Shared genetic factors influence comorbid major depression, alcohol dependence

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Analysis of four genome-wide association studies indicated shared genetic risk factors contributed to comorbid major depressive disorder and alcohol dependence.

“The National Comorbidity Study linked [alcohol dependence] to 3.7-fold higher odds of experiencing a major depressive episode in the prior year. In the 2012-2013 National Epidemiologic Survey on Alcoholism and Related Conditions, individuals with a lifetime diagnosis of [major depressive disorder] had a 1.3-fold increased risk of an alcohol use disorder,” Allan M. Andersen, MD, of University of Iowa, Iowa City, and colleagues wrote.

To determine if alcohol dependence and major depressive disorder (MDD) overlap genetically, researchers conducted association analyses between MDD polygenic risk score and alcohol dependence case status from four independent genome-wide association studies: the Collaborative Study on the Genetics of Alcoholism (COGA; n = 788 cases, 522 controls), the Study of Addiction, Genetics, and Environment (SAGE; n = 631 cases, 756 controls), the Yale-Penn genetic study of substance dependence (n = 2,135 cases; 350 controls), and the National Health and Resilience in Veterans Study (NHRVS; n = 317 cases; 1,719 controls).

Across all samples, higher MDD polygenic risk score was associated with significantly greater risk for alcohol dependence. Meta-analysis indicated even stronger associations, according to researchers.

Similar associations were found when adjusting for MDD status in three alcohol dependence genome-wide association study data sets.

After recalculating MDD polygenic risk scores using MDD genome-wide association study data sets without comorbid MDD-alcohol dependence cases, researchers found a significant association between MDD polygenic risk scores and alcohol dependence in a meta-analysis of three genome-wide association study alcohol dependence samples without MDD (P = .007).

“Our findings suggest that common genetic factors contribute to [MDD-alcohol dependence] comorbidity and that some individuals carry a genetic predisposition
for both disorders. The consistency of our findings across four independent samples suggests the feasibility and value of a meta-analysis of [alcohol dependence] and MDD [genome-wide association study] data sets to identify specific genetic variations underlying this shared predisposition," the researchers concluded. – by Amanda Oldt

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