Background

Care of the patient suffering from PTA requires a multidisciplinary approach that addresses the patient’s environment, their interactions with it and both their cognition and behaviour. The following guideline was developed to screen patients for the presence of PTA and to assist the health care team in assessing nursing care requirements such as environment & supervision, intervention and interaction levels and patient management and discharge planning of those patients in PTA.

What is Post Traumatic Amnesia (PTA)?

PTA is a stage of traumatic brain injury recovery (defined as mild, moderate or severe). Patients experiencing PTA have an inability to lay down new memories or process and retrieve new information.

PTA can be defined as a:

“…mental disturbance characterised by disorientation, impaired attention, memory failure of day-to-day events, illusions, misidentification of family, friends, medical & nursing staff”.

The true pathophysiological mechanism of PTA is not known, however Symond’s (1946) and many since felt that PTA is associated with a traumatic brain injury and the shearing of the axons in the frontal and temporal lobes of the brain. These forces result in breakage, bruising and/or swelling of the axons; consequently the message pathways are interrupted and/or broken. This is commonly described as Diffuse Axonal Injury (DAI). The diffuse character of the injury makes it impossible to predict the nature and the extent of the damage. In PTA recovery the longer the symptoms last, the less a full recovery to a premorbid level of function is likely.

The key features of PTA include loss of day-to-day memory, confusion, disorientation a reversed sleep/wake cycle, fatigue and behavioural disturbances.
PTA is characterised by one or more of the following:

This list is not hierarchical and patients may suffer from one or many of these.

- Disorientation and/or confusion
- Decreased attention and/or concentration
- Restlessness, thrashing, needing to wander
- Lack of continuous memory
- Confabulation (makes up stories)
- Repetitious movements or thoughts
- Fixation on a single topic
- Sleep/wake cycle disrupted
- Reduced problem solving or planning ability
- Aggression and/or agitation
- Combative e.g. pulling at tubes
- Moaning, calling out, "child like" behaviour
- Disinhibited or inappropriate social behaviour
- Fear and paranoia
- Over sensitivity to light
- Fatigue
- Hallucinations
- Impulsive

PTA by definition has a beginning and an end, although defining these parameters is often difficult due to brain injury management (i.e. sedation in the ICU to control intracranial pressure). The end of PTA can be defined as the disappearance of confusion and the ability to lay down new information/memories.

PTA might last from minutes to days, weeks, months or more. The presentation of PTA varies from person to person and they can have significant behavioural changes. Patients may be drowsy or talkative, docile or aggressive, impolite or irritable. Patients usually have no awareness of these changes and will usually not remember this time period when they recover.

Whilst many patients may make an excellent physical recovery after a period of PTA, a spectrum of cognitive, emotional, functional, social, employment and learning (educational) problems can be disabling over the longer term. Length of coma and length of PTA can assist in the prediction of severity of TBI which can assist with care planning and rehabilitation needs for patients.

Closed Head Injury (CHI)

Defined as a patient presenting to hospital with a history of an acute blunt head injury with or without a history of loss of consciousness (LOC) or amnesia and can be classified as; Mild (GCS 13-15); Moderate (GCS 9-12) or Severe (GCS 3-8).

Mild Brain Injury (MBI)

Characterised by a direct blow to the head from physical/mechanical force with one or more of the following:

- Confusion or disorientation
- Loss of consciousness 30mins or less
- GCS 13-15
- Transient neurological abnormalities (ie seizure or intracranial lesion)

Both neurosurgical and cognitive-behavioural-social sequelae can develop post a MBI. Acute life threatening complications requiring neurosurgical intervention are rare in MBI however post-concussion symptoms are common and may have a significant impact on patients and their families.

Typical post concussion symptoms include:

- Headaches
- Dizziness
- Memory impairment
- Poor concentration
- Mood swings
- Behavioural changes
- Social dysfunction

Post traumatic headache has been found to be the most common and persistant symptom for patients with traumatic brain injury.

Assessment of MBI using the Abbreviated Westmead PTA Scale (A-WPTAS)

It is important to ensure that all other causes of loss of consciousness are ruled out when assessing a patient with a MBI. Other causes include: drug use, intoxication, shock, epilepsy, metabolic disturbances, infection, cerebral hypoxia, pre-existing brain injury or psychiatric disorders.

