for a schizophrenia spectrum disorder in parents of childhood-onset patients was 4.9 times greater than for parents of adult-onset patients. These data are consistent with the hypothesis that a childhood-onset of schizophrenia is due, at least in part, to a greater genetic diathesis for the disorder.

Brain Imaging I
Thursday, May 11, 2:30 PM–5:00 PM
Location: New Orleans
Chair: Robert M. Cohen

42. THE CONTRIBUTION OF ORBITOFRONTAL CORTEX TO EPISODIC MEMORY IMPAIRMENT IN OCD


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Biological studies of obsessive-compulsive disorder (OCD) provide consistent evidence of dysfunction in orbitofrontal cortex (OFC). We have used the California Verbal Learning Test (CVLT) in behavioral studies to examine episodic memory in OCD. In two separate investigations, we found that OCD patients failed to spontaneously apply semantic organizational strategies during encoding and this led to problems in delayed recall. We will present new data from a PET study in normal subjects examining the neural systems underlying semantic organization using a verbal memory paradigm patterned after the CVLT. Eight normal subjects listened to lists of 24 words, in three conditions: 1) Unrelated: words were semantically unrelated; 2) Directed: words were related in four semantic categories, and subjects were not instructed of this beforehand; 3) Directed: same as (2) but subjects were explicitly instructed to notice the relationships and use them to improve memory. Behavioral data included a Semantic Clustering score, measuring active regrouping of words into semantic categories during recall. In a graded PET contrast (Directed > Spontaneous > Unrelated), two distinct activations were found in left inferior prefrontal cortex and left dorsolateral prefrontal cortex. Correlation analyses in the Spontaneous condition indicated that blood flow in OFC during encoding predicted the use of semantic clustering strategies during immediate recall. These results indicate that OFC plays a role in episodic memory by supporting the mobilization of effective strategic processes, mediated in other regions of PFC. Disruptions in learning strategies in OCD are likely related to OFC dysfunction.

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43. MRI ANALYSIS OF CHILDREN AT RISK FOR BIPOLAR DISORDER


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Studies of adults with bipolar disorder suggest abnormalities in the neuroanatomic pathways thought to modulate mood. To our knowledge, there have been no studies examining these neuroanatomic structures in children at risk for bipolar disorder. We hypothesized that compared with healthy volunteers, children with a parent with bipolar disorder (high-risk) would exhibit abnormalities in brain regions that regulate mood.

Children (ages 8–12 years) with at least one parent with bipolar disorder (N = 17) and children of healthy parents without any DSM-IV Axis I disorder (N = 13), matched for age, sex, socioeconomic status, handedness, and Tanner stage, were assessed using the Kiddie-Schedule for Affective Disorders and Schizophrenia (K-SADS). Parents were evaluated using the Structured Clinical Interview for DSM-IV (SCID-P). Continuous 1 mm axial T1-weighted MRI slices were obtained using a GE 1.5 Tesla scanner. Morphometric analyses were performed by raters blind to subject diagnosis. Regions of interest (ROIs) included whole brain, hippocampus, amygdala, thalamus, striatum, globus pallidus, cerebellum, and prefrontal cortex.

MANCOVA adjusting for Tanner stage and education revealed the high-risk children demonstrated significantly different overall ROI volumes as compared to the healthy volunteers [Wilks lambda = 0.51, F(7,19) = 2.6, p = 0.05]. The differences between groups in hippocampal volumes contributed the only large effect size (f = 0.6) and hippocampal volumes were larger in high-risk children than in volunteers.

Our results suggest that children at risk for bipolar disorder may have neuroanatomic abnormalities similar to those found in adults with bipolar disorder, suggesting that these abnormalities may be present prior to the onset of bipolar disorder. We are continuing to collect data in effort to increase power so that additional differences in structural volumes may be detected.

44. REDUCED LEFT HESCHL’S GYRUS VOLUME IN SCHIZOTYPAL PERSONALITY DISORDER


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Schizotypal personality disorder (SPD) shares the same genetic diathesis as the schizophrenia spectrum disorders, yet persons with SPD are not psychotic and generally have not been prescribed neuroleptics. Therefore, they may represent an ideal group to study the underlying structural abnormalities in the spectrum disorders. Previously we showed SPD subjects to have enlarged CSF volumes, parahippocampal asymmetry, and reduced left superior temporal gyrus (STG) gray matter volumes compared with normal control subjects. The STG consists anatomically of the anterior pole, Heschl’s gyrus (primary auditory sensory cortex) and planum temporale (auditory unimodal association cortex). In order to better define this STG abnormality, we examined Heschl’s gyrus and planum temporale in an extended group of subjects. Subjects: SPD subjects were all right-handed males (N = 24) and age-matched within 3 years to the comparison subjects (N = 23), with no difference in IQ, years of education or parental socio-economic status. SPD subjects did have lower socioeconomic status. Image processing: The STG was manually drawn on the acquired coronal images consisting of 124 slices. To correct for the effects of head tilt, the images were realigned and resimulated to form a new set of images with over 200 slices and isotropic voxels. The drawings were edited as necessary and the boundaries were extended to their anterior and posterior most extent with high interrater reliability (intraclass r = 0.99). The effect of brain volume on region size was accounted for using a regression procedure. The resultant residual volume for left Heschl’s gyrus was not normally