Potential Role of ADRA2A Genetic Variants in the Etiology of ADHD Comorbid with Tic Disorders

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Abstract

Objective: To evaluate the role of the adrenergic receptor alpha-2A gene (ADRA2A) in the genetic etiology of ADHD comorbid with tic disorders (ADHD+TD).

Method: Two single nucleotide polymorphisms (SNPs) of ADRA2A were genotyped and analyzed in 936 normal controls and 1,815 ADHD probands, including 1,249 trios. Approximately 16% of the ADHD probands also had a diagnosis of TD.

Results: No significant association was found between ADRA2A and ADHD in general. Case-control analyses indicated different allelic and genotypic distributions of rs553668 between ADHD+TD and controls in males. Family-based association tests showed that the G allele of rs1800544, the A allele of rs553668, and the GA haplotype consisting of these two SNPs were overtransmitted in the ADHD+TD trios, especially in males. Moreover, the allelic/genotypic distribution and allelic transmission were different between ADHD+TD and ADHD without TD.

Conclusion: ADRA2A may be associated with ADHD+TD, especially in males.