Immunodeficiency Evaluation for Chronic Infections in Infants and Children Testing

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Immunoglobulin disorder evaluation

- Recurrent respiratory infections with or without chronic diarrhea
- Agammaglobulinemia
- Hypogammaglobulinemia
- Immunoglobulins (IgA, IgG, IgM), Quantitative
- Lymphocyte Subset Panel 6 - Total Lymphocyte Enumeration with CD45RA and CD45RO or Lymphocyte Subset Panel 7 – Congenital Immunodeficiencies
- Response to polyvalent pneumococcal vaccine if >2 years
- Response to diphtheria and tetanus (DT) vaccine
- Sweat chloride testing (at accredited cystic fibrosis center)

T-cell disorder evaluation

- Common variable immune deficiency (CVID) or other immune deficiency
- Low IgG, IgM, IgA
- Poor antibody response to vaccination
- B cells present
- Immunology consult
- May need immunoglobulin replacement
- HIV positive
- Low T cells
- Low LMP
- Abnormal RTEs
- No B cells present
- Agammaglobulinemia
- Consider genetic testing
- Hyper IgM syndrome likely
- High IgM, low IgG, IgA
- Positive sweat chloride

Immunoglobulin disorder evaluation

- Abscesses; pneumonia; delayed separation of umbilical cord; recurrent respiratory infections with or without diarrhea
- Low IgA
- Poor pneumococcal vaccine response
- Warn of possible reaction to IgA-containing blood products
- Immunology consult
- May need immunoglobulin replacement with low IgA-containing preparation
- IgA absent
- Low IgG 2,4
- Normal IgG subclasses
- IgA absent
- Normal IgG subclasses
- IgA low
- Normal IgG subclasses
- Consider celiac testing

ORDER

- B Cell Subset Analysis
- Cystic Fibrosis (CFTR) Expanded Variant Panel with Reflex to Sequencing
- Immunoglobulin G Subclasses (1, 2, 3, 4)
- Low IgA
- Myeloperoxidase Stain
- Leukocyte Adhesion Deficiency Panel
- Neutrophil Oxidative Burst Assay (DHR)
- CBC with Platelet Count and Automated Differential
- Complement Activity Total, (CH50)
- Myeloperoxidase Stain
- Lymphocyte Subset Panel 7 – Congenital Immunodeficiencies

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- HIV NAAT – test of choice in children ≤18 months (antibodies do not function in infants)
- CD4+ T-Cell Recent Thymic Emigrants (RTEs)
- Lymphocyte Subset Panel 6 - Total Lymphocyte Enumeration with CD45RA and CD45RO
- Lymphocyte Mitogen Proliferation (LMP)
- Possible severe combined immunodeficiency
- Positive for deletion

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- Chromosome FISH, Metaphase (specify 22q11.2 deletion)
- Toll-Like Receptor Function
- Possible chronic mucocutaneous candidiasis

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- Consecutive CH50, AH50
- Individual complement testing based on results of CH50, AH50

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- Abnormal complement activity
- Possible complement deficiency
- DiGeorge syndrome
- Congenital Immunodeficiencies
- Consequential Immunodeficiencies
- Myeloperoxidase deficiency
- Chronic granulomatous disease
- Leukocyte adhesion deficiency, type 1
- Leukocyte adhesion deficiency, type 2
- Possible hyper IgE syndrome (Job syndrome)

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- Hypogammaglobulinemia
- Chronic DHR
- Decreased CD11b/CD18
- Decreased CD15
- Increased IgE
- Candida spp - specific IgE
- Neutrophil chemotaxis
- Kostmann agranulocytosis
- Neutrophil antibody positive
- Autoimmune neutropenia
- Myeloperoxidase deficiency

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- HIV positive
- Low T cells
- Low LMP
- Abnormal RTEs
- Hypocalcemia
- Abnormal facies
- Abnormal immune deficiency
- Myeloperoxidase stain
- Leukocyte adhesion deficiency panel
- Neutrophil oxidative burst assay (DHR)
- CBC with platelet count and automated differential
- Complement activity total, (CH50)
- Myeloperoxidase stain
- Lymphocyte subset panel 7 – congenital immunodeficiencies

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- Abnormal facies
- Abnormal RTEs
- Low T cells
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- Decreased CD11b/CD18
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