

Title:

Cocaine-Induced Hallucinations occurrence and severity: two distinct phenotypes with shared and specific risk factors

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Abstract

Cocaine induced transient Hallucinations (CIH) are a frequent complication following cocaine intake associated with cocaine addiction severity. Methods: Two hundred and forty-two non-psychotic and Caucasian lifetime cocaine users were included from a French multicentric study. Clinical variables and Dopamine pathway genotype data were extracted and tested with CIH scores using a zero inflated binomial model which allows to explore factors associated with occurrence and severity separately. Results: Cocaine dependence ($p_{\text{occurrence}} = 4.5 \times 10^{-04}$, $p_{\text{severity}} = 0.03$) and frequency of intake during the worst period of misuse ($p_{\text{occurrence}} = 3.5 \times 10^{-04}$, $p_{\text{severity}} = 0.047$) were associated with more occurrence and higher severity of CIH. Daily cocaine dose during the worst period of misuse ($p_{\text{occurrence}} = 0.02$, $p_{\text{severity}} = 0.15$), a lower age of cocaine initiation ($p_{\text{occurrence}} = 0.008$, $p_{\text{severity}} = 0.81$), and lifetime alcohol dependence ($p_{\text{occurrence}} = 0.03$, $p_{\text{severity}} = 0.56$) were only associated with more occurrence but not with severity of CIH. Genetic associations did not yield significant results after correction for multiple testing. However, some nominal associations of SNPs mapping on *VMAT2*, *DBH*, *DRD1* and *DRD2* genes were significant. In the multivariate model the number of cocaine dependence criteria, lifetime alcohol dependence and nominal associated SNPs remained significant. Conclusion: Our study shows that CIH occurrence and severity are two distinct phenotypes, with common and specific risk factors. Moreover, our results suggested that occurrence and severity may probably do not share the same genetic background.

Keywords (4):

Cocaine, substance induced psychosis, mixture model, hallucinations