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EDITORIAL

PANDAS Plus Autism: Treatment with IVIg

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ABSTRACT

In this issue of the International Journal of Neurological Research, Bouboulis and Mast report the finding of the favorable impact of IVIg therapy in PANDAS associated with Autism. Their findings in this small observational study serve as a necessary guidepost for further research needed in the baseline humoral and cell mediated immunologic mechanisms of affected patients but do not yet firmly establish safety or efficacy of this modality of therapy.

Key words: Pandas; Autism; IVIg

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EDITORIAL

Bouboulis and Mast[1] note sustained benefit of anti-infective therapy followed by intravenous immune globulin (IVIg) when the latter is administered for several months to a year or morein their review of a cohort of six patients with PANDAS and humoral immunodeficiency, including two children with autism.Despite past controversy in the epidemiologic rigor surrounding PANDAS, there has been progress in the understanding of this post-infectious autoimmune disorder that led up to the present therapeutic approach employing immune modulatory therapy. Early serologic investigations[2-4] suggested a causal relation of Group A β-hemolytic streptococcus (GABHS) infection to PANDAS,however it was a fortuitous leap of faith that the insult would be immune-mediated similar to Sydenham chorea(SC). Anti-streptolysin (ASO) antibodies distinguished cases of PANDAS versus non-cases providing evidence of antecedent streptococcal infection with higher sustained titers and slower rates of decline in the antibody rise due to the more potent immune response that was noted to be associated with repeated GABHS infection.

In other studies[5-8] a T-cell alloantigen identified by monoclonal antibodies as D8/D17 attached to the surface of B-cells as a susceptibility factor for rheumatic fever was found in 85% of patients with PANDAS and in 89% of those with SC, but in only 17% of controls. Although not so shown in PANDAS, the GNcNAc epitope expressed in SC monoclonal antibodies (mAb)was capable of provoking a strong humoral response during active streptococcal infection and in post-infectious sequeladue to terminal O-linked GLcNAc residues bearing structural similarity to many host glycoconjugates. Experimental animals immunized with GlcNAc mAb led to T-cell dependent antibody responses and persistently high titers to streptococcal carbohydrate. Moreover, lysoganglioside GM1-specific antibodies present in the cerebrospinal fluid of patients with active disease blocked SC mAb in acute sera that otherwise bound to human caudate-putamen tissue. Active but not convalescent PANDA serum IgG reacts with GlcNAc epitope of the streptococcal GAC and lysoganglioside GM1 as in SC in a manner that suggests a role for aberrant cell signaling in the immunopathogenesis of PANDAS.

The clinical benefits in neuropsychiatric symptoms so noted in up to 58% of children with IVIg that lasted for up to one year[9] incentivized the same Investigators to test the efficacy in a double-blind placebo-controlled study using primary and secondary outcome measures (ClinicalTrials.gov Identifier NCT01281969),

and to include children with autism spectrum disorder (ASD) and related psychiatric, developmental, and behavioral problems with the goal of assessing the role of future treatments possibly including IVIg (ClinicalTrials.gov Identifier NCT01778504). The report of Bouboulis and Mast[1] not only supports the need for future double-blind placebo-controlled trials to examine the continuing impact of IVIg on PANDAS, but cautions the medical community as to the selection of potentially treatable children with ASD, namely those with underlying immune deficiency that places them at higher risk for PANDAS.

CONFLICT OF INTEREST

The author has no conflicts of interest to declare.

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