NOS1 and SNAP25 polymorphisms are associated with Attention-Deficit/Hyperactivity Disorder symptoms in adults but not in children


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ABSTRACT

Several investigations documented that Attention-Deficit/Hyperactivity Disorder (ADHD) is better conceptualized as a dimensional disorder. At the same time, the disorder seems to have different neurobiological underpinnings and phenotypic presentation in children compared to adults. Neurodevelopmental genes could explain, at least partly these differences. The aim of the present study was to examine possible associations between polymorphisms in SNAP25, MAP1B and NOS1 genes and ADHD symptoms in Brazilian samples of children/adolescents and adults with ADHD. The youth sample consisted of 301 patients whereas the adult sample comprises 485 individuals with ADHD. Diagnoses of ADHD and comorbidities were based on the Diagnostic and Statistical Manual of Mental Disorders – 4th edition criteria. The Swanson, Nolan and Pelham Scale-Version IV (SNAP-IV) was applied by psychiatrists blinded to genotype. The total SNAP-IV scores were compared between genotypes. Impulsivity SNAP-IV scores were also compared according to NOS1 genotypes. Adult patients homozygous for the C allele at SNAP25 rs8636 showed significantly higher total SNAP-IV scores (F = 11.215; adjusted P-value = 0.004). Impulsivity SNAP-IV scores were also significantly different according to NOS1 rs478597 polymorphisms in adults with ADHD (F = 6.282; adjusted P-value = 0.026). These associations were not observed in children and adolescents with ADHD. These results suggest that SNAP25 and NOS1 genotypes influence ADHD symptoms only in adults with ADHD. Our study corroborates previous evidences for differences in the genetic contribution to adult ADHD compared with childhood ADHD.