Cytomegalovirus, IgG Avidity

Indications for Ordering
Suspicion of cytomegalovirus (CMV) infection during pregnancy as indicated by positive IgM and/or IgG tests

Test Description
- Enzyme-linked immunosorbent assay (ELISA)
- Avidity index compares a portion of the specimen that has undergone urea treatment to a portion of the same untreated specimen

Tests to Consider

Cytomegalovirus Antibody, IgG Avidity 2011813
- Aid in the determination of recent (previous 3-4 months) or past (>3 months) CMV infection, particularly in pregnant females

Cytomegalovirus Antibody, IgM 0050553
- Not recommended as a standalone test
- If using serology testing, IgM combined with IgG is preferred
- Do not use for diagnosis in immunocompromised individuals

Cytomegalovirus Antibody, IgG 0050165
- Detects past cytomegalovirus exposure
- Not recommended for diagnosis in immunocompromised individuals

Cytomegalovirus, Quantitative PCR 0051813
- Preferred test for detecting cytomegalovirus infection and guiding posttransplant therapy

Disease Overview

Prevalence – ~70% of adults in U.S. are seropositive for CMV

Symptoms
- Fever
- Flu-like syndrome
- Mononucleosis-like symptoms

Diagnostic issues
- Infection immediately before or during the first trimester of pregnancy increases the risk of cytomegalic inclusion disease in the fetus
  - At birth
    - Hepatosplenomegaly
    - Microcephaly
    - Developmental delay
    - Sensorineural deafness

- Exact timing of date of infection in the absence of preconception IgG testing is difficult to determine
  - IgM antibodies are highly sensitive but have poor specificity for primary infection
  - IgM persists and subsequently increases during reactivation, but this is a difficult timeline to follow
- CMV IgG avidity testing can aid in determination of the approximate date of infection to assess fetal risk

Prognostic issues
- Low avidity result can be used to estimate relative risk of an intrauterine transmission event during pregnancy
  - Results may warrant further invasive testing
- High avidity result in the first trimester of pregnancy is strong evidence of prepregnancy CMV infection
  - Low risk of giving birth to a CMV-infected baby
  - May avoid unnecessary, invasive amniocentesis

Recommended follow-up testing
Suspected acute CMV infection based on low avidity IgG
- Amniocentesis, with viral culture and/or PCR for CMV, may be indicated, as determined by the patient and her physician

Test Interpretation

Results
- Low avidity
  - Indicates recent CMV infection (previous 3-4 months)
    - During first trimester, patients should seek consultation with obstetrician experienced with congenital CMV infections
- Intermediate avidity
  - Clinical relevance undetermined
  - Lower risk of intrauterine transmission
- High avidity
  - Indicative of past (>3 months) CMV infection

Limitations
Avidity index cannot be calculated for patients who are negative for CMV IgG antibodies