Antibody Levels Correlate with Creatine Kinase Levels and Strength in Anti-HMG-CoA Reductase-Associated Autoimmune Myopathy

Andrew L. Mammen, Jessie Werner, Katherine Pak, Jordan E. Kus, Natalie R. Daya, Thomas E. Lloyd, Lisa Christopher-Stine, and Sharon R. Ghazarian

Objective. Anti-HMGCR antibodies are found in patients with statin-associated immune-mediated necrotizing myopathy and, less commonly, in statin-unexposed subjects with autoimmune myopathy. The association of antibody levels with disease activity has not been described.

Methods. Anti-HMGCR levels, creatine kinase (CK) levels, and strength were assessed. Associations of antibody level with CK and strength at visit 1 were analyzed in 55 subjects, 40 of whom were statin-exposed. In 12 statin-exposed and 5 statin-unexposed subjects with serum from 5 serial visits, the evolution of antibody levels, CK levels, and strength was investigated.

Results. Antibody levels were associated with CK levels ($p < 0.001$), arm strength ($p < 0.05$), and leg strength ($p < 0.05$) at visit 1 but these associations were only significant amongst statin-exposed patients in stratified analyses. Main effects for the full sample were found for decreased antibody levels ($p < 0.05$) and improved arm abduction strength ($p < 0.05$) with treatment over 26.2 +/- 12.6 months. Statin-exposed subjects who were followed longitudinally developed significantly decreased antibody levels ($p < 0.01$), decreased CK levels ($p < 0.001$), improved arm abduction strength ($p < 0.05$), and improved hip flexion strength ($p < 0.05$) with treatment. Anti-HMGCR antibody levels did not normalize in any subject.

Conclusion. In the entire cohort, initial anti-HMGCR levels correlated with indicators of disease activity; with treatment, antibody levels declined and arm strength improved over time. Statin-exposed but not statin-unexposed subjects had significant improvements in CK and strength, suggesting a phenotypic difference between statin-exposed and -unexposed anti-HMGCR patients.

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Andrew L. Mammen, M.D., Ph.D., Sharon R. Ghazarian, Ph.D., Jessie Werner, B.A., Katherine Pak, MD, Jordan E. Kus, Thomas Lloyd M.D., Ph.D., and Lisa Christopher-Stine, M.D., M.P.H.: Johns Hopkins University School of Medicine, Baltimore, MD. Natalie R. Daya, B.S., Emory University, Biostatistics and Bioinformatics Department, Atlanta, GA.