

POSTER ABSTRACTS

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11:45 am – 2:00 pm
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PS2 – 13

Genetic and Environmental Risk Factors for Prescription Opioid Dependence in the Healthcare Setting

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Background: Research on the genetics of opioid addiction among illicit drug users is difficult given challenges to case ascertainment and selection of an appropriate control group. To address this limitation, we tested a model by studying prescription opioid users.

Methods: We undertook a case-control, candidate-gene study of opioid-dependent users and nondependent users among Geisinger Clinic outpatients. Electronic health record (EHR) data were reviewed for patients who were prescribed opioids. Patients were selected for a phone interview if they had five or more prescription orders for opioids in the prior 12 months for non-cancer pain. Cases were identified based on the Diagnostic and Statistical Manual of Mental Disorder, Version IV (DSM-IV) criteria for opioid dependence. A modified Composite International Diagnostic Interview (CIDI) was used to obtain data on dependence status and history. Data were also gathered on detailed drug, psychological, and environmental exposures. Altogether, 703 patients completed the CIDI; 512 of these patients (73%) provided DNA for genotyping and completed the NEO Five-factor Personality Inventory. Findings: Altogether 37.4% (95% CI = 33.8-41.1) of patients met DSM-IV criteria for lifetime opioid dependence and 30.7% (95% CI = 27.3-34.3) met criteria for current dependence. Significant predictors of opioid dependence included younger age, unemployment, psychotropic medication use, as well as history of PTSD, anxiety, depression, alcohol abuse, anti-social personality, illicit drug use, trauma exposure, and substance abuse treatment (all p-values < 0.001). Preliminary Genetic analyses suggested that opioid dependence was associated with dopamine receptors D2 and D3 and the COMT genes. Gene by environment (G x E) interactions were also detected related to opioid dependence and exposure to mental trauma.

Conclusion: The prevalence of drug dependence is high among pain patients on long-term opioid therapy in the outpatient setting. This disorder is associated with a history of other mental health conditions, employment status, psychotropic medication use, illicit drug use, and exposure to mental trauma. Genetic analyses suggested associations with genes related to neurocognitive processes associated with impulse control and reward regulation. Several G x E interactions were also detected.