From Being on Cranes to Crutches: A Disabling Case of Necrotizing Myopathy

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Abbreviations:

Anti-hydroxy-3-methylglutaryl-CoA reductase - Anti-HMGCR, Immune-mediated necrotizing myopathy - IMNM, Creatine kinase - CK, HFpEF - Heart failure with preserved ejection fraction, Obesity hypoventilation syndrome - OHS, Hyperlipidemia - HLD, Intravenous fluids - IVF, Magnetic resonance imaging - MRI

Background:

IMNM is a rare autoimmune myopathy that is driven mainly by myofiber necrosis rather than inflammation[1] . Anti-HMGCR myopathy is a subset of IMNM where HMGCR autoantibodies cause injury to the myofibers. Patients usually present with severe proximal muscle weakness with little extra-muscular involvement. They also commonly have a history of statin use but unlike statin intolerance or statin-induced toxic myopathy, muscle weakness and CK elevation persist despite drug discontinuation[2] . We present a case of HMGCR myopathy where the disease process was refractory to prednisone but highly responsive to IVIG.

Clinical Presentation:

A 66 year old male with history significant for hypertension, HFpEF 55-60%, OHS, and HLD was referred to the emergency department by his cardiologist after discovering a CK of 22,000 units/L during a routine visit. He has been experiencing bilateral lower extremity weakness for the past 3 months that rapidly worsened within the past month such that he had to quit his job. He used to work as a crane operator where he climbed up and down a ladder to use the vehicle. He has been on atorvastatin 20 mg for 4 years without any recent increase in dosage. In the hospital, he received IVF and CK downtrended to 9,878 units/L in four days. Patient was discharged to inpatient rehabilitation where IVF was continued for weeks but CK plateaued in the 8,000s units/L. Rheumatology was consulted for further workup and recommended myositis panel, MRI, and muscle biopsy. MRI results showed signal changes within the vastus medialis, intermedius,gluteus minimus and medius consistent with myositis. Muscle biopsy was subsequently performed and it showed acutely necrotic fibers undergoing phagocytosis as well as mixed regenerated and atrophic fibers. Necrotic fibers also contained macrophages and sparse T cells. HMGCR antibody IgG was 109 units. Prednisone 60 mg daily was started and CK decreased to 2,927 units/L. Despite the decrease in CK, patient felt weaker than before. Prednisone was increased to 80 mg daily while the script for IVIG was pending insurance approval. After several weeks, weakness did not improve so mycophenolate 500 mg was started.When patient finally received IVIG infusion, his weakness significantly improved by his 2 month follow up. By then, he was able to ambulate around his house without assistance.

Conclusion:

Though it is a rare disease, IMNM should always be on the differential in patients presenting with proximal muscle weakness and elevated CK refractory to IVF. Suspicion for HMGCR myopathy should be high in patients with statin use and persistent weakness despite discontinuation. Positive serology of anti-HMGCR autoantibodies is needed for diagnosis. No clinical trials have been conducted to establish effective treatments for HMGCR myopathy, however current recommendations is to use steroids along with an immunosuppressant for initial treatment[3]. IVIG has also been reported as a successful monotherapy[4]. Despite treatment, many patients develop clinical relapses upon weaning from immunosuppressive therapy and may require chronic IVIG. Since the study of IMNM is relatively new (first described in 2004), further research is required to establish more robust treatment.

Sources:

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No Disclosures