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*Affix patient label or enter details:*

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D.O.B.:

Pathway pack for the management of behaviours that challenge in patients with Acquired Brain Injury.

|  |  |
| --- | --- |
| Section 1 | Overview of the pathway |
| Section 2 | Patient information |
|  |  |
| **STAGE ONE - ASSESSMENT** | |
| Section 3 | Medical checklist |
| Section 4 | Agitated Behaviour Scale |
| Section 5 | ABC Charts |
| Section 6 | Risk Assessment |
| **STAGE TWO - INTERVENTION** | |
| Section 7 | Behavioural and environmental strategies |
| Section 8 | Communication strategies |
| Section 9 | Pharmacological treatment |
| **STAGE THREE - REVIEW** | |
| Section 10 | What works for the patient |
| Section 11 | Checklist |

All personnel completing the care pathway please sign below

DATE PATHWAY COMMENCED: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name (print) | Full signature | Initials | Professional title | Date |
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# Section 1 HOW TO USE THIS PATHWAY PACK

|  |  |
| --- | --- |
| **Who is the pack for?** | Patients with an acquired brain injury (ABI) presenting with behaviours that challenge, which may include:   * Verbal or physical aggression * Sexual or social disinhibition * Agitation * Withdrawal, difficulty engaging with care |
| **What is an ABI?** | A brain injury which is acquired during adulthood. This does not include dementia or developmental learning disability. ABI may occur due to :   * Traumatic brain injury * Neurological illness, such as encephalitis or meningitis * Hypoxic brain injury * Stroke/ brain haemorrhage * Brain tumour * Alcohol-related brain injury * Hydrocephalus * Carbon monoxide poisoning |
| **Who can use the pack?** | The pack is designed for use by the whole care team on any acute inpatient ward. You should keep this pack in your patients’ nursing notes and inform the ward manager if a pathway pack is being used with a patient. |
| **Where should I start?** | The pack is designed to lead you through assessment, intervention and review stages; however you may find that you are using behavioural and pharmacological approaches at the same time and in conjunction with one another, according to the needs of individual patients. |
| **Does my patient still need a DOLS?** | If you are using approaches which may restrict their liberty then **YES.** Don’t forget the principles of the Mental Capacity Act and be sure to use the least restrictive approach necessary. |

ABI Pathway authors:

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Dr Clare Mehta, Consultant in Rehabilitation Medicine, BSUH

Michelle East, Head Injury Nurse Specialist, BSUH

*With Thanks to: Dr Lisa Page, SPFT; Paul Austin, BSUH; Marlize Phillips, BUSH; Hollie Connell, BSUH;*

*Andy Nuttall, SPFT; Jo Simpson, BSUH; Marilyn Hall, BSUH.*

ABI Pathway – Stepped approach

1. Does your patient have an ABI based on clinical presentation and/or imaging? Refer to neurology or neurosurgery if unsure.
2. Does your patient present with behaviours that challenge?

**IF NO TO 1 PLEASE REFER TO THE TRUST POLICY FOR THE PREVENTION OF VIOLENCE AND AGGRESSION**

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# SECTION 2

# Essential Information about the patient

I like to be called:

My usual work is:

**Family members / friends:**

Name: Relationship:

Name: Relationship:

Name: Relationship:

Name: Relationship:

Name: Relationship:

Things I particularly like doing (e.g. watching TV, reading, music etc):

Things I don’t like (e.g. shouting, physical touch etc):

Things I don’t like may cause me to:

# SECTION 3

# Medical checklist for causes of agitation following acquired brain injury (ABI)

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This list is intended as a prompt

