National MajorTrauma Rehabilitation Group

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

Discipline: Occupational Therapy

Guideline 1: Management of TBI

Occupational Therapists should have **knowledge** of:

- 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.
    - Mild traumatic brain injury, contusions, diffuse axonal injury, countercoup, subarachnoid haemorrhage, subdural 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 mannitol and hypertonic saline
    - The use of inotropic support
- Clinical needs arising from tracheostomy and which stage the patient is at (weaning, de-cannulation)
- The nutritional status and feeding method (oral and alternative)
- The need for family and carer involvement in every stage of the patient's journey/ recovery.
- The need for Multidisciplinary assessment and management
- Mental Capacity Act (2005) and Deprivation of Liberty and Safeguards Act (DOLs).

Occupational 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 and escalation process
- Signs of sympathetic storming
- Changes in tonal presentation: posturing patterns (decorticate and decerebrate), spasticity

- 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, 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 etc.
- Acute mental health/psychological changes and escalation process

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

- Risk assessment (e.g. task, individual, load, and environment) in line with all of the above.

- Isolated assessments of impairments of motor, sensory, cognitive, behavioural, mood and perceptual functions.

Cognitive, Perceptual and Behavioural
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 mild traumatic brain injury (e.g. Higher-level cognitive assessment of executive skills).
- Behavioural assessment using appropriate scales such as the Agitated Behaviour Scale
- Perceptual assessment including e.g. visual perceptual, praxis etc

Mood
Assessment of mood and affect using standardised and non-standardised tools, with an awareness of post-traumatic stress disorder

Motor
Assessment of motor functions (using standardised and non-standardised tools) including but not limited to:

- Power

- Range of movement
- Tone
- Coordination
- Balance
- Posture and seating

Sensory and Vestibular
Assessment of sensory functions (using standardised and non-standardised tools) including but not limited to:

- Touch, proprioception and stereognosis
- Vision, auditory, olfactory
- Dizziness including Benign Paroxysmal Positional Vertigo assessment

- Functional assessments appropriate to the patients' physical, cognitive, behavioural, communication and capacity

The OT should be able to offer the following **interventions:**

- Goal directed rehabilitation programme to address impairments using specific approaches and strategies, e.g.
  - Cognitive rehabilitation programme
  - Behavioural rehabilitation management programme (e.g. ABC)
  - Visual/ perceptual strategies and retraining
  - Upper limb rehabilitation programme
  - Sensory regulation or stimulation programme
  - Provision of splints

- Functional rehabilitation goals, e.g.
  - Complex posture treatment techniques/management, including seating and positioning programmes.
  - ADL, domestic and pre-vocational rehabilitation goals
- Goals around environmental modification:
  - Equipment prescription and special adaptations

- Other
  - Management of PTA using specific strategies

- Family advice, support and education
- Multiprofessional meetings
- Complex patient professional meetings
- Use of appropriate outcome measures
- 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

The OT is expected to complete these assessments and interventions

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

The OT should have 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 etc.
- 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
- Social services

The Occupational 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