A Case of Mystery Myopathy:
An unexpected side effect of a frequently prescribed drug

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Introduction
Muscle weakness is a common complaint in both the outpatient and inpatient settings. True myopathies with objective weakness present as a diagnostic challenge with a large differential diagnosis. Statin myopathies often present with pain, however, a small proportion present with painless weakness. Statin induced necrotizing autoimmune myopathy (SINAM) is a rare, but serious, potential cause of myopathy.

Case Description

52 year old male presented with two month history of axillary and chest rash, weight loss. He was referred for presumed dermatomyositis with 3 days of high dose IV prednisone and azathioprine with follow up with rheumatology. CBC unremarkable, ESR, CRP, cortisol, TSH within normal limits. Other corticosteroids, Atorvastatin, Clopidogrel, Metformin, Amlodipine, RUQ ultrasound stable, myositis panel negative. The patient was treated for presumed dermatomyositis with 3 days of high dose IV prednisone and azathioprine with follow up with rheumatology. Atorvastatin, Clopidogrel, Metformin, Amlodipine, RUQ ultrasound stable, myositis panel negative.

Physical Exam:
- Afebrile, hemodynamically stable
- Notable for:
  - bilateral hip strength 3/5 and bilateral shoulder strength 3/5, remaining muscle groups 5/5
  - Blanchable, erythematous plaques on anterior chest and bilateral axilla
  - No lymphadenopathy
  - Remainder of neurologic exam, cardiovascular, pulmonary, and abdominal exams were normal.

Labor:
- CBC unremarkable
- CMP notable for AST 1309, ALT 1042
- CK 50,000
- ANA, ENA panel, RF, dsDNA, myositis panel negative
- ESR, CRP, cortisol, TSH within normal limits
- Evaluation for HIV, hepatitis A, B, and C, EBV all negative

Pathology:
- Muscle biopsy – necrotic muscle fibers without inflammatory changes

Hospital Course:
- The patient was treated for presumed dermatomyositis with 3 days of high dose IV prednisone and IVIG with improvement in his symptoms and decrease in CK level.
- After the results of the muscle biopsy returned, he was diagnosed with necrotizing myopathy and an anti-3-hydroxy-3-methylglutaryl-Coenzyme A reductase (HMGCR) was sent.
- He was discharged on prednisone and azathioprine with follow up with rheumatology.
- Ultimately, his anti-HMGCR returned elevated at >200 (normal <20) and he was diagnosed with statin induced necrotizing autoimmune myopathy.
- At follow up appointment, patient had improvement in his symptoms and normalization of his CK. He was continued on azathioprine and his prednisone was tapered.

Teaching Points

Statin induced necrotizing autoimmune myopathy
- Rapid onset of severe proximal muscle weakness
- CK levels typically >6000
- Distal weakness and dysphagia may occur
- Anti-HMGCR positive myopathy is rare (2 cases per million per year)
- Symptoms may present after years of statin usage and continue despite discontinuation
- It is not yet clear if the severity of SINAM is related to the length or dose of statin exposure
- Treatment is aggressive immunotherapy, often requiring multiple agents

Conclusions:
Statin induced necrotizing autoimmune myopathy is a rare side effect of statin use. The number of patients eligible for statin use for the prevention of cardiovascular and cerebrovascular diseases has been on the rise in light of the recent 2013 American College of Cardiology and American Heart Association cholesterol guidelines. Identifying SINAM is a diagnostic challenge for primary care providers, hospitalists, and specialists alike. Early recognition is crucial as therapy often involves aggressive immunotherapy with multiple agents compared to other statin myopathies.

References