Not all investigations will be required for all patients

Complete table below, then complete relevant sections following

**Do not wait until all investigations complete before implementing Stage 2 – interventions to manage behaviour should be started concurrently**

|  |  |  |  |
| --- | --- | --- | --- |
| **Cause** | **Investigation / assessment** | **Tick when reviewed** | **Tick for further investigation** |
| Intracranial complication of brain injury | CT / MRI brain, LP, neurosurgical review |  |  |
| Seizure disorder | CT/ MRI brain, seizure chart, EEG, neurology review |  |  |
| Non CNS infection | Bloods, imaging (CXR, CT), samples / swabs for culture |  |  |
| Hypoxia | O2 sats, ABG, echo, CXR, respiratory / cardiology review |  |  |
| Metabolic and endocrine abnormalities | U&Es, glucose, bone profile, LFTs, osmolalities, early morning cortisol, TFTs (including FT4) |  |  |
| Paroxysmal sympathetic hyperactivity | Review obs charts and nursing notes  PSH-AM score |  |  |
| Sleep disruption | Sleep / wake chart, review of prn medication use |  |  |
| Adverse effects of medication / polypharmacy | Medication review |  |  |
| Withdrawal from alcohol or drugs | History and collateral history, tox screen on blood / urine, medication history from GP |  |  |
| Fat embolism syndrome | Respiratory, neurological and petechial rash – scoring criteria |  |  |
| Pain | Top to toe review for sources (consider lines / tubes, visceral discomfort e.g. constipation, unidentified injury, pain relief) |  |  |

