Laboratory Bulletin

Date: **August 6, 2013**

To: **Infectious Diseases Physicians, Obstetricians and Gynaecologists, Laboratory Directors and Managers**

From: **Provincial Laboratory for Public Health (ProvLab)**

Re: **Cytomegalovirus (CMV) IgG Avidity Testing Available at ProvLab**

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Key message:

Effective August 15, 2013, a serology assay measuring the avidity of anti-CMV IgG antibodies will be available at ProvLab through consultation with the Virologist-on-Call (VOC).

Background:

Cytomegalovirus (CMV) is currently the most common infectious cause of congenital birth defects and accounts for at least 15 to 20% of bilateral, moderate to profound sensorineural hearing loss in childhood. The risk of congenital CMV infection is related to the type of maternal infection, classified according to her CMV immune status as: *primary* (initial infection) or *secondary* (reactivation of latent infection or possibly re-infection with a different CMV strain). Primary maternal infection with CMV during pregnancy is associated with a 30% to 40% risk of intra-uterine transmission to the fetus whereas *secondary* infections carry a much lower risk of about 1%.

The serological diagnosis of maternal CMV infection relies on detection of IgG and IgM antibodies. CMV IgM appears within 2 to 4 weeks and persists for several weeks. In addition, CMV IgM may re-appear during secondary CMV infection. IgG can be detected typically after 4 weeks and persists for years to life. Unequivocal diagnosis of CMV primary infection is achieved by documenting a CMV IgG seroconversion on an acute-convalescent pair of serum samples. However, if the acute serum sample tests positive for both CMV IgG and IgM, the interpretation is unclear. The situation can often be clarified by performing a measurement of the CMV IgG avidity. Following the primary infection, the initial IgG response consists of low avidity CMV IgG. After a maturation process taking at least 3 to 4 months, the CMV IgG antibody population progresses to a high proportion (> 60%) of high avidity IgG.

The current guidelines of the Society of Obstetricians and Gynaecologists of Canada (SOGC) do not recommend universal CMV screening. The SOGC recommends however that serology testing for CMV be considered for women with symptomatic disease consistent with primary CMV infection or following detection of sonographic findings suggestive of CMV infection. If the initial serum sample tests positive for both IgG and IgM, the clinician should contact the Virologist-on-Call (VOC) to arrange for CMV IgG avidity testing.
ProvLab has now validated and implemented the Architect CMV IgG Avidity assay.

If you have any questions or comments regarding this Bulletin or other issues related to CMV testing in pregnancy please contact Dr. Raymond Tellier, Program Lead, ProvLab at: Raymond.tellier@albertahealthservices.ca.

References:

Yinon Y, Farina D Yudin H et al. SOGC Clinical Practice Guideline: Cytomegalovirus Infection in Pregnancy. J Obstet Gynaecol Can 2010; 32 (4): 348-354.
Lagrou K, Bodeas M, Van Ranst M et al Evaluation of the New Architect Cytomegalovirus Immunoglobulin M (IgM), IgG and IgG Avidity Assays. J Clin Microbiol 2009; 47: 1695-1699.

This bulletin has been reviewed and approved by:
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