

SOBP Abstract

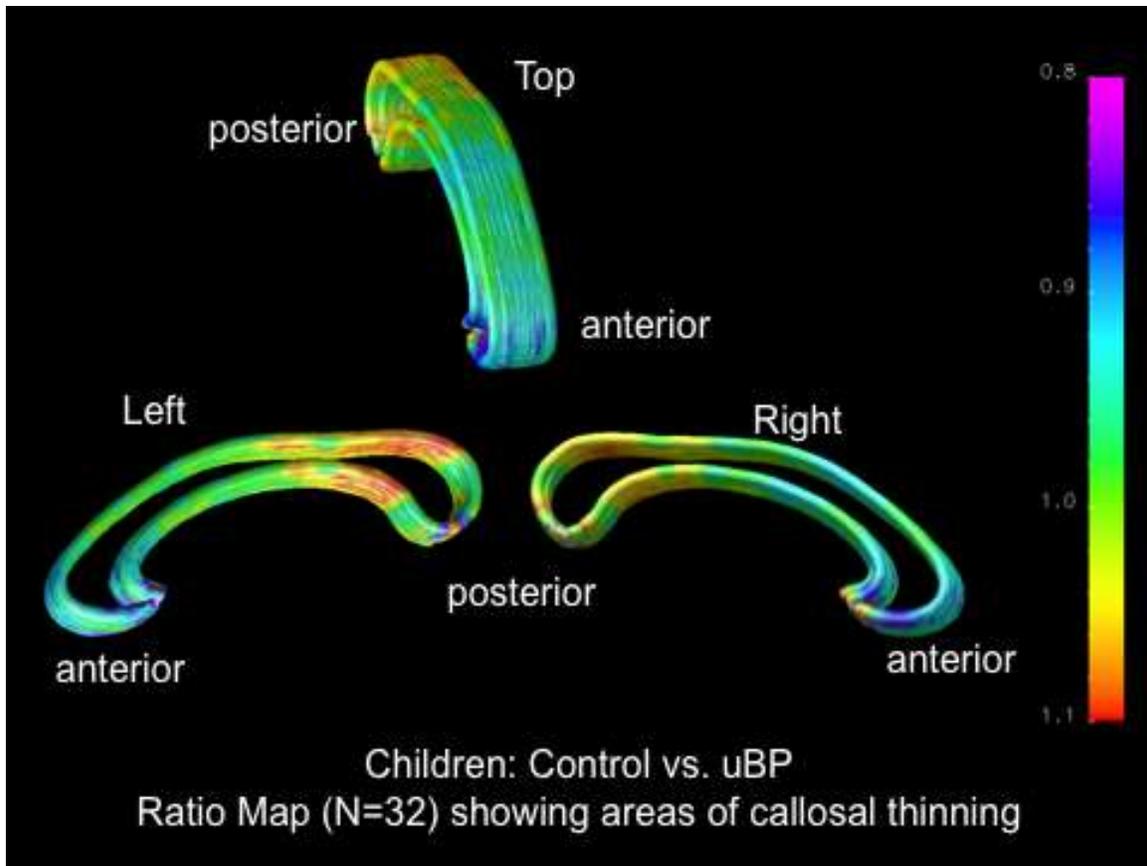
December 19, 2008

Background: Juvenile-onset bipolar disorder is a psychiatric condition which severely impairs a child's ability to function normally during critical developmental stages. Although continuity with the adult form of illness remains unresolved, preliminary evidence suggests similar biological underpinnings. As the major interhemispheric commissure in the brain, abnormalities of the corpus callosum (CC) may have a pivotal role in information-processing deficits in bipolar disorder. Here we used computational methods to detect and map the spatial pattern of CC abnormalities in a sample of unmedicated patients with juvenile-onset bipolar disorder.

Methods: High-resolution brain magnetic resonance images were acquired from 16 unmedicated children and adolescents meeting DSM-IV criteria for bipolar disorder (mean age 14.4 ± 2.4 years; 31% female) and 16 demographically similar healthy control subjects. Total and regional areas of the CC were determined using traditional morphometric methods. Three-dimensional surface models of the CC were also created to visualize morphologic variability of the CC and to localize regions of callosal thinning in juvenile bipolar patients.

Results: Three-dimensional maps revealed subtle, localized thinning in the anterior CC in unmedicated bipolar patients relative to controls, with relative thickening in posterior CC (see Figure).

Conclusion: Statistical maps revealed callosal alterations in pediatric bipolar disorder with greater precision than traditional morphometric methods. Future longitudinal studies will be critical to advance our understanding of the developmental trajectory of childhood onset bipolar illness.



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Funding Sources: Partly supported by MH 68766, MH 068662, RR 20571, UTHSCSA GCRC (M01-RR-01346), NARSAD, Veterans Administration (Merit Review), CNPq (“Conselho Nacional de Desenvolvimento Científico e Tecnológico”, Brazil – grant# 200006/04-5), and the Krus Endowed Chair in Psychiatry.