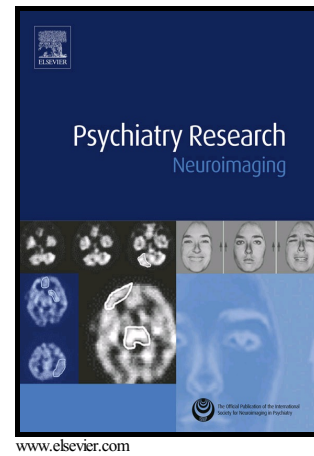


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A Pilot Study of Cortical Glutathione in Youth with Depression

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Abstract

Aim: This study used proton magnetic resonance spectroscopy (¹H MRS) to measure *in vivo* brain glutathione (GSH) in adolescents with major depressive disorder (MDD), and explored the relationship between GSH and illness severity and chronicity. Secondly, associations between GSH and anhedonia, a key symptom of MDD in adolescents, were investigated. Methods: Occipital cortex GSH levels were obtained in 19 psychotropic medication-free adolescents with MDD (ages 12-21) and compared to those in eight healthy control adolescents. Correlations between GSH levels and anhedonia severity were examined both in the full participant sample and within the MDD group. Within the MDD group, correlations between GSH levels and illness severity and chronicity were assessed. Results: Occipital GSH levels were lower in adolescents with MDD compared to controls, but did not correlate with anhedonia (either within the MDD group or the full sample), MDD severity, or onset. There were also no group differences in levels of total choline, creatine, and N-acetylaspartate – all neurometabolites that were simultaneously detected with ¹H MRS. Conclusions: Although preliminary, findings add new data to support the role of oxidative stress in MDD and suggest that lower GSH may be a potential marker of MDD early on in the course of illness.

Keywords: anhedonia; mood disorders; occipital lobe; oxidative stress; antioxidants; inflammation

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