Coenzyme Q10 supplementation reduces oxidative stress and decreases antioxidant enzyme activity in children with Autism Spectrum disorders

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Antioxidants and oxidative stress can participate in pathobiochemical mechanisms of autism spectrum disorders (ASDs). The aim was to identify the effects of early CoQ10 supplementation on oxidative stress in children with ASDs. Ninety children with ASDs were included in this study, based on DSM-IV criteria and using Childhood Autism Rating Scale (CARS) scores. Concentrations of CoQ10, MDA, total antioxidant status (TAS) assay, and antioxidant enzymes (superoxide dismutase or SOD and glutathione peroxidase or GPx) activity were determined in serum before and after 100 days of supportive therapy with CoQ10 at daily doses of 30 and 60 mg. Data on children's behavior were collected from parents and babysitters. CoQ10 supportive therapy was determined after three months with daily dose 2× 30 mg improved oxidative stress in the children with ASDs. A relation was seen between serum MDA (r2 = 0.668) and TAS (r2 = 0.007), and antioxidant enzymes (SOD [r2 = 0.01] and GPx [r2 = 0.001]) activity and CARS score. Based on the results, high doses of CoQ10 can improve gastrointestinal problems (P = 0.004) and sleep disorders (P = 0.005) in children with ASDs with an increase in the CoQ10 of the serum. We concluded that the serum concentration of CoQ10 and oxidative stress could be used as relevant biomarkers in helping the improvement of ASDs.

Speaker Biography

Elham Mousavinejad has completed her MSc in the Department of Biochemistry, School of Medical Sciences, Ahvaz Jundishapur University of Medical Sciences, in 2016, and BSc Degree in Community Nutrition, School of Nutritional Sciences and Dietetics, Jundishapur University of Medical Sciences, Ahvaz, Iran in 2006. Her research area involved Nutritional Neuroscience and various nutritional deficiencies described in children with ASDs.

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