NEURAL RESPONSES TO STRESS AND ASSOCIATED ALCOHOL USE IN YOUNG ADULTS WITH BIPOLAR DISORDER.

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Abstract (360/360 word max)

Purpose: Alcohol use disorders (AUDs) occur 3-5 times more often in bipolar disorder compared to the general population, with estimates that up to 60% of individuals with bipolar disorder will present with an AUD during their lifetime. Despite this prevalence—and that comorbidity is associated with worse illness course—there is limited studies investigating mechanisms that may contribute to elevated risk for, and development of, AUDs in bipolar disorder. In typically developing youth, sensitivity to stress is suggested to increase vulnerability to early alcohol use. Differences in sensitivity to stress and neural systems mediating stress response are implicated in bipolar disorder. However, it is unknown if sensitivity to stress or differences in neural systems underlying stress response contribute to alcohol use in bipolar disorder.

Methods: This study is investigating neural responses to a psychosocial stressor and associations with recent alcohol use reported on the Daily Drinking Questionnaire (DDQ) in young adults with bipolar disorder and typically developing young adults.

Data: 37 young adults (18 [49%] with bipolar disorder, 76% female, $age_{mean+SD} = 21 \pm 2$ years) completed the DDQ and a modified version of the Montreal Imaging Stress functional MRI Task (MIST). The MIST, derived from the Trier Mental Challenge Test, includes challenging math problems with negative performance evaluation. Stress-induced changes in neural activity was modeled for each subject and differences between diagnostic groups and relationship with reported frequency, quantity, and duration of drinking over the last month on the DDQ was investigated.

Results: When compared to typically developing young adults, those with bipolar disorder showed greater stress-induced activity in insular and dorsomedial and dorsolateral prefrontal cortices, including the dorsal anterior cingulate cortex ($p < 0.005$). There were no significant differences between groups in recent alcohol use reported on the DDQ. Increased dorsal anterior cingulate activity in response to stress was associated with increased frequency, quantity, and duration of drinking over the last month in young adults with bipolar disorder ($p < 0.05$).

Conclusions: Preliminary results from this ongoing study may suggest increased sensitivity to stress in young adults with bipolar disorder, compared to typically developing young adults, contributes to risky alcohol use and elevated risk for development of AUDs. Longitudinal study is warranted.