

Rhabdomyolysis: The breakdown and the treatment 1

Rhabdomyolysis: The Breakdown and the Treatment

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**Abstract**

Rhabdomyolysis is not uncommon. It occurs more than we think. Rhabdomyolysis is the breakdown of myocytes skeletal muscles. This can be caused by many things including a car crash or major injuries such as fall and extreme exercises. In rhabdomyolysis ATP is depleted and muscle contraction is damaged.

In Rhabdomyolysis intercellular chemicals of the muscles are released into the blood stream. This causes pressure to build up. There is a release of protein in the blood. This is damaging to the kidneys. This results in death of muscle fibers that is then released into the blood stream causing the kidney to have an inability to remove waste and urine causing it to be concentrated. With proper treatment there is a good outcome for rhabdomyolysis.

Many individuals with a diagnosis of rhabdomyolysis suffer from extreme fatigue, dehydration or several other things that cause muscle breakdown. There are a few contributing factors to Rhabdomyolysis such as major injuries such as blunt traumas due to bodily harm or other natural disasters including a hard punch.

Burns can cause muscle injury and can lead to rhabdomyolysis especially third-degree burns. Over exertion this is often observed with athletes like football players, runners and individuals who does high intensity exercises. Often these individuals suffer from muscle breakdown due to body exertion. However, these cases many times do go unnoticed or may be mistaken for fatigue. The common factor in all of this is over exertion. This may be due to any of these contributing factors. Also, with prolonged immobilization the body would lead to muscle break down. There are some nontraumatic causes of rhabdomyolysis such as drugs. There are many drugs that causes rhabdomyolysis in patients such as statins. Many illicit drugs like meth and opioids are also involved in breakdown of muscle causing an induction of rhabdomyolysis.

There are many complications that may occur with rhabdomyolysis such as renal failure, Hyperkalemia, compartment syndrome, hypocalcemia, and hepatic inflammation. With renal diseases it is directly affected by myoglobin. Renal diseases are a top complication in rhabdomyolysis. This can be severe causing mortality. This is because the proteins and its compounds that go into the circulatory system. This will be shown in one of the classic signs of dark colored urine which is seen in objective and subjective data.

Compartment syndrome: This normally occurs after there is muscle trauma. This can also happen during a hypertensive period. There is a lack of blood flow in the patient therefore, this would show more damage to the muscles.

Hyperkalemia is another complication of rhabdomyolysis. This is because the potassium levels are high in the blood. The muscles breakdown increases the concentration of potassium. It is important to have all the necessary information for each patient as there are many varying issues and causes for each patient causing rhabdomyolysis.

It is important to listen to the patients concerns and complains about aches and body muscles spasms. It is important to look for symptoms in these patients that normally occur with rhabdomyolysis. Many patients with this diagnosis complain of pain in the shoulders. Muscles spasms are generally seen in most patients.

### Diagnosis and Treatment

Urine and blood test are also performed, electrolytes, creatine and BUN levels are completed. They typically test for acidity, glucose, protein, blood cells and bilirubin. The main way to manage rhabdomyolysis would be an early diagnosis. One of the main things to do is IV hydration normal saline NaCl 0.9%. IV is given and many times dramatically there is a change in the acuity of the patient. It is also affective to increase the patients bodily pH. Bicarb and mannitol is given to the patient with other treatment such as calcium supplements and potassium reduction methods. According to EmDocs :“Tests focus on diagnosis and potential complications. CBC, electrolytes (including phosphorus and calcium), renal and liver function tests, CK, uric acid, urinalysis, and ECG are recommended (1,34,39,44-47). Clinicians must evaluate for hyperkalemia with patients with suspected or diagnosed rhabdomyolysis.

Abnormalities on testing may include hyponatremia, hyperkalemia, hypo- or hypercalcemia, elevated liver enzymes, elevated serum creatinine, hyperphosphatemia, and metabolic acidosis (1,34,39,44-47). Elevated serum creatinine suggests acute kidney injury (AKI). Hypocalcemia is more common in the initial stages with intracellular influx, followed by hypercalcemia with cell death. Coagulation panel may show findings of DIC (1-5,27-40).

CK is your test of choice for diagnosis, with a threshold of 5X the upper limit of normal (1,000 IU/L) (4,5,46-49). CK will increase 2-12 hours after injury, peak at 24-72 hours, and decline over 5-10 days (41,48,49). Patients with chronic muscle diseases or genetic conditions may have chronically elevated CK levels. For these patients, compare the new CK level with their baseline level (36,50). Uric acid may elevate before serum CK (50).” These test and treatment have shown to be affective in Evidenced based nursing treatment for a patient diagnosed with Rhabdomyolysis. Dialysis is also done for severe cases.

The most current medical treatment for Rhabdomyolysis is intravenous fluid. This will help maintain urine production in the patient. This treatment will also prevent kidney failure this is known to be the best and most current medical treatment when Rhabdomyolysis is suspected.

The recommendation for best nursing practice would be to educate patient on ways to prevent rhabdomyolysis such as listen to your body. If you are tired give your body rest. Stay hydrated and avoid becoming overheated. Do not use illicit drugs, inform your doctor on what medications you are taking at home. Use only one pharmacy.

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