

Does Borna disease virus cause mental illness? New study may end two decades of suspicion

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Over the past 30 years, numerous studies have linked Borna disease virus (BDV) with mental illnesses such as bipolar disorder, schizophrenia, anxiety disorder and dementia. Genetic fragments and antibodies to this RNA virus, which causes behavior disorders in a range of mammals and birds, have been found to be prevalent in psychiatric patients, but study results have been inconsistent. Now, the first blinded, case-control study to examine this issue finds no association between the virus and psychiatric illness.

The study, conducted by researchers at the Center for Infection and Immunity at Columbia University's Mailman School of Public Health and collaborators at seven other institutions in the U.S, Germany and Australia, can be found online at [Molecular Psychiatry](#).

The scientists evaluated 198 patients in California with schizophrenia, bipolar disorder and [major depressive disorder](#), carefully matched each one of them with a healthy control of the same sex, age, region and socio-economic status, and tested blood of patients and controls for the presence of BDV genetic material and antibodies to BDV. The investigators hypothesized that if the virus was, in fact, associated with a psychiatric disorder, [genetic evidence](#) of infection would be apparent in blood samples taken at the onset and/or at the peak of a psychiatric episode, and antibody evidence would be detectable several weeks afterward. Blood samples were therefore collected within six weeks of

the onset of an acute episode or clinically significant worsening of symptoms and six weeks later to allow for changes in viral load or [antibody levels](#). Not only did the researchers find no relationship between [mental illness](#) and bornavirus, they found no evidence of active or historical infection with BDV in any of the subjects.

"Our study provides compelling evidence that bornaviruses do not play a role in schizophrenia or mood disorders," says Mady Hornig, MD, director of translational research at the Center for Infection and Immunity.

In a commentary in the same issue of the journal, Michael B.A. Oldstone, MD, an expert in molecular virology and central nervous system infections at the Scripps Research Institute, observes that the design and experimental procedures carried out in the Hornig study provide a gold standard for investigating links between persistent viral infection and human disease.

CII director, W. Ian Lipkin, MD, senior author of the paper, notes that "it was concern over the potential role of BDV in mental illness and the inability to identify it using classical techniques led us to develop molecular methods for pathogen discovery. Ultimately these new techniques enabled us to refute a role for BDV in human disease. But the fact remains that we gained strategies for the discovery of hundreds of other pathogens that have important implications for medicine, agriculture and environmental health."

Provided by Columbia University

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