Delirium and dementia can also make the assessment of patients with a MBI difficult and complex. Refer to the MH02.02 Delirium, Diagnosis, Prevention and Management Policy for further information on how to assess and
manage Delirium. A referral to the OT for further cognitive assessment as well as a collateral history from family regarding the patient’s premorbid function and cognition can be helpful. The medical team may need to conduct a delirium screen to outline any possible medical causes.

Drug and alcohol use and withdrawal post injury can also make assessment for PTA difficult. A collateral history from the patient or NOK can assist to differentiate PTA from withdrawal. The Addiction medicine team should be referred once a history of the patient’s addiction is gained to further assess and assist with the management of withdrawal if required.

The Abbreviated Westmead PTA scale (A-WPTAS) is an objective measure of PTA which was developed to assist in the early identification of cognitive impairment following MBI. It combines the standardised GCS (out of 15) plus 3 memory questions to assess new learning and gauge the patient’s orientation and ability to retain new information.

The A-WPTAS is validated for use in the first 24 hours from the time of injury. The test is administered every hour for a maximum of 4 hours until the patient scores a perfect 18/18 to be considered not in PTA e.g. they can score 18/18 in the second hour and be deemed free of PTA, they only require one score of 18.

When a patient scores 18/18, they are deemed out of PTA and can be considered for discharge. However, this is a screening tool only and clinical judgement should be used. Further assessment may be required if any concerns are identified.

The AWPTAS can be commenced in the Emergency Department or on the wards by trained nursing staff according to the screening criteria outline below. Patients unable to achieve a score of 18/18 within 4 hours should be considered for admission and a referral to Occupational Therapy who will conduct further assessment.

**Screening criteria for A-WPTAS**

Patients with a blunt head injury with one or more of the following should be screened for PTA using the AWPTAS within 24 hours from time of injury:

- Initial GCS of 13-15
- Brief loss of consciousness
- Confusion and disorientation
- Anterograde or retrograde amnesia or unable to remember new things.

**Discharging a Patient Home with a Mild Brain Injury**

Patients with MBI can be discharged home after initial inpatient observation if they meet the following discharge advice criteria:

- Normal mental status (alertness/behaviour/cognition)
- No clinical risk factors indicating the need for CT scan or normal CT scan if performed
- Minor and/or improving post concussion symptoms
- Responsible person available for transport home and supervision for 24/24
- Patient or person responsible understands discharge instructions
- Score of 18/18 on the A-WPTAS (if applicable)

And if no clinical indicators are present for prolonged observation such as:

- GCS <15
- Abnormal behaviour for the patient
- Severe post concussion symptoms such as headaches, dizziness, (vomiting) or psychological symptoms (depression, irritability, anxiety)
- Drug and/or alcohol intoxication
- Presence of multi system injuries.

- It is important that patients suffering from a MBI are given education and counselling, including the written handout on TRM01.03 Mild Brain Injury Discharge brochure. Verbal and written information has been shown to reduce anxiety and reporting of ongoing symptoms and provides information to patients and their families on when to return to hospital to seek further immediate care and ongoing assistance/support for persistent symptoms. 2, 12
Moderate and Severe Brain Injury

Patients who have sustained a Moderate Brain Injury (GCS 9-13 on admission) or a Severe Brain Injury (GCS 3-8 on admission), will require a more in depth assessment given the possible greater severity of their brain injury. It is also possible that they have sustained multiple other injuries and will not be able to be assessed within the first 24 hours. Therefore, they will not meet AWPTAS screening criteria and should be referred to an Occupational Therapist for assessment using the Westmead PTA scale pending Occupational Therapist clinical judgement.

Assessment of Moderate and Severe Brain Injury using the Westmead PTA Scale (Westmead)

The Westmead PTA Scale (WPTAS) was devised by Shore in 1986 for patients with closed head injuries. The Westmead consists of 12 questions; 7 for testing orientation & 5 for testing recall.

The WPTAS is recommended to measure PTA as it:

- Provides an index of severity of PTA symptoms
- Monitors and provides a gross cognitive assessment of the patient
- Helps direct the care and the environment of the patient
- Is portable and can be conducted by a trained member of the multidisciplinary team.

