Association of SNAP-25, SLC6A2, and LPHN3 With OROS Methylphenidate Treatment Response in Attention-Deficit/Hyperactivity Disorder.

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Abstract

OBJECTIVES:
Our study aimed to identify the association of norepinephrine transporter gene (SLC6A2), synaptosomal-associated protein of the 25-kDa gene (SNAP-25), and latrophilin 3 gene (LPHN3) with osmotic-controlled release oral delivery system methylphenidate (OROS MPH) treatment response.

METHODS:
One hundred thirty-nine children and adolescents with attention-deficit/hyperactivity disorder (ADHD) were recruited. We selected rs192303, rs3785143 in SLC6A2; rs3746544 (1065 T>G) in SNAP-25; and rs6551665, rs1947274, and rs2345039 in LPHN3 to examine the association of OROS MPH treatment response with each single nucleotide polymorphism. We first defined good response group when the Korean version of the ADHD rating scale score at 8 weeks was decreased for more than 50% of baseline scores and compared genotype frequencies in good response group with poor group. Second, we defined it when the Clinical Global Impression-Improvement score at 8 weeks was 1 or 2, and we also analyzed the genotype frequencies.

RESULTS:
There was a significant association between the 1065 T>G of SNAP-25 gene and OROS MPH response, with the good response group defined by the Korean version of ADHD rating scale scores; 33.3% of the subjects with GG genotype showed a good response, whereas 74.7% of those with TT genotype and 72.5% of those with TG genotype showed good responses (P=0.034). SLC6A2 rs192303 was related with OROS MPH treatment response when we defined good treatment response by Clinical Global Impression-Improvement (P=0.009).

CONCLUSIONS:
Our study suggested that SNAP-25 gene and SLC6A2 were involved with OROS MPH response.