AOTEA PATHOLOGY
- CLINICAL UPDATE

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SEPTEMBER 2013

Changes to testing for Epstein Barr Virus (EBV) Serology

The Epstein–Barr virus (EBV) is a member of the herpes virus family and the cause of glandular fever or infectious mononucleosis. The immune response goes through three phases of specific immunoglobulin production, where the production of EBNA IgG indicates past infection and usually circulates for life (Fig 2) see over page.

Testing for the EBV markers VCA IgM, VCA IgG and EBNA IgG will shortly be available on our Abbott Architect Random Access analyser, which allows faster turnaround of results than the batch testing required by our current ELISA technology. With new technology comes an opportunity for an improved testing algorithm

From 19th September 2013 all samples will be screened for EBNA IgG and only those that are negative for this marker will have acute phase VCA IgM and IgG testing performed (Fig 1.)

In immunocompetent individuals the key issue of EBV diagnostics is the detection or exclusion of a primary, past, or no EBV infection.

This approach will further improve the turnaround of results and is supported by the literature (1) as well as our own finding that 70% of EBV tests performed at APL show past infection via a detectable EBNA IgG antibody. Additionally, VCA IgG can be tested automatically with VCA IgM providing a full serological profile.

Reactivation is still relatively rare in immunocompetent individuals and is generally considered of no clinical relevance. If reactivation of EBV is being queried on immunocompetent individuals then this should be indicated on the laboratory request to ensure that EBV VCA IgM is tested regardless of the EBNA IgG result.

Reactivation, however, may cause serious complications in immunocompromised individuals. Please contact the Immunology department to discuss the most clinically appropriate testing for these individuals on 04 381 5900 ext 887

Figure 1. EBV Serology Testing Algorithm

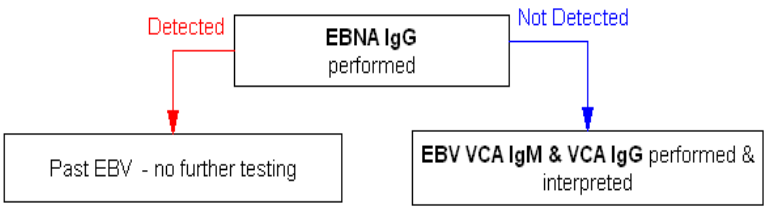
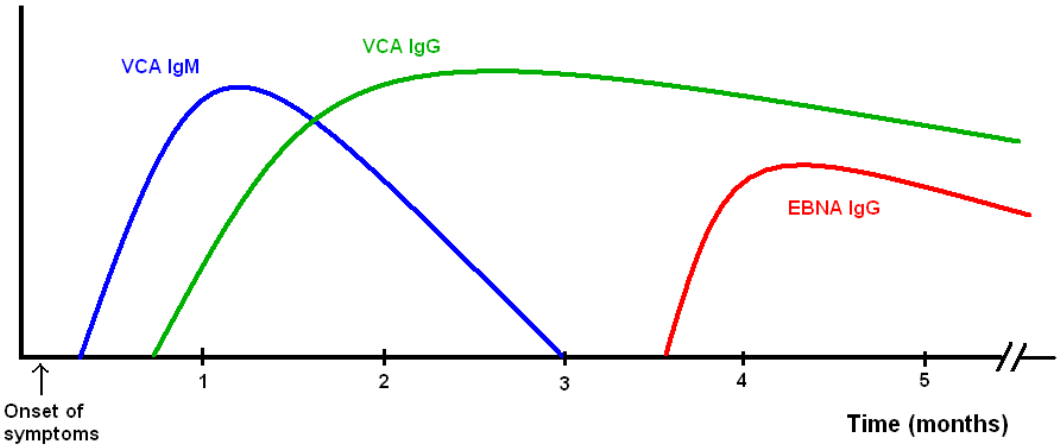


Figure 2. Patterns of Immunoglobulin Production During EBV Infection

EBV EBNA IgG develops 12 - 16 weeks after acute infection, and is produced when the virus begins to establish latency in the infected host. EBNA IgG is never seen as an acute phase response in primary infection. The presence of EBNA IgG indicates that primary seroconversion occurred at least some months prior. VCA IgM usually develops within 1 week of symptoms, VCA IgG usually develops within 2 – 3 weeks of symptoms and remains for life.



EBV serological markers				
EBNA IgG	**VCA IgM**	**VCA IgG**	**Interpretation**	**~ % patients**
+	-	+	Past remote EBV infection	60 – 70
-	-	-	No infection or exposure to EBV	20 – 25
-	+	- /+	Primary acute EBV infection	2 – 6
-	+ / -	+	Recent EBV infection	2 – 6
+	- / +	+	? Reactivation of EBV in immunocompetent individual	< 0.5

Your feedback and questions are most welcome.

Phone: 04 381 5900 ext 887
Email: immunodept@apath.co.nz

Dr Michelle Balm
Microbiologist

Paul Tustin
Head of Department, Immunology

1. Serological diagnosis of Epstein-Barr virus infection: Problems and solutions World J Virol 2012 February 12; 1(1): 31-43ISSN 2220-3249
2. RCPA QAP Serology Comments Survey L2:2013 Lymphadenopathy Program EBV Serology