



Autism and Allergy – Are They Linked?

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Abbreviations

ADHD	Attention Deficit Hyperactivity Disorder
ASD	Autism Spectrum Disorders
BBB	Blood Brain Barrier
DSM5	Diagnostic and Statistical Manual of Mental Disorders, 5th Edition
EEG	Electroencephalogram
IgE	Immunoglobulin E
IL	InterLeukin
IU	International Units
MC	Mast cell
mg	milligram
ml	milliliter
MRI	Magnetic Resonance Imaging
SPT	Skin Prick Test
Th cells	T helper cells
TNF	Tumor Necrosis Factor

To the Editor: Autism Spectrum Disorders (ASD) are among the many behavioral disorders in children. Their association with allergies, if proven, could be of potential help. A 7-y-old girl presented with progressively worsening, repetitive stereotypic body movements and head banging, aggravated with stress and seasonal cough, since 18 mo of age. Her brain MRI, EEG and sleep studies were normal. She received behaviour and psychotropic medications (0.2–0.4 mg/d Risperidone) without any significant improvement for three years. On allergy evaluation, she had bilateral inferior turbinate hypertrophy, wheezy chest, high total IgE (1435 IU/ml) with aeroallergen sensitization to Eragrostis, Pennisetum,

Brassica and Holoptelea pollens on Skin-Prick-Test and reversible obstruction on spirometry. She was diagnosed as moderate-severe intermittent allergic rhinitis with moderate persistent asthma. Along with the allergen avoidance, she was started on Salmeterol-Fluticasone (25/125 µg twice daily) inhaler, Mometasone (50 µg twice daily) nasal spray, oral Monteleukast (5 mg daily) and Salbutamol (200 µg as per need) inhaler. Along with respiratory symptoms, her head banging episodes also reduced, permitting weaning of psychotropic medications followed by complete cessation by 3 mo. At 1-y follow-up, she was adequately controlled of both allergic and stereotypic symptoms on anti-allergic medications alone (Salmeterol-Fluticasone inhaler and Monteleukast).

ASD are characterized by deficits in communication and social interactions, with presence of stereotypic behavior [1]. As the underlying pathophysiology is partially understood, both behavior and psychotropic therapies remain ineffective in achieving adequate control. Mast cells (MC) have been postulated as having significant contribution in behavioral problems [2]. Children with mastocytosis have a 10-fold higher risk of developing ASD than general population [3]. MC-microglia-neuron crosstalk have recently been considered important in neuroinflammation, increasing brain sensitivity to stress predisposing to ASD [4]. The Th2 pathway also stimulates microglia and macrophages precipitating ASD *via* reducing synapse pruning [5].

Knowledge about aeroallergens precipitating behavioral disorders is still limited. We were able to demonstrate aeroallergen sensitisation and response to anti-allergic medications in a child with isolated motor stereotypic. Reappearance of symptoms after discontinuation of anti-allergics would add further weightage to the argument. The index case may inspire further studies to target neuro-inflammation by differentially modulating the non-neuronal cells.

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Authors' Contributions NG performed the allergy test, was involved in clinical management of allergy and will act as guarantor for this paper. He drafted the initial manuscript; AS, DG and SG critically reviewed the manuscript for important intellectual content; DG and JN were involved in clinical management of autism. They reviewed and revised the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

Compliance with Ethical Standards

Conflict of Interest None.

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