

Abstract

Psychiatry Res. 2006 Jun 30;147(1):1-25.

Review of ¹H magnetic resonance spectroscopy findings in major depressive disorder: a meta-analysis.

Yildiz-Yesiloglu A, Ankerst DP.

Dokuz Eylul Medical School, Department of Psychiatry, Izmir, Turkey.

OBJECTIVE: In a review of the current literature, we identified (¹H MRS studies of major depressive disorder (MDD) that examined the metabolites N-acetylaspartate (NAA), choline (Cho), myo-inositol (mI), glutamate/glutamine/gamma-aminobutyric acid-GABA (Glx), and creatine (Cr).

METHODS: Separate meta-analyses comparing adult and pediatric MDD patients with healthy controls were performed. For adults, 14 studies with 227 patients/246 controls for NAA, 15 studies with 240 patients/261 controls for Cho, seven studies with 96 patients/104 controls for mI, six studies with 86 patients/109 controls for Glx, and nine studies with 146 patients/173 controls for Cr were identified.

RESULTS: There were six studies containing a total of 79 pediatric depressed patients. We performed 15 separate meta-analyses to combine results from studies with similar characteristics. Adult MDD patients had higher Cho/Cr values than controls in the basal ganglia. In contrast, three studies on Glx levels indicated significantly lower Glx levels in the frontal lobe of MDD patients.

CONCLUSION: The review indicated increased Cho/Cr in the basal ganglia in MDD and no alteration of NAA, suggesting an increased membrane turnover in MDD without a neurodegenerative outcome. Lower Glx levels in depressed patients in contrast to a likely hyperglutamatergic state in bipolar disorder may implicate a different pathophysiological ground in MDD.

PMID: 16806850

