Altered Vascular Phenotype in Autism

Correlation With Oxidative Stress

Yuemang Yao, BSc; William J. Walsh, PhD; Woody R. McGinnis, MD; Domenico Praticò, MD

Arch Neurol. 2006;63:1161-1164.

Background  Autism is a neurologic disorder characterized by impaired communication and social interaction. Results of previous studies showed biochemical evidence for abnormal platelet reactivity and altered blood flow in children with autism.

Objective  To evaluate the vascular phenotype in children with autism.

Design and Main Outcome Measures  Urinary levels of isoprostane F_{2\alpha}-VI, a marker of lipid peroxidation; 2,3-dinor-thromboxane B_2, which reflects platelet activation; and 6-keto-prostaglandin F_1\alpha, a marker of endothelium activation, were measured by means of gas chromatography-mass spectrometry in subjects with autism and healthy control subjects.

Setting and Subjects  Children with a clinical diagnosis of autism attending the Pfeiffer Treatment Center.

Results  Compared with controls, children with autism had significantly higher urinary levels of isoprostane F_{2\alpha}-VI, 2,3-dinor-thromboxane B_2, and 6-keto-prostaglandin F_1\alpha. Lipid peroxidation levels directly correlated with both vascular biomarker ratios.

Conclusion  Besides enhanced oxidative stress, platelet and vascular endothelium activation also could contribute to the development and clinical manifestations of autism.

Author Affiliations: Department of Pharmacology, University of Pennsylvania, School of Medicine, Philadelphia (Ms Yao and Dr Praticò); and Pfeiffer Treatment Center, Warrenville, Ill (Dr Walsh). Dr McGinnis is in private practice.