Novel autoantibodies identified in patients with necrotizing myopathy

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Researchers at Johns Hopkins University School of Medicine have identified a subgroup of patients with necrotizing myopathy who have a novel autoantibody specificity that makes them potential candidates for immunosuppressive therapy. The complete study is published in the September issue of *Arthritis & Rheumatism*, a journal of the American College of Rheumatology.

Myopathy is a term used to describe muscle disease. The National Institute of Neurological Disorders and Stroke (NINDS) defines the inflammatory myopathies as a group of diseases that involve chronic muscle inflammation, accompanied by muscle weakness. The chronic inflammatory myopathies are idiopathic, meaning they have no known cause. They are thought to be autoimmune disorders, in which the body's white blood cells (that normally fight disease) attack blood vessels, normal muscle fibers, and connective tissue in organs, bones, and joints.

Distinguishing between immune-mediated myopathies and other necrotizing myopathies such as muscular dystrophies and self-limited toxic myopathies is crucial because only autoimmune muscle diseases respond to immunosuppressive therapy. Unfortunately, clinical evaluation and diagnostic tests sometimes fail to determine whether a necrotizing myopathy is immune mediated, resulting in undertreatment of autoimmune myopathies or inappropriate immunosuppression in patients who do not have an immune-mediated disease.

In this study, muscle biopsy specimens and serum samples were

evaluated for 225 patients with myopathy who were enrolled in a longitudinal study from March 2007 through December 2008. Myopathy was defined by muscle weakness, elevated creatine kinase (CK) levels, myopathic EMG findings, muscle edema on MRI, and/or features of myopathy on muscle biopsy.

The researchers identified 26 patients with necrotizing myopathies of unclear origin. Blood samples from these patients were screened for the presence of novel autoantibodies, revealing unique autoantibody specificity against 200-kd and 100-kd proteins (anti-200/100 autoantibodies) in 16 patients. Further analysis of the clinical characteristics and muscle biopsy features of these 16 patients suggests they belong to the family of autoimmune myopathies responsive to immunosuppressive therapy.

Researchers found sera from patients with anti-200/100 autoantibodies did not recognize any of the SRP subunits, and sera from patients with anti-SRP autoantibodies did not recognize proteins with molecular weights of 200-kd or 100-kd, demonstrating that patients with the anti-200/100 autoantibody specificity are immunologically distinct from patients with anti-SRP antibodies. Furthermore, researchers noted that several anti-200/100 autoantibody-positive patients had extremely high CK levels with minimal weakness, while patients with anti-SRP antibodies and similarly high CK levels are typically very weak, suggesting the sub-group represents a unique autoimmune-based disease.

Another unique feature of the anti-200/100 autoantibody-positive group is that 63% of them underwent statin therapy prior to the development of muscle symptoms. This association was strongest in older patients; almost 90% of anti-200/100 autoantibody-positive patients ages 50 years or older had been exposed to statins. This rate was significantly higher than the rates of statin treatment in age-matched groups of patients with PM, DM, or IBM.

"We have identified a group of patients with a necrotizing myopathy and a novel anti-200/100 autoantibody specificity," said Dr. Andrew Mammen, M.D., Ph.D., and lead author of the study. "All of the patients responded to immunosuppression, and many experienced a flare of weakness when this treatment was tapered, which supports our hypothesis that this is an immune-mediated myopathy." Researchers concluded that patients with necrotizing myopathies and anti-200/100 autoantibodies most likely have an autoimmune disease and should be considered for treatment with immunosuppressive medication.

More information: "A Novel Autoantibody Recognizing 200-kd and 100-kd Proteins Is Associated With an Immune-Mediated Necrotizing Myopathy." Lisa Christopher-Stine, Livia A. Casciola-Rosen, Grace Hong, Tae Chung, Andrea M. Corse, and Andrew L. Mammen. Arthritis & Rheumatism; Published Online: May 23, 2010 (DOI: 10.1002/art.27572); Print Issue Date: September 2010.

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