Case 5

ABI case

Mr. A, 27 y.o. right hand dominant male had a snowboarding accident (non-helmeted) two weeks ago. As he was alone at the time of the accident, unclear how long down time was. He was found by ski patrol and upon EMS arrival, GCS was 3. No evident facial lacerations or skull fracture. During transfer, he awoke and became agitated. In the ER, GCS was 11. In the trauma bay, he had a generalized tonic-clonic seizure, which was aborted with Ativan. GCS dropped to 8, requiring intubation. Head CT revealed multicompartmental hemorrhages, including bilateral frontal lobe and left temporal lobe contusions, bilateral subdural hematomas, and a subarachnoid hemorrhage. Multiple follow-up head CTs showed stability of the hemorrhages. Neurosurgery recommended non-surgical management.

At 2 weeks post injury, he is transferred from the Intensive Care Unit (ICU) to the regular neurosurgical ward. You are asked to see him to evaluate if he is an inpatient rehab candidate. At this time, chart notes indicate that he is GCS 14 - Eyes (4), Verbal (4) Motor (6), and he continues to be agitated.

1. ***The family have requested an update about his traumatic brain injury (TBI). How would you grade the severity of his TBI and why?***

Potential areas of discussion:
- Multiple GCS noted in the scenario. Usually GCS in the ER (after patient is stabilized) or "best" GCS is used for grading severity of TBI, as GCS with EMS may be influenced by other factors (hypotension, substance use, etc.). Helpful to know if certain preinjury factors (eg. Substance use, previous disability) or post-injury factors (eg. Anoxia – check vitals) that can influence GCS are present. Post-ictal GCS not used as does not truly reflect TBI severity.
- LOC unknown duration, under 24h but unclear if less or more then 30 min
- Post traumatic amnesia (PTA) likely ongoing, as GCS 14 and continues to be agitated. Inability to recall day to day events is a main contributor to the agitation. GOAT (or Westmead PTA Scale or O-Log) helpful to track if patient remains in PTA.

You note that he continues to require physical restraints and haloperidol PRN consistently.

2. ***What would be your approach to manage his agitation?***

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Possible answers:
After ruling out other medical causes/contributors (eg. drug, infectious, metabolic, or structural causes).
Agitated Behavior Scale (ABS) can help follow severity of agitation.

Non pharm options:
- Maintain a quiet, safe (remove harmful objects from the room; low bed or floor mattress), and consistent environment and avoid overstimulation
- Consider the use of low-stimulation rooms (single room if possible)
- Evaluate the impact of visitors, assessment, and therapy, and limit these activities if they cause agitation or excessive fatigue
- Allow rest and sleep as needed, facilitating nighttime sleep and daytime wakefulness as tolerated (restore sleep-wake cycle)
- Minimize the use of physical restraints to allow the person to move around freely (sitter or observer and/or bed alarm preferable)
- Have consistent healthcare professionals or trained caregivers working with the person with TBI (one interlocutor at a time, regular schedule)
- Establish, and utilize, the most reliable and simple means of communication
- Provide frequent reassurance (and reorientation; use calendar or white board)
- Present familiarizing information as tolerated by the person (familiarizing objects or pictures in the room)
- Identify and address triggers for agitation (remove foley, lines and tubes when possible)
- Supervised listening to patient-preferred music may reduce agitation
- Help family members understand PTA, and how to best to engage and minimize triggering agitation

Pharm options: The use of neuroleptics and benzodiazepines to treat agitation or aggression in individuals with TBI should be minimized, as these medications may slow recovery after brain injury and may have a negative effect on cognition. In general, neuroleptic medications should be limited to those given for more severe levels of agitation and aggression that threaten patient and/or staff safety. When medications are required, it is recommended to start low, go slow, and monitor the impact on agitation and cognition using standardized tools.
- Atypical antipsychotics
- Beta blockers (propranolol or pindolol)
- Valproic acid (VPA) or carbamazepinen (CBZ)
- SSRI
- Tricyclic Antidepressants
- Trazodone for sleep
- Amantadine or methylphenidate if level of consciousness contributing

You also note that he is on Keppra 500 mg BID. His sister asked what his risks factors are of having further seizures and how long he should be kept on this medication.

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3. ***What would you respond regarding her questions?***

Potential areas of discussion:
- Recommended 7-day prophylaxis for moderate TBI with risk factors and severe TBI
- Classification of post-traumatic seizures. In this case, immediate.
- Immediate seizures do not increase risk. For this reason, would recommend tapering and discontinue.

With your recommendations, his behaviors and his cognition improve over the next few weeks to a point where he can be transferred to your inpatient rehabilitation unit. On admission, his Montreal Cognitive Assessment (MoCA) score is 17/30 and he presents with low insight and judgement. He initially participates, but after a few days of being on the inpatient rehabilitation unit, the rehabilitation team asks you to reassess him as he wants to leave rehab and go home today, stating it "feels like a prison".

4. ***What will you do to assess him? What do you evaluate to assess his capacity and determine if he is safe to return home? NB. There is no formal capacity assessor available.***

Potential answers:
Outside of capacity, exploring the reasons leading him to want to leave rehab
- Rule out physical causes for agitation. Eg. sleep, pain, mood, etc.
- Determine psychosocial stressors that could potentially be managed. Eg. financial, work, family relationships/dynamics

Determining Capacity (informally) and rule out acute safety concerns from a psychiatric perspective
Does he understand and appreciate…
- the nature of his injury/condition?
- the purpose of rehab?
- the risks and benefits of rehab?
- the risks and benefits involved in leaving rehab? (also, is he a risk to others?)

Does the nature and degree of his condition compromise his capacity to consent?

Clinicians should take care to ensure that the person with TBI is able to assess the risks, benefits, and/or alternatives to the intervention being offered. The clinician will ensure that the person with TBI has received all the necessary information adapted to their level of understanding regarding the intervention being offered.
The clinician will also ensure that the person with TBI has received all the necessary information adapted to their level of understanding regarding the objective of the capacity assessment.

He decides to stay to complete his inpatient rehabilitation. Over the next few weeks in inpatient rehabilitation, he continues to build insight into his impairments. Close to his discharge, he asks you about returning to sport and work as an optician. He is currently

independent with his mobility and doing well on higher level balance assessments in PT. As he was previously very active, he is eager to return to his usual physical activities, including snowboarding (before the season ends!), mountain biking and rock climbing. The team notes that he continues to have short term memory difficulty, decreased attention and executive dysfunction.

5. What are your recommendations regarding return to sport and work?

Sport:
- Preferrable to wait until he has recovered from current TBI, as recurrent TBI while still recovering from this one may lead to unwanted consequences (death due to cerebral edema, more deficits, slower recovery, etc.).
- Data lacking, but safe to say to wait 1 year for riskier activities
- Outpatient PT can help guide in regards to capacities to return to less risky physical activities; usually done in a progressive fashion

Work:
- Neuropsychological testing as an outpatient
- Short term disability/long term disability forms as appropriate
- Eventual work accommodations with very progressive return to work
- Vocational counselling – if available

Reference: Evidence- Based Review of Moderate to Severe Acquired Brain Injury - ERABI