

Abstract

Life Sci. 2004 Oct 8;75(21):2539-49.

Oxidative stress in autism: increased lipid peroxidation and reduced serum levels of ceruloplasmin and transferrin--the antioxidant proteins.

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OBJECTIVE AND METHODS: Autism is a neurological disorder of childhood with poorly understood etiology and pathology. We compared lipid peroxidation status in the plasma of children with autism, and their developmentally normal non-autistic siblings by quantifying the levels of malonyldialdehyde, an end product of fatty acid oxidation.

RESULTS: Lipid peroxidation was found to be elevated in autism indicating that oxidative stress is increased in this disease. Levels of major antioxidant proteins namely, transferrin (iron-binding protein) and ceruloplasmin (copper-binding protein) in the serum, were significantly reduced in autistic children as compared to their developmentally normal non-autistic siblings. A striking correlation was observed between reduced levels of these proteins and loss of previously acquired language skills in children with autism.

CONCLUSION: These results indicate altered regulation of transferrin and ceruloplasmin in autistic children who lose acquired language skills. It is suggested that such changes may lead to abnormal iron and copper metabolism in autism, and that increased oxidative stress may have pathological role in autism.

PMID: 15363659