**SEE TABLE BELOW FOR RECOMMENDED INVESTIGATIONS**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **1. Intracranial complication of brain injury**  (e.g. haemorrhage/ rebleed, obstructive hydrocephalus (especially if traumatic, space occupying lesion or subarachnoid haemorrhage), CNS infection (esp. if craniotomy, cranioplasty, EVD, VP shunt)) | | | | | | |
| **CT Brain** | | **Date:** | | | **Result:** | |
| **MRI Brain** (consider if CT NAD but clinical presentation suggestive of ABI) | | **Date:** | | | **Result:** | |
| **LP** (seek neurology or neurosurgery advice and consider physical and cognitive measures pre and post) | | **Date:** | | | **Result:** | |
| **Neurology/ Neurosurgical review** | | **Date:** | | | **Outcome:** | |
| 1. **Seizure Disorder** | | | | | | |
| CT Brain | | **Date:** | | | **Result:** | |
| Seizure chart | |  | | | **Results:** | |
| EEG | | **Date** | | | **Result:** | |
| Neurology review | | **Date:** | | | **Outcome:** | |
| 1. **Non CNS Infection** (e.g. chest; UTI; pressure areas/skin; surgical/drain sites such as surgical wounds, PEG or tracheostomy site; line site such as IV cannula; central venous catheter, arterial line) | | | | | | |
| Bloods - FBC, CRP, blood cultures | | **Date:** | | | **Result:** | |
| CXR | | **Date:** | | | **Result:** | |
| Sputum | | **Date:** | | | **Result:** | |
| MSU/CSU | | **Date:** | | | **Result:** | |
| Would/surgical site/ line swap/ tip | | **Date:** | | | **Results:** | |
| Microbiology | | **Date:** | | | **Advice:** | |
| 1. **Hypoxia** (e.g. respiratory or cardiac disease, obstructive sleep apnoea, central hypoventilation) | | | | | | |
| **Oxygen saturations** \_\_\_\_\_\_\_\_ on air \_\_\_\_\_\_\_\_\_\_\_on \_L/02  If apnoeas suspected, carry out overnight oximetry and sleep diary and discuss with respiratory document if done & outcome | | | | | | |
| **Arterial blood gases**  (including early morning ABGs if apnoeas suspected) | | **Date:** | | | **Result:** | |
| **Echocardiogram** | | **Date:** | | | **Result:** | |
| **CXR** | | **Date:** | | | **Result:** | |
| **CTPA** | | **Date:** | | | **Result:** | |
| **Respiratory and/ or cardiology opinion** | | **Date:** | | | **Advice:** | |
| 1. **Metabolic & endocrine abnormalities**   (e.g. hyper/hypoglycaemia, hypercalcaemia, cranial diabetes insipidus, SIADH) | | | | | | |
|  | **Date** | | **Result** | | | **Normal Range** |
| Sodium |  | |  | | |  |
| Potassium |  | |  | | |  |
| Urea |  | |  | | |  |
| Creatinine |  | |  | | |  |
| Glucose |  | |  | | |  |
| Corrected Calcium |  | |  | | |  |
| Plasma osmolality |  | |  | | |  |
| Urinary osmolality |  | |  | | |  |
| Bilirubin |  | |  | | |  |
| ALT |  | |  | | |  |
| ALP |  | |  | | |  |
| 9am cortisol |  | |  | | |  |
| FT4 |  | |  | | |  |
| TSH |  | |  | | |  |
| 1. **Paroxysmal sympathetic hyperactivity (PSH)**   (can occur in 8-10% severe traumatic brain injury; diagnosis of exclusion; key features = paroxysmal increases in sympathetic overactivity resulting in tachycardia, tachypnoea, hypertension, fever, sweating and posturing) | | | | | | |
| ACTION TO ASSESS:   * Review observation and nursing notes for evidence * See PSH-Assessment Measure (PSH-AM) to help assess for this condition | | | | | | |
| 1. **Sleep disruption** | | | | | | |
| Review of sleep/wake chart or nursing notes: | | | | | | |
| Use of sedating medication: | | Time given: | | | Effect: (night & day) | |
| 1. **Adverse effects medication/ polypharmacy** | | | | | | |
| * Antiemetics (e.g metoclopramide), antidepressants (e.g. SSRIs) and antipsychotics (incl haloperidol) may cause akathisia (subjective distressing sensation of restlessness plus objectively fidgeting / rocking / pacing / semi-purposeless movement) * High anticholinergic burden can cause agitation and delirium, and a surprising number of medications have anticholinergic effects (including sedatives) * Class I antiarrhythmics and digoxin may cause delirium * Combinations of certain medications can increase risk of serotonin syndrome and neuroleptic malignant syndrome | | | | | | |
| ACTION TO ASSESS:  Clinical Assessment  Medication review with pharmacist | | | | **Date:** | **Outcome:** | |
| Specialty advice as required on alternatives | | | | **Date:** | **Outcome:** | |
| 1. **Withdrawal from alcohol or drugs**   (Withdrawal from alcohol, nicotine, opiates, antidepressants, sedatives and non-prescription drugs may result in agitation. Symptoms can last weeks or even longer. Withdrawal from medications commonly used in ITU can also occur. Symptoms may only become apparent as patient is emerging on critical care) | | | | | | |
| Review of medication/ alcohol/ substance history (via GP, family, friends, other sources) | | | | **Outcome:** | | |
| Refer to BSUH Trust guidelines for alcohol withdrawal and/or NICE guidelines | | | | | | |
| 1. **Sources of discomfort** | | | | | | |
| Review for:   * Unidentified injury e.g. fracture * Inadequate pain control for existing injuries * Urinary: retention, blocked catheter, stones, UTI * GI: constipation, ileus, reflux * Lines etc: catheter, nasogastric tube, IV cannula or other line | | | | | | |
| 1. **Fat embolism syndrome** | | | | | | |
| Can occur following orthopaedic trauma (particularly long bone fractures)  More rarely can occur in bone marrow transplant, osteomyelitis, pancreatitis, alcoholic fatty liver and liposuction  Can affect pulmonary, neurological, retinal and cutaneous systems  No definitive diagnosis criteria or tests, but several scoring systems (Gurd and Wilson’s, Schonfeld’s, Lindeque’s)  Features usually include tachypnoea, tachycardia, fever and may include a petechial rash. Respiratory distress is the most common feature.  Treatment is supportive of the organ systems, including regular neurological assessments and GCS monitoring for neurological involvement and consideration of ICP pressure monitor if needed. | | | | | | |

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# SECTION 4

# Agitated Behaviour Scale

Atthe end of the observation period indicate whether the behaviour described in each item was present and, if so, to what degree: slight moderate or extreme. Use the following numerical values and criteria for your ratings. **Do not leave blanks**

**1 = absent :** the behaviour is not present

**2 = present to a slight degree:** the behaviour is present but does not prevent the conduct of other, contextually appropriate behaviour. The individual may redirect spontaneously, or the continuation of the agitated behaviour does not disrupt appropriate behaviour.

