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# Interesting Presentation of Statin-induced Necrotizing Myopathy

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## Abstract

**Introduction:** It is well known that statins can be associated with myopathy, myalgias and elevation in CPK. These aforementioned events resolve on discontinuation of statins. One unique presentation is autoimmune myopathy that persists despite discontinuation of statins. This entity requires immunosuppression following the insult in addition to statin discontinuation to help with symptoms.

**Case Presentation:** 67-year-old male with past medical history of hepatitis C, type 2 diabetes mellitus, hypertension and hyperlipidemia. He presents with diffuse weakness and muscle pain. Patient's medications include atorvastatin and enalapril. Patient had CPK of 35,000. Enalapril and atorvastatin were discontinued and patient improved with intravenous fluids and steroids. Patient presents again 1 month later for elevated CPK of 19,000. Patient had a muscle biopsy done which showed signs of necrotizing myopathy. Patient was treated with intravenous solumedrol and was discharged on oral steroids. Patient continued to have weakness and presented again to the hospital few weeks later. At that time, patient had difficulty swallowing and changes in speech. Patient's labs showed elevated CPK, Aldolase of 113.2 and myositis panel was negative. HMG-CoA reductase antibody test sent and was positive. Patient treated with intravenous immunoglobulin and intravenous steroids. Patient was discharged following improvement and had 3 months of weekly intravenous steroids and monthly intravenous immunoglobulin following discharge. One year later, patient presents from primary care office for elevated CPK of 13,000 and generalized weakness. Patient given intravenous solumedrol for 5 days and intravenous fluids and his symptoms improved. Patient was discharged with a prednisone taper over 4 weeks. Patient presented again 2 months later with progressive weakness and muscle pain. At that time patient was treated with intravenous fluids and intravenous steroids again. Patient was started on a long prednisone taper and started on Rituximab. Patient with continued improvement in symptoms but did not return back to baseline strength.

**Discussion:** It is important to recognize complex disease processes. Despite having stopped the statin, patient continued to have recurrent episodes of rhabdomyolysis. With the proper follow up and understanding of the disease, patient could have had much less complications, hospitalizations and strain on his life. This entity is very hard to recognize as it may appear to be a single event of rhabdomyolysis. Further research needs to be done for deeper understanding of this disease process. This disease may appear very rare and it is but it is also likely to be very underrecognized.

## Introduction

- This case highlights the importance of early diagnosis
- Statins are widely used and some side effects are common such as myalgias
- Severe side effects are uncommon with statins and can be easily missed
- A presentation like this may be missed as it may just present as muscle cramps
- If further workup is not pursued, necrotizing myopathy can cause much suffering for a patient
- It is important to obtain further history and workup if there is suspicion for necrotizing myopathy

## Case History

- Patient's initial symptoms started 3 years from starting statin therapy
- Patient's initial symptoms started following upper respiratory illness
- Following his sickness, patient developed proximal muscle weakness and malaise
- His CPK was noted to be around 35,000 IU/L (reference <250 IU/L) on initial presentation
- Patient was initially treated with intravenous fluids and steroids with improvement
- Simvastatin and Enalapril were discontinued following initial episode of rhabdomyolysis
- Initially, patient improved but presented one month later with weakness, dysphagia and voice changes
- At the second presentation, patient received steroids, intravenous fluids and intravenous immunoglobulin
- There was plans for patient to receive monthly intravenous immunoglobulin and weekly steroids but patient was lost to follow up
- Patient presented again one year later with similar symptoms and treated similarly at that time

## Diagnosis

- On initial look the case may just appear as rhabdomyolysis
- Further results indicate there is more to the case
- Consultants involved in this case were rheumatology and neurology
- Labs on every presentation with no significant abnormalities
- Only significant levels were CPK in the 1000s every time
- On his second presentation, Aldolase was also checked and it was elevated to 113.2 U/L (reference 1.2-7.6 U/L)
- Myositis panel and paraneoplastic autoantibody evaluation were negative
- **HMG-CoA reductase antibody** with high IgG titers of 20,000 (normal <2500)
- **Muscle biopsy** from anterior left thigh showed mild neurogenic atrophy with scattered regenerating myofibers
- The combination of anti-HMG-CoA reductase antibodies with the muscle biopsy findings are associated with autoimmune necrotizing myopathy
- Although the muscle biopsy does not show necrosis, the combined findings are consistent with the diagnosis
- Proximal muscle weakness, anti-HMG-CoA reductase antibodies and atrophy on muscle biopsy are consistent with the diagnosis

## Discussion

- It is important to note that this can occur at any time during the use of statin therapy
- Despite recurrent hospitalizations and treatment with steroids, patient continued to experience rhabdomyolysis
- If a diagnosis was not made, patient would have continued to get hospitalized with rhabdomyolysis
- Patient was already experiencing weakness and did not improve back to baseline
- Recurrent insult from rhabdomyolysis would have led to more muscle damage and eventually kidney injury
- After starting treatment with Rituximab and long steroid taper, patient had better response
- Patient was able to start doing his daily activities again with less limitations

## Conclusion

- Having this disease causes suffering for patients
- Having diagnostic criteria or early detection methods would help relieve years of suffering for patients
- Many cases like those can go unnoticed if a pattern is not recognized
- If patients do not have proper follow up or go to different hospitals, a pattern of recurrent rhabdomyolysis may not be noticed
- This case also shows the importance of continuity of care
- Another important note to mention is the need for universal Electronic Medical Record that helps hospitals share records and make it easier to recognize such cases

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