DART
DRUG ABUSE RESEARCH TRAINING

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Co-morbidity of PTSD and AUD: Using an Animal Model of the Single Prolonged Stress to Examine Stress-induced Reinstatement of Alcohol-Seeking Behavior

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Background: Alcohol use disorder (AUD) is a chronic relapsing brain disease characterized by an impaired ability to control alcohol use. There is high co-morbidity of AUD and post-traumatic stress disorder (PTSD), and stress is one of the main triggers of relapse. Animal models have been developed to evaluate this issue that involve training rodents to press a lever to obtain alcohol, and acute stress exposure which induces reinstatement of alcohol-seeking behavior after a period of extinction training. This study aims to evaluate the effect of prior stress experience on alcohol-seeking behavior induced by acute stress. **Methods**: A single prolonged stress model (SPS) was used to induce trauma before acute stress was experienced to provoke alcohol seeking and drinking. Adult male and female C57BL/6J mice (24/sex) were trained to lever press for alcohol (ethanol 12% v/v) in operant conditioning chambers. Number of lever responses and alcohol intake were recorded to examine alcohol-seeking behavior. Once lever pressing and alcohol intake stabilized, half of the mice underwent SPS protocol (restraint, forced swim, and exposure to anesthesia). The day after SPS exposure mice resumed alcohol self-administration. **Results**: Initial baseline levels of drinking remained constant after SPS exposure. Thus, prior SPS exposure did not affect immediate alcohol-seeking behavior. This study is still ongoing. **Conclusion**: The main hypothesis is that mice that experienced SPS will show higher levels of stress-induced (yohimbine) reinstatement in alcohol seeking and drinking after a period of extinction. If that is the case, this will allow the evaluation of therapeutic interventions to prevent relapse in a model of PTSD and stress-induced relapse. Previous studies have shown that oxytocin that has been utilized in the treatment of PTSD also attenuates stress-induced reinstatement of alcohol seeking in mice. Future studies could evaluate the effect of oxytocin or other drugs in this model of PTSD and alcohol relapse.