**3 = present to a moderate degree:** the individual needs to be redirected from an agitated to an appropriate behaviour, but benefits from such cueing.

**4 = present to an extreme degree:** the individual is not able to engage in appropriate behaviour due to the interference of the agitated behaviour, even when external cueing or redirection is provided.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Date** |  |  |  |  |  |  |  |
| **Assessor** |  |  |  |  |  |  |  |
| **Duration of observation** |  |  |  |  |  |  |  |
| 1 Short attention span, easy distractibility, inability to concentrate. |  |  |  |  |  |  |  |
| 2 Impulsive, impatient, low tolerance for pain or frustration. |  |  |  |  |  |  |  |
| 3 Uncooperative, resistant to care, demanding. |  |  |  |  |  |  |  |
| 4 Violent or threatening violence toward people or property. |  |  |  |  |  |  |  |
| 5 Explosive and/or unpredictable anger. |  |  |  |  |  |  |  |
| 6 Rocking, rubbing, moaning or other self-stimulating behaviour. |  |  |  |  |  |  |  |
| 7 Pulling at tubes, restraints etc. |  |  |  |  |  |  |  |
| 8 Wandering from treatment areas. |  |  |  |  |  |  |  |
| 9 Restlessness, pacing, excessive movement. |  |  |  |  |  |  |  |
| 10 Repetitive behaviours, motor and/or verbal. |  |  |  |  |  |  |  |
| 11 Rapid, loud or excessive talking. |  |  |  |  |  |  |  |
| 12 Sudden changes of mood. |  |  |  |  |  |  |  |
| 13 Easily initiated or excessive crying and/or laughter. |  |  |  |  |  |  |  |
| 14 Self-abusiveness, physical and/or verbal. |  |  |  |  |  |  |  |
| **Total score** |  |  |  |  |  |  |  |

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SECTION 5 – ABC Chart **– please copy as many as needed**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Date &**  **Time** | **Situation** | **Antecedent**  What happened before? | **Behaviour**  What happened during | **Consequence**  What happened thereafter? How did others react? | **Strategies to manage behaviours**  Please document any effective strategies used or strategies that inflamed the situation. | **Observer**  Please  initial |
|  |  |  |  |  |  |  |

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**SECTION 5 – ABC Chart – please copy as many as needed**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Date &**  **Time** | **Situation** | **Antecedent**  What happened before? | **Behaviour**  What happened during | **Consequence**  What happened thereafter? How did others react? | **Strategies to manage behaviours**  Please document any effective strategies used or strategies that inflamed the situation. | **Observer**  Please  initial |
|  |  |  |  |  |  |  |

# SECTION 6

# RISK ASSESSMENT

*Affix patient label or enter details:*

Trust ID No.:

Surname (BLOCK LETTERS):

First name:

D.O.B.:

# 

# INDIVIDUAL RISK ASSESSMENT TOOL

Risk assessment can be summarised as having three central components:

* The likelihood that actions will lead to positive or negative outcomes
* The relative size or significance of those outcomes
* Actions that can reduce risk or mitigate the consequences of risk

The agitated brain injury patient will be exposed to varying degrees of risk. They are all entitled to have their exposure to risk assessed and the Trust should take reasonable measures to reduce the level of risk especially where adverse consequences would have a significant impact on the patient’s health or wellbeing or that of others.

