Case Report

Hypokalemic Rhabdomyolysis — A Rare Presentation

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Hypokalemia leading to Rhabdomyolysis is a potentially fatal disorder if not identified and treated early. In this case report we present a patient who had one week history of asymmetric painful Quadriparesis with neck drop and preserved reflexes. Evaluation revealed Hypokalemia with raised creatine.

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Key words **: Hypokalemia, Rhabdomyolysis, Quadriparesis, Neck drop.**

Hypokalemia is a common condition seen in clinical practice however, persistent asymmetric weakness, neck drop and Rhabdomyolysis is an uncommon feature of Hypokalemic muscle weakness. We present a patient with these uncommon manifestations in this case report.

Case Report

A 48-year-old hypertensive male on presented with history of weakness of both lower limbs leading to difficulty in walking since last four days. He also had weakness of right hand and difficulty in holding neck erect due to neck muscle weakness since one day. He also complained of pain in the proximal arm and lower limbs since two days.

Examination — His vitals were stable. His higher mental functions were normal. He had neck extension weakness with neck drop. Cranial Nerve Examination showed normal fundus, no ptosis, normal extraoccular movements, no facial muscle or bulbar weakness. Upper limb examination revealed normal tone with no wasting and asymmetric weakness, Right upper limb had grade 2 power proximally and grade 4 power distally. Both lower limbs had grade 3 power proximally and grade 4 power distally. Reflexes were well ellicitable. Plantars were flexor. His single breath count was 25 and respiratory rate was 15 with no Orthopnea. Other system examination were normal. The possibilities considered were Acute Neuropathy like Guillain Barry Syndrome, Neuromuscular Junction disorders like Myasthenia gravis, Hypokalemia related weakness. In view of asymmetric weakness a cervical cord pathology was also kept in the differential diagnosis. However, the absence of sensory symptoms and absent upper motor signs were against this localization and diagnosis. Patient was evaluated with Routine Blood Counts, Renal, Liver Function and Thyroid Function Tests were normal. His sodium was 145 mmol/L and potassium was 2.1 mmol/L. Arterial blood gas analysis showed PH-7.471, Pco2-45.6mmg, Po2-92 mm Hg, bicarbonate of HCO3-30.8 mmol/L. ECG showed presence of U waves. Patient was also evaluated with nerve conduction studies and repetitive nerve stimulation test which were normal. His S Creatine Kinase (CPK) was 7500 U/L (39-308). Work up for cause of hypokalemia was done. Spot urinary sodium was 89mmol/L(40-220), Urine potassium was 4.6 mmol/L(25-125), Urine chloride 84mmol/L(18-209). His serum aldosterone levels were normal and the renin to aldosterone ratio was found to be normal. Viral serology for HIV, HBsAG and HCV was normal. SARS-COV2 PCR was negative. His urine myoglobin was postitive however, there was no high coloured urine.

There was no past history or family history of episodic weakness. There was no history of muscle pain or cramps in the past. No history of any diuretic intake or use of medications precipitating Hypokalemia or muscle damage. No history of Renal diseases, Diarrhea or vomiting. No history of any Sicca symptoms, joint pain, raynauds, arthritis or oral ulcers.

Patient was started on intravenous correction of potassium with regular serum potassium monitoring. There was quick recovery of weakness and muscle pain resolved within two days. His neck weakness and limb weakness improved dramatically. His repeat Creatine Phospho Kinase (PK) also had a decreasing trend over one week. He was discharged from hospital after he became asymptomatic. Thus the final diagnosis of Hypokalemic Muscle weakness and Rhabdomyolysis was considered.

Editor's Comment :

- Hypokalemia is a very important and reversible cause of flaccid limb weakness and neck drop. Rarely it can lead to complications like rhabdomyolysis. Early detection and treatment can give good outcomes.

Discussion

Rhabdomyolysis is a condition in which there is severe muscle pain and weakness which leads to

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release on toxic intracellular products like Myoglobin, Creatine Kinase[1-3]. It presents with the key features of muscle rigidity, muscle pain and high coloured urine[4]. There are many causes of rhabdomyolysis like trauma, direct compression, non traumatic events like seizures, heat stroke, extreme muscle exertion, medications, toxins, Infections, endocrine disorder mediated, Insect bites and dyselectrolemias. Hypokalemia however, is a rare cause of this fatal condition. Hypokalemia is a very common medical condition however it leads to Rhabdomyolysis very rarerly[5,6]. The postulated mechanism of this condition is the muscle ischemia related to hypokalemia which in turn leads to changes in permeability of the Sarcolemma[7].

Rhabdomyolysis may be complicated with Acute Renal Failure in 4-33% of the cases and it does not correlate with the serum CPK (Creatine Phosphokinase) levels. Myoglobinuria is not seen in all the cases and is not essential for diagnosis of this condition[8].

In our patient the asymmetric weakness of limbs and neck drop was very atypical. Patients weakness was probably related to Hypokalemia and the muscle pain was due to Rhabdomyolysis.

Conclusion

This is a potentially treatable and reversible condition if diagnosed early. Delay in diagnosis can lead to life threatening complications like Acute Renal Failure and cardiac dysrythmias and disseminated intravascular coagulopathy. Neck drop should make us suspect hypokalemia weakness apart from the other causes of neck weakness like myasthenia gravis, polymyositis and anterior horn cell disease

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Corrigendum

The Editor's Comments of the article "Intracranial Calcification in a Case of Seizure Disorder", JIMA, January, 2022, pp 50 should be read as “Idiopathic Intracranial Calcification should be considered as an important, albeit rare differential in a patient with seizures when no other apparent secondary cause can be as certained."

— Hony Editor