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INTERACTION EFFECTS BETWEEN THE BRAIN-DERIVED NEUROTROPHIC FACTOR VAL66MET POLYMORPHISM AND PARENTAL REARING ON PERSONALITY TRAITS IN HEALTHY SUBJECTS

A. Suzuki¹, Y. Matsumoto¹, N. Shibuya¹, R. Sadahiro¹, M. Kamata², K. Goto³, K. Otani¹

¹Department of Psychiatry, Yamagata University School of Medicine, ²Health Administration Center, Yamagata University, ³Department of Anatomy and Cell Biology, Yamagata University School of Medicine, Yamagata, Japan

Aims: There is a growing body of data suggesting the gene-environment interaction in the characterization of personality traits, but variation in ordinary parental rearing among environmental factors has not been focused yet. We examined the effects of the interaction between the brain-derived neurotrophic factor (BDNF) Val66Met polymorphism and parental rearing on personality traits.

Methods: Subjects were 710 Japanese healthy volunteers. Perceived parental rearing was assessed by the Parental Bonding Instrument (PBI), which consists of the care and protection factors. Personality assessment was performed by the Temperament and Character Inventory (TCI), which has 7 dimensions, i.e., novelty seeking, harm avoidance, reward dependence, persistence, self-directedness, cooperativeness, and self-transcendence. The BDNF Val66Met polymorphism was detected by the PCR-RFLP method.

Results: Parental rearing has significant main effects on all TCI dimensions except novelty seeking, while no significant main effects of the BDNF genotype on the TCI scores were found. The interaction between the BDNF genotype and maternal care of the PBI had significant effects on harm avoidance and self-directedness of the TCI. Post-hoc analyses showed that decreased maternal care was correlated with increased harm avoidance and decreased self-directedness in most of the genotype groups, and for both personality traits the correlation was highest in the Met/Met genotype and lowest in the Val/Val genotype and that for the Val/Met genotype was in between the two values.

Conclusion: The present study suggests that the BDNF Val66Met polymorphism moderates the effects of parenting rearing, especially maternal care, on harm avoidance and self-directedness in healthy subjects.