Association of the GRIN2B rs2284411 polymorphism with methylphenidate response in attention-deficit/hyperactivity disorder.


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Abstract

OBJECTIVE:
We investigated the possible association between two NMDA subunit gene polymorphisms (GRIN2B rs2284411 and GRIN2A rs2229193) and treatment response to methylphenidate (MPH) in attention-deficit/hyperactivity disorder (ADHD).

METHODS:
A total of 75 ADHD patients aged 6–17 years underwent 6 months of MPH administration. Treatment response was defined by changes in scores of the ADHD-IV Rating Scale (ADHD-RS), clinician-rated Clinical Global Impression-Improvement (CGI-I), and Continuous Performance Test (CPT). The association of the GRIN2B and GRIN2A polymorphisms with treatment response was analyzed using logistic regression analyses.

RESULTS:
The GRIN2B rs2284411 C/C genotype showed significantly better treatment response as assessed by ADHD-RS inattention (p=0.009) and CGI-I scores (p=0.009), and there was a nominally significant association in regard to ADHD-RS hyperactivity-impulsivity (p=0.028) and total (p=0.023) scores, after adjusting for age, sex, IQ, baseline Clinical Global Impression-Severity (CGI-S) score, baseline ADHD-RS total score, and final MPH dose. The GRIN2B C/C genotype also showed greater improvement at the CPT response time variability (p<0.001). The GRIN2A G/G genotype was associated with a greater improvement in commission errors of the CPT compared to the G/A genotype (p=0.001).

CONCLUSIONS:
The results suggest that the GRIN2B rs2284411 genotype may be an important predictor of MPH response in ADHD.