3-Hydroxy-3-Methylglutaryl Coenzyme A Reductase Antibody, IgG

Indications for Ordering
- Differential diagnosis of myositis in patients with or without statin exposure
- Monitor response to treatment

Test Description
Semiquantitative enzyme-linked immunosorbent assay

Tests to Consider

Primary test
3-Hydroxy-3-Methylglutaryl Coenzyme A Reductase (HMGCR) Antibody, IgG 2013101
- Detects IgG autoantibodies against HMGCR
- In addition to clinical evaluation for muscle strength and serum creatine kinase, may be useful to monitor response to treatment
- See Idiopathic Inflammatory Myopathies (Myositis) Test Fact Sheet for more information

Related tests
Creatine Kinase, Total, Serum or Plasma 0020010
- Nonspecific indicator of muscle inflammation or damage
- Monitor therapeutic response

Extended Myositis Panel 3001781
- May be useful for differential evaluation of polymyositis, dermatomyositis, necrotizing autoimmune myopathy, or overlap syndromes associated with connective tissue disease

Polyomyositis and Dermatomyositis Panel 3001783
- May be useful for evaluation of patients with progressive proximal muscle weakness and/or with cutaneous manifestations suggestive of dermatomyositis and/or associated connective tissue disease

Antinuclear Antibody (ANA) with HEp-2 Substrate, IgG by IFA with Reflex by Pattern 3000601
- Initial screen for autoimmune connective tissue diseases

Connective Tissue Diseases Profile 0051668
- Confirmatory tests for specific connective tissue disease

Disease Overview
Age of onset – 30-70 years

Most common clinical features
- Persistent and progressive proximal weakness
- Myalgia
- Elevated serum creatine kinase concentration
  - >10, 000 IU/L mean concentration prior to treatment
    - Range – 950-45,000 IU/L

Physiology
- Presence of anti-HMGCR antibodies is associated with a rare form of idiopathic inflammatory myopathy referred to as necrotizing autoimmune myopathy
- Anti-HMGCR IgG antibodies are mainly associated with exposure to statins
  - Also occur in statin-naïve patients with myositis
- Muscle biopsy is associated with
  - Abundant necrotic fibers
  - Sparse lymphocytic infiltrate
  - Complement deposits on capillaries
  - Increased expression of major histocompatibility complex class 1 molecules
- In most patients, statin-induced myopathy resolves within months after discontinuation of treatment
  - Minority develop a progressive necrotizing myopathy associated with anti-HMGCR antibodies
  - Requires immunosuppressive therapy
- Response to treatment is associated with
  - Decline in antibody titers and creatine concentration
  - Improvement in muscle strength

Test Interpretation

Sensitivity/specificity
- Analytical sensitivity – 94.4% (Hamann, 2013)
- Analytical specificity – 99.3% (Hamann, 2013)

Results
- Positive – ≥20 units
- Negative – <20 units

Limitations
- Diagnostic relevance in a minor subset of patients with inflammatory myopathy
- Results should be used in conjunction with clinical findings, muscle biopsy, and other relevant laboratory tests for disease evaluation
- Negative results do not rule out inflammatory myopathy, necrotizing autoimmune myopathy, or statin-associated myopathy
References


