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Identification and characterization of autoimmune autistic disorder (AAD)

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Children with neurological and behavioral problems are commonly given the diagnosis of Autistic Spectrum Disorders (ASD), which is a highly heterogeneous group of patients manifesting autistic-like behaviors. A vast majority but not all ASD children have classic or typical autism. In that regard, we recently identified an autoimmune subset of autism and referred to it as "Autoimmune Autistic Disorder (AAD)." In this report, we describe laboratory studies for the identification and characterization of AAD.

Subjects in the study were autistic children and normal healthy children. Blood samples of these children and cerebrospinal fluid (CSF) sample of some children were analyzed. These specimens were analyzed autoimmune markers that included brain autoantibodies, pro-inflammatory cytokines and virus/vaccine serology. Laboratory methods included enzyme-linked immunosobent assay (ELISA) and protein immunoblotting assay.

We found experimental evidence for the presence of autoimmune markers in children with autism but not in healthy children. First, autistic children harbored brain-specific autoantibodies [e.g. antibodies to myelin basic protein (anti-MBP) and antibodies to caudate nucleus (anti-CN)]. Secondly, autistic children had elevated levels of pro-inflammatory cytokines (e.g. interferon-gamma and interleukin-12), acute-phase protein (e.g. C-reactive protein) and S-100 protein. Thirdly, autistic children harbored elevated levels of antibodies to measles virus (but not CMV, EBV, HHV-6, mumps or rubella virus) and measles/mumps/rubella (MMR) vaccine (but not Hepatitis B, DT or DPT). CSF samples of some autistic children were also positive for antibodies to brain antigens and measles virus. Of clinical importance to autoimmune pathogenesis, we found a positive correlation between brain autoantibodies (anti-MBP) and virus serology (anti-measles virus). Collectively, these laboratory findings provide scientific evidence in support of an autoimmune mechanism of pathogenesis of autism. This mechanism was found in a vast majority of children with autism - an autoimmune subset - henceforth referred to as "Autoimmune Autistic Disorder (AAD)". Since health conditions involving autoimmunity are commonly regarded as autoimmune diseases and treated medically, we suggest that autism or AAD be considered as a medical condition and be treated with immune modulation therapy.

Biography

Vijendra Singh received his Ph.D. in brain biochemistry from the University of British Columbia, Vancouver, BC, Canada. Subsequent to a post-doctoral fellowship in Neurochemistry and Immunology, he specialized in neuroscience, neuroimmunology, clinical immunology, and laboratory medicine. Until retirement recently, he held faculty appointments at the University of British Columbia, University of Michigan, Utah State University, and Medical University of South Carolina. He is a long-term active member of the Society for Neuroscience (SfN) and a former member of the American Academy of Anti-Aging Medicine (A4M), American Academy of Neurology (AAN), American Association for the Advancement of Science (AAAS), American Association of Immunologists (AAI) and American Society for Microbiology (ASM). He is also a member of prestigious International Who's Who of Intellectuals (UK) and American Men and Women in Science (USA). He was also a member of the Scientific Advisory Board of several non-profit Organizations and/or Foundations. For his research contributions, he has been honored with Humanitarian Award from the Psychiatric Association of Philadelphia and National Foundation for Alternative Medicine (NFAM) in Washington, DC. Currently, he works as an independent Professor of Neuroimmunology through a research program known as the « Neuro Immune Biotechnology Solutions (NIBS). He is a professional neuroscientist and immunologist, speaker, author, biomedical researcher and consultant for autoimmunity and inflammation in brain disorders. The focus of his research is to uncover novel therapies for autoimmune pathology of nervous system disorders, including autism.

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