Subcutaneous immunoglobulin in anti-HMGCR myopathy with children for long-term maintenance

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Anti-HMGCR myopathy is a rare form of myositis in children. We present a 15-year-old-girl with anti-HMGCR myopathy for 4 years of follow-up. She was treated with oral corticosteroids, intravenous immunoglobulins (IVIg), azathioprine, rituximab, and methotrexate, in combinations. The most efficacious response to these treatments was IVIg. Later on, IVIg was changed to subcutaneous immunoglobulin (SCIg) for more feasible at home delivery. She has been stable with this regimen for more than one year with no overt muscle weakness, however her creatine kinase (CK) remains elevated at 4000 IU/L range. We suggest the use of SCIg in anti-HMGCR myopathy for long-term follow-up.

Introduction

Anti-HMGCR myopathy was firstly defined in adults with statin exposure by presenting muscle weakness but did not recover despite its interception and required immunosuppression. However, anti-HMGCR myopathy may have various forms, including a presentation in children and young adults lacking of statin exposure. Clinical presentation mainly shows subacute, progressive, proximal muscle weakness along with elevated CK (1000–20,000 IU/L) seen in immunemediated necrotising myositis (IMNM). Anti-HMGCR myopathy has been described in pediatric patients as case reports or small series. However, the therapeutic guideline has not yet been well established although there are some treatment recommendations by experts.

Case Presentation

We present a 15-year-old-girl with anti-HMGCR myopathy for 4 years of follow-up. Initial clinical findings were characterized by subacute, progressive, proximal, and truncal weakness. At the nadir of her symptoms she was weak to the extent that marked difficulty in climbing stairs and getting up from the ground. Her proximal muscle power was 4/5 MRC with a positive Gowers sign of 12 seconds. Elevated CK level (10,488 IU/L), myopathic electromyography findings, dystrophic pattern with necrotizing and regenerating fibers, mild fibrosis and inflammation on muscle biopsy (Figure 1), and high anti-HMGCR autoantibody level (>200 U/ml, reference value <20U/Ml) led to the diagnosis of anti-HMGCR myopathy. She was treated with oral corticosteroids, intravenous immunoglobulins (IVIg), azathioprine, rituximab, and methotrexate, in combinations. The most efficacious response to these treatments was IVIg and methotrexate. Later on, IVIg (2 gr/kg) was changed to SCIg (1.6 gr/kg) for more feasible at home delivery. She has been stable with this regimen for more than one year with no overt muscle weakness, however her CK remains elevated at 4000 IU/L range.

Discussion

In pediatric patients, the disease could mimic limb–girdle muscular dystrophy (LGMD) phenotype. Although no prior exposure to statins in children, adverse interactions between genetics (HLA-DRB1*07:01 allele) and environmental risk factors may contribute to the pathogenesis. It was reported that EBV and dengue infections may cause host immune response and can facilitate antibody production. The therapeutic guideline has not yet been well determined. Steroid treatment has been considered inadequate and other immunosuppressants have been recommended to be added with azathioprine, or methotrexate. Some experts suggested IVIG as the first line treatment especially for young or pregnant patients like our patient. However, SCIg administration is a novel and feasible treatment choice for immunerelated diseases including chronic inflammatory demyelinating polyradiculoneuropathy and idiopathic inflammatory. Therefore, monthly IVIG was switched to SCIg twice a month for more feasible and infrequent adverse events in the present case. We suggest SCIg could be considered as a current alternative to IVIg in patients with anti-HMGCR myopathy..

FIGURE 1

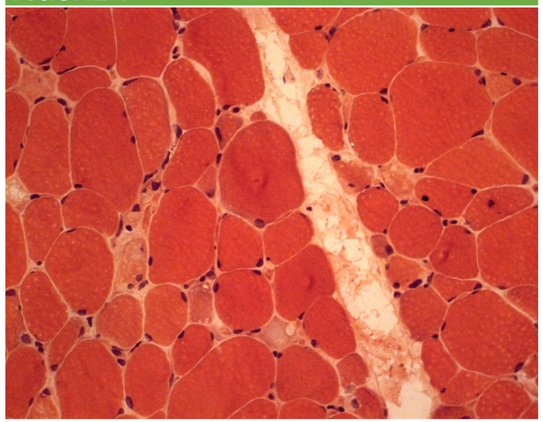

Figure 1. Muscle pathology of anti-HMGCR myopathy revealed necrotic and regenerating fibers.

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