**Risk Rating Matrix**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Severity of outcome** | | | | |  |
|  | |  | | **Minor** | **Moderate** | **High** | **Critical** |
|  | **Likeli**  **hood**    **of**    **Occurrence** |  |  |
|  | **Unlikely** | Low | Low | Moderate | High |
|  | **Occasional** | Low | Low | High | Unacceptable |
|  | **Probable** | Low | Moderate | High | Unacceptable |
|  | **Frequent** | Moderate | High | Unacceptable | Unacceptable |

|  |  |
| --- | --- |
| **Risk rating** | **Examples of controls** |
| **Unacceptable / Score 4** | Implement communication strategies  Implement environmental strategies  Implement restrictive physical intervention e.g. posi mitts  Pharmacological management including emergency management e.g. Haloperidol  Inform security  Implement absconding controls (see separate absconding risk assessment) Level 4 observation |
| **High / Score 3** | Implement communication strategies  Implement environmental strategies  Implement restrictive physical intervention e.g. Posi mitts  Pharmacological management e.g. Lorazepam  Inform security  Implement absconding controls (see separate absconding risk assessment) Level 4 observation |
| **Moderate / Score 2** | Implement communication strategies Implement environmental strategies |

|  |  |
| --- | --- |
|  | Pharmacological management e.g. Lorazepam  Inform security  Level 3 observation |
| **Low / Score 1** | Implement communication strategies  Implement environmental strategies  Level 2 observation |

**Violence risk assessment**

Complete on a daily basis.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Risk** |  | **Risk Rating** | | | | | | |
| **Date** |  |  | |  |  |  |  |  |
| **To the patient** | |  | | | | | | |
| Pulling at lines / tubes etc. |  |  | |  |  |  |  |  |
| Falls |  |  | |  |  |  |  |  |
| Self-harm |  |  | |  |  |  |  |  |
| Disrupting essential therapy / treatment |  |  | |  |  |  |  |  |
| Hallucinations (visual, tactile, auditory) |  |  | |  |  |  |  |  |
| Wandering/Absconding |  |  | |  |  |  |  |  |
| Other (please specify): |  |  | |  |  |  |  |  |
| **To patients/visitors/staff** | |  | | | | | | |
| Psychological harm e.g. from verbal aggression |  |  | |  |  |  |  |  |
| Physical harm |  |  | |  |  |  |  |  |
| Non-aggressive harmful behaviour |  |  | |  |  |  |  |  |
| Other (please specify): |  |  | |  |  |  |  |  |
| **To the environment** | |  | | | | | | |
| Damage to equipment |  |  |  |  |  |  |  |  |
| Damage to building |  |  |  |  |  |  |  |  |
| Other (please specify): |  |  |  |  |  |  |  |  |
| Signature    Print name |  |  |  |  |  |  |  |  |

Using your clinical judgement and the above risk assessment decide on your level of observation (see below)

**Levels of Observation Decided**

To determine level of observation please follow trust guidance C070 – Policy for the observation of adult patients with mental health problems.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Date:** | **Date:** | **Date:** | **Date:** | **Date:** | **Date:** |
| General |  |  |  |  |  |  |
| Within eyesight |  |  |  |  |  |  |
| Within arm’s length |  |  |  |  |  |  |

# SECTION 7

# BEHAVIOURAL AND ENVIRONMENTAL STRATEGIES

*Affix patient label or enter details:*

Trust ID No.:

Surname (BLOCK LETTERS):

First name:

D.O.B.:

Please tick and initial/date if effective

MENTAL CAPACITY ACT PRINCIPLES:

1. A person must be assumed to have capacity unless it is established that they lack capacity
2. A person is not to be treated as unable to make a decision unless all practicable steps to help them have been taken without success
3. A person is not to be treated as unable to make a decision because they make an unwise decision
4. An act done or decision made on behalf of a person who lacks capacity must be done in their best interests
5. An act or decision must be done in a way that is least restrictive of the person’s rights and freedom of action

|  |  |  |
| --- | --- | --- |
| **BEHAVIOURAL** | Speak calmly, slowly, clearly and directly |  |
| Use appropriate social greetings and cues to model these to the patient |  |
| Explain what you are going to do before you do it and make sure the patient has understood |  |
| Avoid sudden grabbing/ touching of the patient. Approach from the front |  |
| Formally end the interaction to provide clear social cue |  |
| Provide patient with choice where possible rather than command |  |
| Use distraction to focus the patients attention away from the trigger or situation causing agitation |  |
| Break down difficult tasks or instructions into smaller steps |  |
| If physical restraint is required **SECURITY MUST** **BE CALLED** |  |
| 1:1 support or other restrictions, such as the use of mittens, may be necessary. In which case please refer to the MCA policy and use of hand control mittens policy**.** |  |

