

Autoimmunity

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Immune factors such as autoimmunity may play a causal role in autism. We recently showed that many autistic children have autoantibodies to brain myelin basic protein (MBP) as well as elevated levels of measles virus antibodies. To extend this research further, we conducted a serological study of measles virus (MV), mumps virus (MuV), rubella virus (RV), cytomegalovirus (CMV), human herpesvirus-6 (HHV-6), measles-mumps-rubella (MMR), diphtheria-pertussis-tetanus (DPT), diphtheria-tetanus (DT) and hepatitis B (Hep B) and studied correlations with MBP autoantibodies. Antibodies were assayed in sera of autistic children (n=125) and normal children (n=92) by ELISA or immunoblotting methods. We found that autistic children have significantly ($p=0.001$) higher than normal levels of MV and MMR antibodies whereas the antibody levels of MuV, RV, CMV, HHV-6, DPT, DT or Hep B did not significantly differ between autistic and normal children. Immunoblotting analysis showed the presence of an unusual MMR antibody in 60% (75 of 125) of autistic children, but none of the 92 normal children had this antibody. Moreover, by using MMR blots and monoclonal antibodies, we found that the specific increase of MV antibodies or MMR antibodies was related to measles hemagglutinin antigen (MV-HA), but not to mumps or rubella viral proteins, of the MMR vaccine. In addition, over 90% of MMR antibody-positive autistic sera were also positive for MBP autoantibodies, suggesting a causal association between MMR and brain autoimmunity in autism. Stemming from this evidence, we suggest that an "atypical" measles infection in the absence of a rash but with neurological symptoms might be etiologically linked to autoimmunity in autism. (Supported by grants from the James Dougherty Jr Foundation, Unanue Foundation, Lettner Jr Foundation, Autism Autoimmunity Project and Autism Research Institute)