and transfer them from a resuscitation area to the critical care unit for this to occur. Times when this may not be appropriate will occur eg. extensive comorbidities, metastatic cancer or advanced dementia.

Further deterioration on the critical care unit despite optimal support should prompt appropriate withdrawal of life sustaining therapy.

3.2 Prognostication

Prognostication should not generally be made within the first 24 hours, but instead after a period of 24-72h assessment.

Various prognostication tools exist for patients with DBI depending on aetiology eg ICH score, IMPACT-LAB score for TBI. Despite validation, none of those tools should be used alone for making individual treatment withdrawal decisions.

Such tools often focus on mortality rather than function and the historically acceptable levels of functional recovery are changing over time.

3.3 Observation

The period of observation does not need to occur on a specialist ICU but can occur on any adult critical care facility. Key clinical observations include pupillary observation and GCS scoring off sedation and this can be used alongside other modes of assessment such as radiological imaging.

During this period of observation, consideration of limits of care should be made eg. DNACPR, renal replacement therapy, appropriateness of neurosurgical interventions such as ICP monitoring.

Improvements in neurology should trigger a discussion with ward 18 and, if appropriate, transfer there for more active therapy.

3.4 End of Life Care

The majority of patients with a devastating brain injury will either fail to improve or deteriorate and may progress to neurological death.

Shared decision making should occur with full, frank, regular and open discussions with relatives.

When a decision has been made to withdraw life sustaining therapy or when death has been confirmed by neurological criteria, organ donation should be considered.

3.5 Other Considerations

Patients with a devastating brain injury should be excluded from neurosurgical or ICU quality metrics in terms of mortality ratios.

The admitting consultant should be the duty intensivist.

4 Training, Implementation, Resource Implications

This document aims to support the standard training processes in place across the critical care units in NUTH with regards to devastating brain injury.

5 Monitoring Section

Prospective audit of patients admitted with DBI should be undertaken within in NUTH and contribute to national datasets.

Cases from this patient cohort should be regularly reviewed in a multidisciplinary meeting, for example, morbidity and mortality meetings.

6 Evidence Review and Evaluation

A literature search was performed and discussion occurred amongst senior clinicians from the RVI and FRH Critical Care Units in compiling this document.

7 References

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