

# Abstract

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## Decreased prefrontal Myo-inositol in major depressive disorder.

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**BACKGROUND:** Postmortem studies have shown robust prefrontal cortex glial losses and more subtle neuronal changes in major depressive disorder (MDD). Earlier proton magnetic resonance spectroscopy (1H-MRS) studies of the glial marker myo-inositol in MDD were subject to potential confounds. The primary hypothesis of this study was that MDD patients would show reduced prefrontal/anterior cingulate cortex levels of myo-inositol.

**METHODS:** Thirteen nonmedicated moderate-severe MDD patients and 13 matched control subjects were studied (six male, seven female per group). Proton magnetic resonance spectroscopy stimulated echo acquisition mode spectra (3.0 T; echo time=168 msec; mixing time=28 msec; repetition time=3000 msec) were obtained from prefrontal/anterior cingulate cortex. Metabolite data were adjusted for tissue composition.

**RESULTS:** Patients with MDD showed significantly lower myo-inositol/creatine ratios (.94+/- .23) than control subjects (1.32+/- .37) [F(1,23)=6.9; p=.016].

**CONCLUSIONS:** These data suggest a reduction of myo-inositol in prefrontal/anterior cingulate cortex in MDD, which could be a consequence of glial loss or altered glial metabolism. Additional in vivo studies of glial markers could add to the understanding of the pathophysiology of MDD.

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