**SECTION 7 continued**

**BEHAVIOURAL AND ENVIRONMENTAL STRATEGIES**

*Affix patient label or enter details:*

Trust ID No.:

Surname (BLOCK LETTERS):

First name:

D.O.B.:

|  |  |  |
| --- | --- | --- |
| **ENVIRONMENTAL** | Nurse in a single/ side room if possible. Avoid frequent bed moves |  |
| Reduce stimuli – light, noise, distractions |  |
| Limit visitors to two at a time and staff to two at the bedside at a time (e.g. during ward rounds) |  |
| Remove monitoring equipment, tubes and lines as soon as safe to do so |  |
| Obtain any hearing devices or glasses from home |  |
| Provide an orientation board and verbal orientation prompts. Ensure access to a calendar/ diary and clock to aid orientation |  |
| Provide consistent structure, staffing and daily routine if possible |  |
| Allow patient to move around the ward or pace if possible |  |
| Create a familiar environment – ask family to bring in some pictures or personal possessions |  |
| Encourage good day/ night routine. Keep bed area well-lit during day and dark & quiet at night. Consider use of Melatonin. |  |
| Encourage access to simple activities/ games to aid with distraction e.g. puzzles, colouring, reading materials |  |

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# SECTION 8

# COMMUNICATION STRATEGIES

**Please tick and initial/ date if effective**

|  |  |  |
| --- | --- | --- |
| **COMMUNICATION** | Introduce yourself and explain all interventions at each episode of care |  |
| Keep instructions simple and to a minimum |  |
| Use yes/ no questions |  |
| Use short sentences |  |
| Repeat information as often as necessary |  |
| Avoid a harsh or patronising tone of voice |  |
| If you cannot defuse a situation move away from the patient if they are not at risk |  |
| Leave pauses and gaps in the conversation to allow the patient time to process and respond |  |
| Use non-verbal communication aids – e.g. communication boards or written information |  |
| Refer to Speech & Language therapy for further assessment and advice on communication where needed |  |

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# SECTION 9

# PHARMACOLOGICAL TREATMENT GUIDELINES

Agitated patient with ABI

**Is safety of patient, staff or others at immediate risk & therefore rapid reduction in agitation required?**

**YES NO**

ACUTE MANAGEMENT REGULAR MANAGEMENT

(see also 9.1 below) (see also 9.2. below)

**Step 1:** Non pharmacological methods **Step 1:** Work through pathway

(de-escalation, distraction, environment)

**Step 2: Olanzapine or Risperidone Step 2:** Review for co-morbid

(if not suitable or available, give lorazepam; symptoms

see doses below)

**Step 3:** Review impact & consider repeat **Step 3:** MDT decision re

dose, or alternative route or medication choice of and instigation of

regular medication

**Step 4:** Review use of medication daily, **Step 4:** Review impact & need

decide if regular medication required at for ongoing medication daily

72 hours post first prn / acute dose & consider if able to wean every 72 hours

**9.1 Acute management:**

* **Step 1:** Non pharmacological methods – as above
* **Step 2:** Preferably oral medication if safe & accepted by patient

If not accepted or possible, or if first oral dose not effective within 45-60 mins, move to Step 3

* **Step 3:** Review impact of first dose. If patient remains a risk, either repeat oral

dose as per guidance below OR use different medication via oral route OR use intramuscular (im) route

