

Abstract

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High levels of homocysteine and low serum paraoxonase 1 arylesterase activity in children with autism.

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BACKGROUND: Autism is a behaviorally defined disorder of unknown etiology that is thought to be influenced by genetic and environmental factors. High levels of homocysteine and oxidative stress are generally associated with neuropsychiatric disorders.

OBJECTIVE: The purpose of this study was to compare the level of homocysteine and other biomarkers in children with autism to corresponding values in age-matched healthy children.

METHODS: We measured total homocysteine (tHcy), vitamin B(12), paraoxonase and arylesterase activities of human paraoxonase 1 (PON1) in plasma and glutathione peroxidase (GPx) activity in erythrocytes from 21 children: 12 with autism (age: 8.29 +/- 2.76 years) and 9 controls (age: 8.33 +/- 1.82 years).

RESULTS: We found statistically significant differences in tHcy levels and in arylesterase activity of PON1 in children with autism compared to the control group: 9.83 +/- 2.75 vs. 7.51 +/- 0.93 micromol/L ($P < \text{or} = 0.01$) and 72.57 +/- 11.73 vs. 81.83 +/- 7.39 kU/L ($P < \text{or} = 0.005$). In the autistic group there was a strong negative correlation between tHcy and GPx activity and the vitamin B(12) level was low or suboptimal.

CONCLUSION: In conclusion, our study shows that in children with autism there are higher levels of tHcy, which is negatively correlated with GPx activity, low PON1 arylesterase activity and suboptimal levels of vitamin B(12).

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