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Traumatic Brain Injury

Mastering the ABCs

Traumatic brain injuries (TBIs) are potentially life-altering and life-threatening

Differentiating between the patient with an intracranial hemorrhage who needs operative management and the patient with a concussion who simply needs supportive care and rest is challenging. For the sake of brevity and practicality, rather than going into a discussion about epidural hematomas, subdural hematomas, concussions, etc., I find it is more useful to think of TBI patients in two categories: major and minor.

The major TBI phenotype is a patient who presents altered – perhaps comatose – with objective and worsening neurologic abnormalities requiring management of ABCs before rapid transport to a trauma center for expert evaluation and imaging. Of those who die from TBI, 50% die within the first 2 hours so if you have suspicion for a major traumatic brain injury, get EMS activated ASAP. Assume these patients have a cervical spine injury – among many other likely injuries – and immobilize appropriately. To the extent that you can, keep the head elevated in transport down the hill and in your patrol room (at least 30 degrees is ideal.) Ensure you have suction, a BVM, and oxygen available on any altered and decompensating patient. If you have access to a critical care prehospital service (such as UW MedFlight in southern WI) this may be an appropriate time to consider involving them, as they have certain medications and procedures available that may be beneficial in this situation, but perhaps most importantly is the ability to rapidly transport to a trauma center.

Minor TBI injury patients are those who walk into the patrol room and/or have general concussion symptoms (headache, vomiting, inattentiveness, dizziness, etc.) but have a normal mental status and no ABC needs. Even if only having minor symptoms, if a patient injures the head to the extent that they seek care from the ski patrol, your recommendation should be that they discontinue skiing and other activities that put them as risk for additional head injury until cleared by a physician, as second impact syndrome can compound the initial injury. When in doubt regarding the severity of their head injury, err on the side of sending to an ER, as expert evaluation and possibly a CT scan are required to definitively rule out bleeding inside the brain. At a minimum, the patient should be provided with a written list of symptoms to watch out for and go to the Emergency Department (ED) for, and they should be instructed to spend the rest of the day with someone who can monitor for those symptoms. Also note that any patient on blood thinning medication with a head injury should be seen at an ED ASAP.

- **Severe TBIs are life threatening and can result in a rapidly decompensating patient requiring management of ABCs while awaiting transfer to higher level of care**
- **Be aware that there are likely other concomitant injuries in severely head injured patients.**
- **Even a minor head injury patient should never return to skiing/snowboarding. Provide patients with minor head injuries with a written list of symptoms to watch out for**