Interaction effects of GIT1 and DRD4 gene variants on continuous performance test variables in patients with ADHD

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Abstract

Introduction
The G protein-coupled receptor kinase interacting protein 1 gene (GIT1) has been proposed to be a risk gene for attention deficit hyperactivity disorder (ADHD), and it regulates the endocytosis of G protein-coupled receptors like dopamine receptors. The purpose of this study was to investigate the interaction effects of GIT1 and dopamine receptor D4 (DRD4) gene variants on variables of the continuous performance test (CPT).

Methods
This study recruited 255 ADHD patients and 98 healthy controls (HC) who underwent CPT and genetic analyses. The genotypes were classified into two groups (the C/C and C/T genotype groups for GIT1, 4R homozygotes and others for DRD4) and the genotype × genotype effects were examined using hierarchical multivariable linear regression analyses.

Results
There were significant GIT1 × DRD4 effects for commission errors on the CPT in the ADHD group (p = .006). In contrast, there were no significant GIT1 × DRD4 effects on any CPT variables in the HC.

Conclusions
The present findings demonstrated that there were significant interaction effects of the GIT1 and DRD4 gene variants on impulsivity in ADHD. Replication studies with larger sample sizes that include patients from various ethnic backgrounds are warranted to confirm these findings.