PTA testing using the WPTAS begins when the patient regains consciousness and can communicate with or without verbal ability. The WPTAS is completed daily by a qualified member of the multidisciplinary team who has undergone relevant training. PTA testing ceases when the patient has reached the WPTAS operational definition of being out of PTA; that is achieving a perfect score of 12/12 on 3 consecutive days, therefore this test requires a minimum of 4 days for a patient to be deemed out of PTA.

Some patients will never score 12/12 on 3 consecutive days so clinical judgement may be needed to determine whether the patient has an amnestic syndrome or not. Neuropsychological opinion may be required if it is unclear whether or not the person remains in PTA or has ongoing long term cognitive deficits as a result of the brain injury.

The WPTAS should be conducted in a quiet ward/room with no distractions such as TV, food, or young children. Obvious cues or aids like clocks or orientation boards must be concealed during assessment.

Management of the patient suffering from PTA

Nurses spend more time with patients than anyone else in the health care team; therefore they should be active participants in the assessment and management of these patients. It is very important to plan in advance the staffing requirements of a patient in PTA, as they require a special low stimulus environment and continuity of nursing staff. Families and friends should be provided information about PTA and the nursing care requirements as soon as the patient is admitted to the ward. This is an opportunity to explain the PTA guideline and ensure the family has an understanding of PTA.

The TRM01.04 Post Traumatic Amnesia Information for Family and Friends is a booklet which provides basic information and self-care instructions for the patient’s loved ones and is available on iPolicy. Allied Health and the Medical Team are also important contributors to the patient care plan.

Management of the patient in PTA requires a consistent team approach to create and maintain a low-stimulus, quiet and supportive environment. The following is recommended:

- Single room where possible
- Quiet and calm environment; reduce external stimuli ie no TV, radio, phone, bright lights, loud noise, clutter
- Encourage a consistent approach with routine and structure
- Monitor visitors – one or two at a time and for short periods only
- Create a familiar environment; using a few key personal objects and photos.

Do not allow the patient to become over stimulated.
Anything a patient can see, hear or feel that may cause them to think is stimulus; therefore patient’s rooms should be as bare as possible. This means removing all unnecessary furniture, oxygen outlets, tables, chairs, signage (except those introduced for the management of PTA), newspapers, and magazines. Curtains should be closed and the lighting kept at a low level at all times. There should be no TV, radios, computers, iPads /phones etc. Try to keep the noise level at a minimum.

When interacting with the patient, keep the conversation and instructions simple; speak in a calm and reassuring manner. Establish a reliable yes/no response as early as possible (they may require the assistance/referral to a Speech Pathologist). Patients experiencing PTA do not have the capacity to make decisions for themselves.

Appropriate Occupational Therapy/ Nursing interventions during PTA include introducing the patient to simple tasks such as personal care tasks. It is important to note that the patient should not undergo an intensive rehabilitation program until they have “emerged” from PTA. A number of rehabilitation centres offer a low stimulus environment to assist in caring for a patient experiencing from PTA.

Resist pressure to make predictions about the prognosis of the patient with the family while the patient is still in PTA. It is the role of the multidisciplinary team to educate and provide support for family and friends.

Management of Aggression

Treatment and management of agitation in the patient experiencing PTA is challenging and not well supported with evidence in the literature. 1 The agitated patient can resist nursing care, be disruptive, pose a physical risk to themselves, family and staff members.

Agitated behaviours may include aggressiveness (physical or verbal), restlessness (being impulsive, pulling at IVC’s, IDC’s feeding tubes), confusion, fatigue, altered sleep/wake cycle. 1

Clinical aggression as defined in the Melbourne Health Policy (2014), “a form of behaviour which causes actual or perceived harm to people and occurs with or without forethought; an act or gesture, which suggests that violence may occur”. MH02.02.08 Management of clinical aggression policy 14 outlines the appropriate management of an aggressive patient.

The first line of management for an agitated patient is to de-escalate the aggressive behaviour: 14

- Assess the risk
- Gauge the degree of escalation
- Seek assistance if indicated

With patients in PTA, negotiation and problem solving are unlikely to be successful, better strategies are reassurance and distraction to settle the aggression.