**Dosing**

* **Olanzapine – PO OR IM**  (avoid in dementia, Lewy body disease, parkinsonism)
  + Standard adult 5-10mg po or IM, wait 2 hours before considering repeat dose, maximum 20mg/24 hours)
  + Elderly (over 65) – for im dosing, 2.5-5mg (then as above, maximum 20mg/24 hours)
* **Risperidone - PO** (preferred to olanzapine in dementia other than Lewy body)
  + Standard adult dose 500mcg -1 mg po, wait 1 hour before considering repeat dose, maximum 2mg/24 hours initially in divided doses, then can be titrated up)
  + Elderly (over 65) or dementia– 250mcg po, wait 1 hour before considering repeat dose, maximum 1mg/24 hours initially in divided doses, then can be titrated up)
* **Lorazepam – PO or IM** (avoid if respiratory depression, benzodiazepine hypersensitivity or pregnant; can be given if Lewy body dementia when olanzapine & risperidone should be avoided)
  + Standard adult dose 1-2mg po or im - repeated after 60 mins if required, up to maximum of 4mg/24 hours
  + Elderly (over 65) 0.5-1mg po or im – repeated after 120 mins if required, up to maximum of 2mg/24 hours
* **Haloperidol / Promethazine** (try other options first if possible in patients with ABI, as haloperidol can prolong post traumatic amnesia and hinder neurological recovery**;** avoid haloperidol if cardiovascular disease, including QT interval prolongation – ECG prior (if given without ECG prior, considered off label use))
  + Can be given individually or together (promethazine can be used for tranquilisation but may also reduce extrapyramidal side effects of haloperidol)
  + Haloperidol - standard adult dose 5-10mg po or 2.5 – 5mg im (maximum oral 20mg/24 hours, maximum im 12 mg/24 hours). In elderly - 0.5-2.5mg po or 1.0-2.5mg im (maximum 5mg/24 hours)
  + Promethazine - 25-50mg po or im (maximum 100mg/24 hours. In elderly – 10-25mg po or 12.5-25mg im (maximum 50mg/24 hours)
* Seek senior advice before instigating IV use
* Maximum daily doses apply also for combined routes (i.e. include oral & parenteral route in dosing totals)
* Consider other medication effects e.g. on sedation / respiratory depression and **avoid polypharmacy within same group**
* NEWS and AVPU should be carried out at least every hour for 4 hours following po administration, and every 15 mins for first hour post im administration
* Review use of prn medication every 24 hours, and decide whether regular medication required by 72 hours post first dose

**If above steps not effective, seek senior advice and support & consider IV sedation**

**Following use of acute pathway, review to consider if regular medication should be instigated – see Section 9.2 for guidance.**

**9.2 Regular management**

* Ensure previous sections of this pathway worked through – in particular Section 3 (medical checklist for causes of agitation), Section 7 (behavioural and environment strategies) and Section 8 (communication strategies) and implement plans as appropriate before deciding that medication is appropriate
* Assess for co-morbid symptoms & aim to treat maximum number of symptoms with fewest number of medications (see table below) – select most appropriate single option first
* **Decision to start medication should be an MDT decision**
* Start low, go slow
* Reduce antipsychotic medications to half usual adult dose in elderly
* Use REGULAR dosing
* **Avoid prn medication – use may reinforce agitated behaviours. Discuss with nursing team when prn medication is appropriate or not**
* Watch for over sedation, respiratory depression and paradoxical increase in agitation especially with benzodiazepines
* Be aware prescribed medication may also affect cognition adversely, and can cause sedation and akathisia
* There is evidence that benzodiazepines and haloperidol may adversely affect neurological recovery
* Reassess and review medication daily. Gradually reduce dose as agitation improves, e.g. every 3 days

**Table: Pharmacological options in agitation with TBI according to co-morbid symptoms**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No co-morbid symptoms** | **Depression** | **Sympathetic / autonomic symptoms** (i.e.tachycardia, hypertension, sweating) | **Irritability / lability / mania or seizures / epilepsy\*** | **Psychosis** |
|  |  |  |  |  |
| Olanzepine | Sertraline | Propranolol | \*\*Valproate | Risperidone |
| Risperidone | Citalopram | Clonidine | Carbamazepine | Olanzepine |
| Lorazepam |  |  |  | Quetiapine |

\* Patients may be on levetiracetam (Keppra) for prophylaxis or treatment of ABI related seizures. Levetiracetam can have side effects of anxiety, aggression, confusions and disturbed mood. Consult neurology for advice on potential antiepileptic switch if required.

