

NMTRG Guidelines for the assessment and rehabilitation of the Major Trauma patient

Discipline: MDT

Guideline 1: Management of TBI

Therapists should have **knowledge** of:

- Classification of TBI: mild, moderate, severe
- Clinical presentation after TBI (motor, sensory, cognitive-communication, behavioural and perceptual deficits).
- Basic understanding of CT and MRIs, link to neuro-anatomy and clinical presentation.
- Primary versus secondary injuries.
- Primary injuries: e.g.
  - Contusions, diffuse axonal injury, coup/contrecoup, traumatic subarachnoid haemorrhage, subdural/extradural haemorrhage, hypoxic brain injury, etc.
- Secondary injuries, causes and possible consequences.
  - Secondary hypoxia, hypovolemia, cerebral oedema.
  - Seizures
- Intracranial dynamics of TBI:
  - Monroe Kellie doctrine and the effects of intracranial pressure (ICP) elevation (mass effect, midline shift, hydrocephalus, herniation).
  - Normal values and relationship between ICP, cerebral perfusion (CPP) and mean arterial pressure (MAP)
  - The concept of cerebral blood flow, autoregulation and risk of cerebral ischemia.
- Neurosurgical management including: conservative, surgical such as decompressive craniectomy/craniotomy, extra-ventricular drain, etc.
- The acute management of the TBI patient with ICP monitoring:
  - Analgesia, sedation and paralysing agents
  - Positioning (30 degree tilt and head midline)
  - The use of the ventilator to regulation pCO<sub>2</sub> and O<sub>2</sub>
  - The use of mannitol and hypertonic saline
  - The use of inotropic support
- Tracheostomy:
  - Clinical indication
  - Weaning process to decannulation
- The nutritional status and feeding method (oral and alternative).
- Mental Capacity Act (2005) and Deprivation of Liberty and Safeguards Act (DOLs).
- The need for family and carer involvement in every stage of the patient's journey/ recovery.
- The need for Multidisciplinary assessment and management

Therapists should be able to **recognise**:

- Precautions associated with TBI e.g no bone flap, Skull base fracture, any other injuries or co-morbidities
- Signs of deterioration in neurological status (e.g. change in GCS, pupil size) and escalation process
- Signs of respiratory deterioration/compromise in relation to the TBI/GCS etc and escalation process.
- Signs of sympathetic storming
- Changes in tone
- Signs of posturing
- Need for caution in managing attachments with special attention to EVD's and position/bed height change/ to follow trust policy in relation to clamping/unclamping of the EVD (e.g. EVD, tracheostomy, feeding tubes...).
- The impact of prolonged immobility and potential secondary complications: pressure sores, tone, contractures, chest infections, confusion, etc.
- Other factors which could have an effect on cognitive function, e.g. alcohol withdrawal, delirium, medication side effect, sodium levels, infection, sunken flap syndrome.

**Therapists** should be able to offer the following **assessments**:

- Risk assessment (e.g. Task, Individual, Load, Environment) in line with all of the above.
- Functional assessment that is appropriate to the patients' physical, cognitive, communication and behavioural capacity.
- Functional assessments may be used to identify neurological impairments through observation when formal Assessment of impairments is not possible.

The MDT should be able to offer within their scope of practice the following assessment:

- Assessment of cognitive functions using standardised and non-standardised tools, including but not limited to:
  - Supporting informed decision making and mental Capacity assessments
  - Assessment of Post traumatic Amnesia
  - Assessment of Prolonged Disorders of Consciousness (PDOC) in line with RCP Guidelines:
    - Considering relevant factors to determine optimal time to start formal and/or informal assessments.
    - Ensuring MDT approach and friends/family involvement
    - Using a range of formal assessments such as Wessex Head Injury Matrix (WHIM), Coma Recovery Scale Revised (CRS-R)
- Assessment of cognitive presentation post TBI (e.g. higher level cognitive assessment of executive skills).
- Standardised and non-standardised assessment of cognition, perception, sensation, vision, motor
- Mood scales
- Behaviour scales
- Neurological assessment of upper limb
- Seating and postural assessment
- 24 hour postural management
- Benign Paroxysmal Positional Vertigo

The MDT should be able to offer within their scope of practice the following assessments:

- Level of consciousness
- Comprehensive Respiratory assessment to include: Tracheostomy, airway and secretion management. To be able to determine the primary reason for respiratory impairment: neuro or chest. Analysis of ABG's, RR, WOB
- Power
- Range of movement
- Changes in tone and how this affects management
- Co-ordination/proprioception
- MSK, with particular attention to a potential subluxed wrist and shoulder
- Balance/Midline awareness
- Sensory loss
- Dizziness including Benign Paroxysmal Positional Vertigo assessment

Speech and Language Therapists should be able to offer the following assessments:

- Speech/dyspraxia/dysarthria
- Cognitive linguistic impairment
- Language
- Communication including AAC
- Dysphagia Swallowing including instrumental
- Trache

The MDT should be able to offer within their scope of practice the following **interventions**:

- Goal directed cognitive rehabilitation programme using specific strategies
- Functional rehabilitation
- Management of PTA
- Goal directed behavioural rehabilitation management (e.g. ABC)
- Visual/ perceptual strategies and retraining
- Complex posture treatment techniques/management, including seating and positioning programmes
- Upper limb rehabilitation programme
- Provision of splints
- Sensory regulation or stimulation programmes
- Equipment prescription
- Family advice, support and education
- Complex patient professional meetings
- Brain injury education
  
- Appropriate onward referral / discussion for additional head imaging (MRI scan) to identify subtle changes not captured on CT scanning if significant mechanism of injury, loss of consciousness or amnesia identified alongside reduced cognitive function on assessment

Occupational Therapy / Physiotherapy / Speech & Language Therapy - see individual guideline for indepth interventions

The MDT should be able to offer within their scope of practice the following interventions

- From an early stage post injury in critical care, HDU and all points in the care pathway as clinically indicated.

The MDT should be able to offer within their scope of practice knowledge of **additional services** including:

- Headway and other brain injury charity organisations
- Local specialist teams e.g. pain team, brain Injury team, orthotics, neuropsychiatry and neuropsychology, neuro navigator, older adult liaison team, tracheostomy specialist team, hand therapy team,
- Falls team
- Major Trauma signposting team / legal signposting
- Citizens advice bureau
- Sensory impairment teams
- Drug and alcohol team
- Homeless team
- Youth support for violence intervention
- Adolescent outreach service
- Patient support groups / group rehabilitation
- TBI case management

The therapist understands how to access the following **pathways** and use the Patient Categorisation Tool (PCAT) as needed:

- Specialist Inpatient Category A
- Specialist Inpatient Category B
- Specialist Outpatient Multidisciplinary
- Specialist Outpatient Single Discipline
- Non specialist Inpatient Category C
- Community Specialist MDT
- Community Generic MDT
- Vocational Rehabilitation
- Falls prevention
- Social Care