

# Severe Hyponatremia Following Rhabdomyolysis And Acute Renal Failure In A Young Patient With Undiagnosed Hypothyroidism

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## INTRODUCTION

Severe hypothyroidism is often associated with myopathy which is most often limited to myalgia, muscle stiffness and cramps, with sometimes moderately elevated levels of muscle enzymes. Occasionally patients will develop severe myopathy and renal failure from rhabdomyolysis. However, rhabdomyolysis due to hypothyroidism is very rare.

Another rare complication of hypothyroidism is hyponatremia. Cases of extreme hyponatremia from hypothyroidism are reported to be rare. We report a case of both rhabdomyolysis and unprecedented hyponatremia occurring with hypothyroidism

## LAB VALUES

TSH (mIU/ml)

75. at admission. Latest result (Nov-2019) is 4.1

Cr (micromol/l)

135 ( 1.53 mg/dl)

ACTH (pg/ml)

1581 .latest result 110 (Nov-2019)

PRL (ng/ml)

22.

Lab results were obtained through **Abbott Architecture c4000**

## CASE DESCRIPTION

We present a case of a young male patient, aged 36, with medical history of rhabdomyolysis resulting in acute renal failure (hypothyroid myopathy in retrospect).

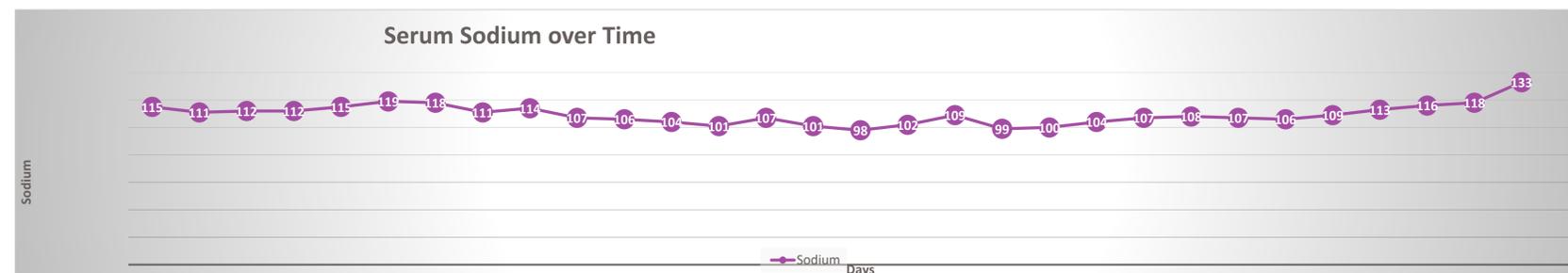
He initially presented with muscle pain and weakness and was diagnosed with a generalized demyelinating sensorimotor polyneuropathy. He was treated with intermittent parenteral corticosteroid therapy. His weakness and myalgia worsened and he was diagnosed with rhabdomyolysis resulting in renal insufficiency. As he continued to deteriorate, a TSH level was obtained and found to be significantly elevated. On exam, the patient was drowsy, but alert.

Substitution therapy with levothyroxine was immediately started, per protocol. His sodium levels were constantly decreasing (from 115 to **98 mmol/L**) despite the administration of hypertonic sodium chloride and fluid restriction.

At that time, parenteral glucocorticoid therapy in high doses was introduced, as hyperkalemia and the previous corticosteroid treatment lead us to diagnose iatrogenic adrenal insufficiency. In the midst of the patient's lowest sodium levels, he had an episode of headache, nausea, vomiting and hypothermia. The patient's serum osmolality was low 196.38mOsm/kg), but his urine osmolality (412.88mOsm/kg) and urine electrolytes were all within the normal ranges (euvolemic hypotonic hyponatremia). As his fT4 levels started to improve, his overall clinical condition improved significantly.

## DISCUSSION

Muscle injury is a common complication of hypothyroidism but rarely leads to rhabdomyolysis. Significant hyponatremia is also a rare complication of hypothyroidism. Although other previous investigators have minimized the risk of hyponatremia and hypothyroidism, several others have found it to be a significant risk. This study shows the need to consider hypothyroidism in patients with significant muscle injury and or hyponatremia as a possible cause. This case was also complicated by concomitant iatrogenic adrenal insufficiency and emphasizes the need to consider that diagnosis to avoid exacerbating further hyponatremia



## CONCLUSIONS

Severe, life threatening, hyponatremia in the setting of severe hypothyroidism was a challenge for an entire team of experienced endocrinologists.

Although hypothyroidism is a rare cause of rhabdomyolysis, it should be suspected in patients presenting with muscle aches and high CK concentrations in the absence of other, causes of rhabdomyolysis, even in the absence of its clinical features.

As soon as the diagnosis is made, thyroid hormone replacement should be promptly instigated.

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