DAT polymorphism and diverse clinical manifestations in methamphetamine abusers

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摘要

Abstract

The clinical outcome for methamphetamine (MAP) abusers is variable. MAP exerts its biological activity through rapid conversion to amphetamine (AP) and MAP itself. The dopamine transporter (DAT) is the main modulator of MAP/AP-induced dopamine release and dopamine neurotoxicity, and is also the major regulator of dopamine level in the brain. We tested for an association between a DAT-gene polymorphism and clinical variations in MAP abusers. A total of 146 MAP abusers were enrolled in the study and classified into three clinically distinct groups: MAP dependence (n = 30), MAP psychosis (n = 88) and chronic MAP psychosis (n = 28). Patients with schizophrenia (n = 79) and healthy controls (n = 72) were also recruited for the study. The 40 base pair variable number tandem repeat polymorphism in the 3'-untranslated region of the DAT was the focus of the investigation. The subjects were all Chinese residents of Taiwan. The respective allelic frequencies for DAT repeats 11, 10 and 9 were 0.067, 0.833 and 0.083 for the MAP-dependence group, 0.006, 0.864 and 0.119 for the MAP psychosis group, 0.018, 0.893 and 0.089 for the chronic MAP psychosis group, 0.019, 0.911 and 0.07 for the schizophrenic controls, and 0.021, 0.889 and 0.083 for the healthy controls. No significant associations were demonstrated between this DAT polymorphism in genotype and allele frequency and the clinical outcome of MAP abusers. The biological relevance of the variable number tandem repeat polymorphism in the 3'-untranslated region of DAT in MAP abusers was not demonstrated in this study