

The Role of Central Amygdala Corticotropin-Releasing Factor Receptor 1 (CRF1) Neurons in Anxiety-Like Behavior and Alcohol Consumption

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Alcohol use disorder (AUD) is a severe condition that is highly comorbid with anxiety disorders. The CRF1 system is broadly implicated in both alcohol use and anxiety, however, our understanding of these complex interactions remains incomplete. The present study utilizes a CRF1 transgenic rat line to investigate the dynamic interactions between alcohol, anxiety, and stress in a sex-specific manner. We assessed basal levels of anxiety-like behavior using two behavioral tests and measured levels of voluntary ethanol consumption to assess any changes in anxiety-like behavior as a result of alcohol consumption. We found no sex differences in basal levels of anxiety-like behavior or ethanol consumption. Additionally, basal anxiety-like behavior was not correlated with ethanol consumption and alcohol did not have an effect on averaged group anxiety-like behavior. However, when analyzing correlations between ethanol intake and anxiety-like behavior on an individual level some significant relationships began to emerge. Increased ethanol consumption on the day prior to testing was found to be correlated to increased anxiety-like behavior in males and females combined and a positive correlation was found between ethanol intake and depressive-like behavior in females only. These data indicate individual differences in the relationship between alcohol and anxiety and highlight the importance of considering sex as a biological variable. While the relationship between alcohol and anxiety remains complex, our study expands our understanding of these interactions and aids in the development of more personalized therapeutic treatments for both complex disorders.