

Brain Structural Signature of Familial Predisposition for Bipolar Disorder: Replicable Evidence For Involvement of the Right Inferior Frontal Gyrus.

[Hajek T](#), [Cullis J](#), [Novak T](#), [Kopecek M](#), [Blagdon R](#), [Propper L](#), [Stopkova P](#), [Duffy A](#), [Hoschl C](#), [Uher R](#), [Paus T](#), [Young LT](#), [Alda M](#).

Source

Department of Psychiatry, Dalhousie University, Halifax, Canada; Prague Psychiatric Center, Department of Psychiatry and Medical Psychology, 3rd School of Medicine, Charles University, Prague, Czech Republic.

Abstract

BACKGROUND:

To translate our knowledge about neuroanatomy of bipolar disorder (BD) into a diagnostic tool, it is necessary to identify the neural signature of predisposition for BD and separate it from effects of long-standing illness and treatment. Thus, we examined the associations among genetic risk, illness burden, lithium treatment, and brain structure in BD.

METHODS:

This is a two-center, replication-design, structural magnetic resonance imaging study. First, we investigated neuroanatomic markers of familial predisposition by comparing 50 unaffected and 36 affected relatives of BD probands as well as 49 control subjects using modulated voxel-based morphometry. Second, we investigated effects of long-standing illness and treatment on the identified markers in 19 young participants early in the course of BD, 29 subjects with substantial burden of long-lasting BD and either minimal lifetime ($n = 12$), or long-term ongoing ($n = 17$) lithium treatment.

RESULTS:

Five groups, including the unaffected and affected relatives of BD probands from each center as well as participants early in the course of BD showed larger right inferior frontal gyrus (rIFG) volumes than control subjects (corrected $p < .001$). The rIFG volume correlated negatively with illness duration (corrected $p < .01$) and, relative to the controls, was smaller among BD individuals with long-term illness burden and minimal lifetime lithium exposure (corrected $p < .001$). Li-treated subjects had normal rIFG volumes despite substantial illness burden.

CONCLUSIONS:

Brain structural changes in BD may result from interplay between illness burden and compensatory processes, which may be enhanced by lithium treatment. The rIFG volume could aid in identification of subjects at risk for BD even before any behavioral manifestations.

Copyright © 2012 Society of Biological Psychiatry. Published by Elsevier Inc. All rights reserved.

Featured at MDLinx among [Week's best articles in mood disorders](#) and also [week's best articles in neuropsych sciences](#).

Week's Best Articles: Mood Disorders

July 25, 2012 - August 1, 2012

This week's most-read articles by US physician subscribers

Screening for bipolar disorders in patients with alcohol or substance use disorders: Performance of the Mood Disorder Questionnaire
Drug and Alcohol Dependence 07/25/2012

Do ADHD Children With and Without Child Behavior Checklist-Dysregulation Profile Have Different Clinical Characteristics, Cognitive Features, and Treatment Outcomes
Journal of Attention Disorders 07/31/2012

Brain Structural Signature of Familial Predisposition for Bipolar Disorder: Replicable Evidence For Involvement of the Right Inferior Frontal Gyrus
Biological Psychiatry 07/27/2012

Frontal lobe bioenergetic metabolism in depressed adolescents with bipolar disorder: a phosphorus-31 magnetic resonance spectroscopy study
Bipolar Disorders 07/24/2012



Most Popular Psychiatry Articles

Last month's top read

Top 50 of 2011

- 15 The PHQ-9 versus the PHQ-8 — Is item 9 useful for assessing suicide risk in coronary artery disease patients? Data from the Heart and Soul Study *Journal of Psychosomatic Research*, July 6, 2012
- 16 Frontal lobe bioenergetic metabolism in depressed adolescents with bipolar disorder: a phosphorus-31 magnetic resonance spectroscopy study *Bipolar Disorders*, July 24, 2012 **Clinical Article**
- 17 Adolescent self-harm and suicidal thoughts in the ALSPAC cohort: a self-report survey in England *Full Text* *BMC Psychiatry*, July 12, 2012 **Free full text**
- 18 Adult Attachment and Sexual Functioning: A Review of Past Research *The Journal of Sexual Medicine*, July 6, 2012
- 19 Brain Structural Signature of Familial Predisposition for Bipolar Disorder: Replicable Evidence For Involvement of the Right Inferior Frontal Gyrus *Biological Psychiatry*, July 27, 2012 **Clinical Article**
- 20 Relational memory in psychotic bipolar disorder *Bipolar Disorders*, July 30, 2012 **Clinical Article**

Indexed Journals in Psychiatry : *Current Psychiatry, Bipolar Disorders, American Journal of Psychiatry, Addiction* [more](#)