Wilderness Medicine

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Concussion Management in the Wilderness

Concussions often have symptoms and presentations similar to other pathologies. This could potentially lead to challenges in managing a concussion in an austere environment. The focus of this paper was identifying and managing a concussion (“a disturbance in brain function” via direct head trauma or transmitted trauma from the body to the head) in the wilderness. Symptoms of a concussion are brought on by neural cell membrane disruption, leading to impaired oxidative metabolism and glucose hypometabolism.

While it is suggested that the rate of concussion in the wilderness is low, head injuries in the wilderness make up 3.3-34.8% of injuries that occur in national parks. However, true prevalence of concussions that occur in the wilderness is not known due to underreporting, and many that seek medical attention, do so after returning home.

Concerning evaluation of suspected concussion, attention must first be paid to ABCs, and cervical spine immobilization, if there is suspicion of cervical spine injury. Headache is the most common symptom of concussion. Other symptoms include balance disturbance, photophobia, disorientation, dizziness, phonophobia, emotional lability, amnesia and loss of consciousness. Physical examination should include a thorough neurologic assessment, including cranial nerve, balance and gait testing.

Differential diagnosis for a concussion in the wilderness include:

Acute Mountain Sickness

Carbon Monoxide Poisoning

CNS infection

Exercise Induced Hyponatremia

Dehydration

Intracranial Hemorrhage

Intoxication/Poisoning

Sleep Deprivation

Most concussions do not require imaging. However, a decision to evacuate to a facility with imaging capabilities and more resources should be considered if the patient has, loss of consciousness, severe headache, age >60, repetitive vomiting, fall from >3 feet, signs of skull fracture, post-traumatic seizure, neurologic deficits or GCS <15. If the patient has milder symptoms, rest and resolution of symptoms should occur prior to assessment to resume activities that require exertion. A return to play protocol can be used to assess a patient’s readiness to return to physical activity. If medical attention is necessary, but the patient can ambulate with out difficulty, the patient should be escorted to the base with frequent stops for rest and reassessment.