

Epstein-Barr virus may be associated with progression of MS

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Epstein-Barr virus (EBV), the pathogen that causes mononucleosis, appears to play a role in the neurodegeneration that occurs in persons with multiple sclerosis, researchers at the University at Buffalo and the University of Trieste, Italy, have shown.

Multiple sclerosis (MS) is an autoimmune disease that can cause major disability. There currently is no cure.

"This study is one of the first to provide evidence that a viral agent may be related to the severity of MS disease process, as measured by MRI," said Robert Zivadinov, M.D., Ph.D., associate professor of neurology in UB's Jacobs Neurological Institute (JNI) and first author on the study.

The research appears in the Online First section of the *Journal of Neurology, Neurosurgery and Psychiatry* and is available at jnnp.bmj.com/cgi/rapidpdf/jnnp.2008.154906v1.

"A growing body of experimental evidence indicates that past infection with EBV may play a role in MS," said Zivadinov, "but the relationship of EBV and the brain damage that can be seen on MRI scans had not been explored."

The study involved 135 consecutive patients diagnosed with MS at the Multiple Sclerosis Center of the University of Trieste. Evaluations of the MRI scans were carried out at the University of Trieste and at the JNI's Buffalo Neuroimaging Analysis Center (BNAC), which Zivadinov

directs.

The Buffalo researchers measured total brain volume, as well as the decrease in gray matter, at baseline and three years later.

Results showed that higher levels of anti-EBV antibody measured at the beginning of the study were associated with an increased loss of gray matter and total brain volume over the three-year follow-up.

The researchers now are carrying out prospective longitudinal studies in patients who experienced a condition called "clinically isolated syndrome," a first neurologic episode that lasts at least 24 hours, and is caused by inflammation/demyelination in one or more sites in the central nervous system. If a second episode occurs, the patient is diagnosed with MS.

The study will investigate the relationship of anti-EBV antibody levels to development of gray matter atrophy, neurocognitive function and disability progression over time.

UB and Trieste researchers also are investigating interactions between environment, certain genes and EBV antibodies and the association with MRI injury in MS. A paper on this work is "in press" in the *Journal of Neuroimmunology*.

Source: University at Buffalo

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