

Abstract

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A clinical and laboratory evaluation of methionine cycle-transsulfuration and androgen pathway markers in children with autistic disorders.

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BACKGROUND/AIMS: The prevalence of autism spectrum disorders (ASDs) is 1 in 300 children in the US. ASDs are characterized by impairments in social relatedness and communication, repetitive behaviors, abnormal movement patterns, and sensory dysfunction. Pre-pubertal age children with ASDs were assessed for metabolites in the methionine cycle-transsulfuration and androgen pathways, and for present physical development/behaviors indicative of hyperandrogenicity.

METHODS: The Institutional Review Board of the Institute for Chronic Illnesses (Office for Human Research Protections, US Department of Health and Human Services IRB number: IRB00005375) approved the present study. Sixteen consecutive pre-pubertal age children (≤ 11 years old; mean \pm SD: 5.9 \pm 2.1 years old) with previously diagnosed ASDs that presented to the Genetic Centers of America for outpatient care were evaluated.

RESULTS: Significantly ($p < 0.01$) increased levels of serum/plasma dehydroepiandrosterone and serum total testosterone relative to the age- and sex-specific normal laboratory reference ranges were observed. Conversely, serum follicle-stimulating hormone levels were significantly ($p < 0.01$) decreased. Plasma-reduced glutathione ($p < 0.01$), plasma cysteine ($p < 0.01$), plasma methionine ($p < 0.01$), serum cystathionine ($p < 0.05$), and serum homocysteine ($p < 0.01$) were all significantly decreased.

CONCLUSION: The results suggest a possible cyclical interaction between the methionine cycle-transsulfuration and androgen pathways in some children with ASDs.

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