Urticaria-Inducing Activity

Indications for Ordering
Detect basophil-activating factors in individuals with suspected chronic urticaria

Test Description
• Serum from individuals with chronic urticaria used to activate donor basophils, inducing histamine release and CD203c upregulation
• ELISA – detects histamine releasing factors
  o IgE, Fc epsilon R1 alpha-specific
• Flow cytometry – detects upregulation of CD203c on activated donor basophils
  o Geometric mean fluorescence intensity (gMFI) ratio determined – ratio of individual to donor basophils

Tests to Consider
Typical testing strategy
Initial testing should rule out more common etiologies for urticaria
• Complete blood count with eosinophil count
• Examination of stool for ova and parasites if appropriate travel history is present
• Vasculitis evaluation
  o ANA, RA
  o ESR or CRP
  o Skin biopsy may be necessary
• Cryoglobulinemia evaluation
  o Hepatitis B and C testing
  o Serum cryoglobulin
  o Complement assays – C3, C4, C1-esterase

If above evaluation is negative
• Chronic urticaria index testing
• TSH with autoimmune thyroid testing

Primary tests
Urticaria-Inducing Activity 2005413
• Determine histamine release in suspected chronic urticaria if urticaria may be due to autoimmune antibodies to the basophil IgE receptor or to IgE

Urticaria-Induced Basophil Activation 2005416
• Determine whether CD203c is upregulated in suspected chronic urticaria if urticaria may be due to autoimmune antibodies to the basophil IgE receptor or to IgE

Related test
Urticaria-Inducing Activity with Thyroid Antibodies and Stimulating Hormone 2005415
• Screen for possible thyroid autoimmunity in individuals with suspected chronic urticaria

Disease Overview
Prevalence – 20% in general population
• Common and complex dermatological condition

Symptoms
• Defined as hives lasting for >6 weeks
  o Wheal usually lasts for <24 hours
  o Pruritus may be intense
• Pigmentary changes if lesions last longer
• Associated with autoimmune thyroid disease (particularly Hashimoto thyroiditis)

Pathophysiology
• Basophil activation results in
  o Release of histamine
  o Upregulation of CD203c, a human basophil-specific lineage marker
• Pathogenesis of the disease is poorly understood
  o No evidence for exogenous allergen as cause
  o IgG autoantibodies directed against basophil- or mast cell-associated autoantibodies cause disease in many individuals
    ▶ High-affinity IgE-Fc receptor1 – ~40%
    ▶ IgE – ~5%
    ▶ Unknown etiology in remaining

Test Interpretation
Results
• Positive – possible presence of basophil stimulating autoantibodies (or other serum factors)
  o Suggests autoimmune basis for urticaria
• Negative – no basophil stimulating autoantibodies detected
• Indeterminate – borderline basophil activation detected
  o May have autoimmune basis for urticaria

Limitations
• Validated for serum only
• Does not identify specific basophil-stimulating serum factors
  o Factors are most likely antibodies that target the high-affinity IgE-Fc receptor or IgE