非定型抗精神病薬で治療中の統合失調症患者におけるABCB1遺伝子多型の自律神経活動へ与える影響

Effects of ABCB1 gene polymorphisms on autonomic nervous system activity during atypical antipsychotic treatment in schizophrenia

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Background: There are interindividual differences in the adverse effects of atypical antipsychotics, which include autonomic nervous system (ANS) dysfunction. Accordingly, to clarify the interindividual differences in the adverse effects of specific atypical antipsychotics in schizophrenia, we investigated the association between ANS dysfunction and ATP-binding cassette transport sub-family B member 1 (ABCB1) gene polymorphisms in patients with schizophrenia.
Methods: In total, 233 Japanese patients with schizophrenia participated in this study. All of the participants received an atypical antipsychotic as monotherapy: 89 participants received risperidone, 69 olanzapine, 48 aripiprazole, and 27 quetiapine. ANS activity was assessed by means of a power spectral analysis of heart rate variability. Four single nucleotide polymorphisms (SNPs) in ABCB1 (rs1045642, rs1128503, rs2032582, and rs2235048) were genotyped using the TaqMan method.
Results: For aripiprazole, sympathetic and total autonomic nervous activities were significantly lower in the rs1045642 T allele carrier-rs2235048 C allele carrier group than in the rs1045642 non-T allele carrier-rs2235048 non-C allele carrier group. In addition, in the aripiprazole group, the T-C-T-A haplotype (rs1045642-rs2235048-rs1128503-rs2032582) was associated with decreased ANS activity. However, there were no significant associations between ANS activity and ABCB1 gene polymorphisms in the risperidone, olanzapine, and quetiapine groups. Multiple regression analysis revealed that sympathetic and total nervous activities were significantly associated with the ABCB1 rs1045642-rs2235048 genotype and the T-C-T-A haplotype (rs1045642-rs2235048-rs1128503-rs2032582).
Conclusion: We suggest that ABCB1 genetic polymorphisms affect aripiprazole-related ANS dysfunction but do not affect risperidone-, olanzapine-, or quetiapine-related ANS dysfunction.
(The study protocol was approved by the ethics committee, and informed consent was obtained from all participants after they received a full explanation of the study.)