\*\* As per MHRA advice, valproate should not be used in women or girls of childbearing potential unless the conditions of the Pregnancy Prevention Programme are met and then only if other treatments are ineffective or not tolerated.

**Prescribing guidance** (all po, use lower dose range for elderly)

* Olanzepine 5 – 10 mg od

Increase up to max 20mg od if needed

* Risperidone 500mcg -1 mg bd

Increasing up to 1-2mg bd if needed

* Lorazepam 1 – 2 mg po, up to max 4mg in 24 hours
* Sertraline 50mg od initially

Assess response at 2 weeks, if insufficient response but

tolerated, increase dose to 100mg od, and again to

150mg od at 4 weeks if required

* Citalopram 10 - 20mg od initially

Assess response at 2 weeks, if insufficient response but

tolerated, increase dose to 20 – 40mg

* Propranolol 10mg bd initially

Titrate up by 10mg per dose every 2 days, up to 40mg

bd or tds as symptoms, HR and BP allow (caution in

asthma; contraindicated in uncontrolled heart failure and

heart block)

Often most useful in young patients with TBI

* Clonidine May be used as IV infusion in critical care setting

25-50mcg tds – qds

Can be gradually weaned as able

May be transitioned onto beta blocker e.g. propranolol if ongoing requirement

* Valproate Various formulations available, seek further advice from

pharmacy or neurology

As per MHRA advice, valproate should not be used in women or girls of childbearing potential unless the conditions of the Pregnancy Prevention Programme are met and then only if other treatments are ineffective or not tolerated.

Caution in liver disease, consider vitamin D supplementation

* Carbamazepine 50-100mg od – bd, increased in steps of 100-200mg

every 2 weeks as required up to 1000mg in divided doses

* Quetiapine 25mg bd day 1, 50mg bd day 2, 100g bd day 3, 150mg

bd day 4 then adjust according to response, max 600mg/day

# SECTION 10

# WHAT WORKS

*Affix patient label or enter details:*

Trust ID No.:

Surname (BLOCK LETTERS):

First name:

D.O.B.:

|  |  |  |
| --- | --- | --- |
| STRATEGY | **DATE** | **INITS** |
|  |  |  |
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*Affix patient label or enter details:*

Trust ID No.:

Surname (BLOCK LETTERS):

First name:

D.O.B.:

# SECTION 11

# ACTIONS/ REFERRAL CHECKLIST

It is important that patients with neuro-behavioural disability have a well-co-ordinated discharge plan, which may include referral to a specialist unit or placement where appropriate.

|  |  |  |
| --- | --- | --- |
| **ACTION** | **DATE** | **INITS** |
| Initiate **DOLS** assessment where necessary and ensure DOLS paperwork is completed and up to date |  |  |
| If patient has a traumatic brain injury refer to **HEAD INJURY NURSE** |  |  |
| Make sure that the **DISCHARGE CO-ORDINATOR** is involved |  |  |
| Refer to **NEUROPSYCHOLOGY** (via trust intranet) if:   * challenging behaviour continues/ escalates after implementation of the pathway * there are concerns about cognition following OT assessment |  |  |
| Refer to **NEURO OT** (via trust intranet) if:   * PTA is suspected * Cognitive impairments are present & impacting on function * There are other impairments that impact on independence and functioning (e.g. vision, physical abilities) |  |  |
| If mood disturbance suspected refer to **MENTAL HEALTH LIAISON TEAM** (via trust intranet) |  |  |
| If ongoing difficulties with communication refer to **SPEECH & LANGUAGE THERAPY** (via trust intranet) |  |  |
| If suspected drug and/or alcohol dependency refer to **DRUG & ALCOHOL SERVICE** |  |  |
| **Please ensure that a copy of this pathway document is provided to ongoing rehabilitation or care providers** |  |  |