When responding to patient outbursts do not wear necklaces, lanyards, large earrings, your hair down or have any items that can be pulled if the patient does become combative. Back away and create distance between yourself and the patient. Speak softly, reassuringly and don’t argue. Try to change the subject. Most outbursts are short lived.

For the patient experiencing PTA it is important to identify any acute medical reason for the agitation or change in mental state (e.g. hydrocephalus, intracranial haemorrhage/haematoma). It is also important to identify any environmental factors which may cause agitation, such as over stimulation, pain, infection, other medications, drug or alcohol withdrawal, hypoxia or a basic hygiene need (like dehydration or a need to go to the toilet). 14 Psychiatry review should be sought if there is severe behaviour disturbance or where there is a need for higher than recommended doses of anti-psychotic medication (subject to Psychiatry agreement). If the behaviour escalates and there is a risk of clinical aggression the steps outlined in the clinical aggression policy should be followed. 14

Environmental modifications are the mainstay of PTA management. Where possible sedation should not be used to manage behavioural problems as it reduces the patient’s level of arousal, which can increase confusion and prolong agitation. It is recommended that restraints should also be avoided as they can lead to greater agitation and increased need for intervention. If necessary please refer to the MH 02.02.07 Mechanical Restraint Policy. 15

- Restraints must be used for the shortest time possible
- There must be an authorised psychiatrist/medical officer to approve the use of the restraint
- Restrained patients must be closely monitored, observed and reviewed.

Behaviour can usually be managed effectively by creating an appropriate environment. If the patient is agitated, restless or impulsive the patient should be nursed on the floor or in a high low bed (medical condition permitting). It may not be appropriate to begin using the WPTAS until this period of agitation settles and the patient can engage in the assessment.
Discharge and Rehabilitation for Moderate and Severe Brain Injury

The multidisciplinary team will assess the patient to determine the best discharge plan for a patient that has experienced a period of PTA or who is still in PTA. **Under no circumstances should a patient suffering from PTA be discharged home, allowed to self-discharge or have unsupervised leave from or within the hospital.** If a patient absconds or is missing, the Melbourne Health policy MH01.09 Missing Patient/Absconded Patient should be followed. 16

Patients who have experienced a period of PTA or who are still experiencing PTA may be transferred to an inpatient rehabilitation facility, which specialises in the treatment and management of this patient group. The Trauma CNC, nursing staff or medical team can refer patients for rehabilitation. The referral is best made after discussion with the multidisciplinary team around what the optimal discharge destination would be for each individual patient.

Referral of compensable patients (eg TAC, Work Cover) to rehabilitation should be considered in accordance with the Melbourne Health policy MH01.12 Referral of patients to Private Rehabilitation Facilities. 17 Rehabilitation choices are based on the facility that offers the best service for the patient, the location of the family and family’s choice.

A medical officer or Trauma CNC or nursing staff member may refer non-compensable patients to Consultation Liaison Rehabilitation and Aged Care Team (CLRACC).
POST TRAUMATIC AMNESIA SCREENING AND MANAGEMENT

Trauma Patient with Blunt Head Injury

- GCS < 13?
  - Yes
    - GCS < 9
      - Yes
        - Severe TBI (GCS 3-8)
          - Standard severe TBI management
          - Not assessed for PTA until GCS > 13
          - Require admission
          - Implement PTA Management
          - "Management of PTA Guideline"
          - Provide NOK with PTA booklet
          - Refer to OT
          - Conduct the Westmeade PTA scale
          - Scores 12/12 for 3 consecutive days
          - Admit/Transfer according to patients requirements

      - No
        - Mod TBI (GCS 9-12) TBI
          - Confusion/disorientation
          - antegrade/retrograde amnesia
          - brief LOC
          - Consider admission
          - Scores 18/18 within 4 hours
          - "Out of PTA" cease Westmead
          - "Out of PTA"
            - Give Mild Brain Injury Discharge Letter to patient +/- NOK
          - Patient meets discharge home criteria
          - Discharge according to patients requirements

  - No
    - GCS > 13
      - Mild TBI (GCS 13-15) TBI
        - Confusion/disorientation
        - antegrade/retrograde amnesia
        - brief LOC
        - Commence A-WPTAS
          - (need to have motor 6, eye open 4)
References


