A Case of Rhabdomyolysis with a Possible Concussion in a High School Football Player

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**Background:** A 17 year old male varsity football player uses a creatine supplement under the approval of his pediatrician to increase muscle mass. Creatine is known to dehydrate the user. At the insistence of the head coach the athlete reported to the athletic trainer during a water break during the first week of preseason. He exhibited an uncharacteristic mental and emotional status. He reported a headache but was unable to determine if he received a hit. He was nauseous and complained of sensitivity to the sunlight and noise from practice. Due to the presentation of the athlete’s symptoms, he was removed from the stimuli to rest before any other tests were conducted. In the athletic training room he reported becoming more nauseous and proceeded to vomit before a more thorough evaluation could be conducted. After that his parent was called to transport him to the hospital for further evaluation and treatment. This athlete’s pre-practice and post-practice body weights were referenced and showed that he lost 2.27 kilograms during the morning of the incident and gained the weight back during the lunch break, likely from food intake. **Differential Diagnosis:** Concussion, dehydration, heat exhaustion. **Treatment:** Urine analysis revealed “Pepsi” colored urine but no other significant findings. Blood analysis revealed a CPK level of 4 times the normal value. After the laboratory tests results, the emergency room physician diagnosed the athlete with rhabdomyolysis and a possible concussion. He was administered 3 bags of intravenous fluids before being discharged. The athlete was referred to a neurologist the next day for evaluation and care of concussion and held from football participation. His concussion symptom scores were recorded daily by the athletic trainer. The athlete went for follow up blood analysis 5 days after the hospital visit, which resulted in normal CPK levels. One week post incident, he followed up with the neurologist. His imPACT score returned to baseline and was cleared to start a 5 step return to play program. **Uniqueness:** The reason this case is unique is that a diagnosis of rhabdomyolysis is rare in the high school setting. It is common for a football player to become dehydrated and develop a heat illness. However, it is uncommon for a high school athlete to exert themselves to the point where their muscle fibers start to break down to cause rhabdomyolysis. **Conclusion:** At the time of initial evaluation it appeared this athlete was concussed; any other diagnosis seemed unlikely. This athlete was only referred to the hospital because he started vomiting, where laboratory tests aided in the diagnosis of rhabdomyolysis. The treatment was the same for the rhabdomyolysis as it would be for a concussion patient, which gave this athlete time to heal. **Relevant Evidence:** According to Godek et al a football player can lose 3.5 kg- 5 kg of body weight through sweating. This combined with hot and humid conditions, plus practicing in full pads, can put an athlete at greater risk for heat illness or rhabdomyolysis. An athlete who is suffering from rhabdomyolysis could complain of muscle soreness and muscle swelling. However, to accurately diagnose an athlete with rhabdomyolysis blood and urine analysis must be conducted. Athletic trainers must pay attention to any athlete complaining of muscle soreness and swelling. If not dealt with properly, muscles will continue to swell from muscle fiber damage and can lead to more serious conditions such as compartment syndrome and possibly renal failure. **Word Count:** 566
