

세로토닌 수송체 관련 전사체 부위 유전자 다형성과 성격특성과의 관련성-정상 여성 연구

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ABSTRACT

Associations between Serotonin Transporter Linked Promoter Region Polymorphism and Personality Traits-Normal Female Population Study

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Objective : The personality traits are substantially heritable, and therefore very likely result from the interplay of genetic variations with environmental influences. Recently, there is a growing enthusiasm for biological approaches to personality, especially genetic research on identifying responsible genes. So, the aim of this study is to investigate the associations between serotonin transporter promoter linked region (5-HTTLPR) polymorphism and personality traits. **Methods** : We recruited unrelated normal 114 female subjects. The Korean version of temperament and character inventory (TCI) were used to assess personality traits. From the blood, DNA was isolated using standard techniques and the 5-HTTLPR polymorphism was genotyped by polymerase chain reaction and electrophoresis. We classified the subject as s/s, s/l, and l/l group according to their genotype. The differences of TCI scores between l allele non-carrier group (s/s genotype) and l allele carrier group (s/l+l/l genotype) were tested after inclusion of age as covariate in the analysis of variance (ANCOVA). **Results** : Under the control of age, there were no associations between harm avoidance, novelty seeking, reward dependence, cooperativeness, and self-transcendence scores and genotypes. But, persistence and self-directedness score of l allele non-carrier group was significantly higher than that of l allele carrier group. **Conclusion** : The 5-HTTLPR polymorphism may be associated with persistence and self-directedness score of TCI in normal Korean female population. (*Korean J Psychopharmacol* 2004;15(2):206-210)

KEY WORDS : Serotonin transporter polymorphism · Persistence · Self-directedness · TCI · Korean.

서 론

가 .¹⁾

(heritable),

,²⁾

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30~60%가
3)

대상 및 방법

1. 대 상

21~35 119

가
(serotonin transporter, 5-HTT)
(promoter region)
(functional polymorphism), 44 bp
(insertion, long allele, l) (deletion, short allele, s) l s 가 4)
Lesch serotonin transporter-linked promoter region(5-HTTLPR) s
Caucasian 5)

가
Beck Depression Inventory(BDI) Beck Anxiety Inventory(BAI)
BDI 21, BAI 22
14,15)

2. 성격 평가

가 (Temperament and Character Inventory, TCI) 16) TCI
Novelty Seeking(NS), Harm Avoidance(HA), Reward Dependence(RD), Persistence(P) 4가
Self-Directedness(SD), Cooperativeness(C), Self-Transcendence(ST) 3가
가 17)

3. 유전자 분석(Genotyping)

QIAamp DNA Blood Mini Kit(Qiagen Inc, Valencia, Calif)
genomic DNA 5-HTTLPR
5'-GGCGTTGCCGCTCTGAATGC-3'
5'-GAGGGACTGAGCTGGACAACCAC-3'
(primer) Polymerase Chain Reaction(PCR) 4) 95 10 denaturation 94 10, 62 15, 72 32 PCR 35
DNA 2.5% 가 (agarose gel) ethidium bromide(1 µg/mL, Sigma) DNA
(molecular marker)
(genotype) 5-HTTLPR 528 bp 가 l/l, 484

2,6-9)
5-HTT 10)
가 가
가
가
가
11)
mRNA 5-HTT binding site density estrogen
12)
가
13)
5-HTTLPR

bp 484 bp 가 s/s , 528 ((2=0.07, p=0.79)(1).
 I allele non - carrier I allele carrier HA, NS, RD, C, ST
 P I allele non - carrier I allele carrier (p=0.01). SD
 I allele non - carrier I allele carrier (p=0.03). SD 5가
 SD5(congruent second nature vs. bad habit)
 가 I allele non - carrier (p=0.04), SD1(responsibility vs. blaming) 가 (p=0.06)(2).
 I allele non - carrier I allele carrier (co-variate) ANCOVA

고 찰

결 과

119 5 BAI BDI (expression) 가
 114 28.7 ± 6.0 가
 5 - HTTLPR s/s 64 가
 (57.1%), I/s 42 (37.5%), I/I 6 (5.4%) 5 - HTTLPR 가
 Hardy - Weinberg

Table 1. Frequencies of genotypes for 5-HTTLPR

Genotypes				
5-HTTLPR	s/s (I allele non-carrier)	I/s	I/I	I/s+I/I (I allele carrier)
N (%)	64 (57.1)	42 (37.5)	6 (5.4)	48 (42.9)

Table 2. Association of 5-HTTLPR between TCI factor scores

	I allele non-carrier (n=64)	I allele carrier (n=48)	p-value
Temperament			
Novelty seeking	17.64 ± 5.60	17.81 ± 5.00	0.965
Harm avoidance	16.72 ± 6.59	17.88 ± 7.48	0.481
Reward dependence	16.81 ± 3.03	16.19 ± 3.49	0.243
Persistence	4.28 ± 1.72	3.38 ± 1.65	0.009
Character			
Self-directedness	28.55 ± 6.58	25.13 ± 8.26	0.027
Cooperativeness	32.75 ± 4.41	32.08 ± 5.14	0.536
Self-transcendence	9.78 ± 5.06	9.15 ± 4.43	0.547

ANCOVA with age as a covariate

가 persistence²²⁾
 (neurotransmitter level) 가
 , 5 - HTTLPR s/s
 5 - HTTLPR HA
 5) 5 - HTTLPR neuroticism mRNA
 HA (anxiety - related Persis-
 personality traits) tence 가 가
²⁾ Persistence
 5 - HTTLPR 가
 가
 5 2 5 -
 HTTLPR - I allele non - carrier(s/s)
 I allele carrier(l/s+l/l) (dimen-
 sion) SD 가 SD -
 Umekage (self - determination) (willpower)
 가
 가 5 - HTTLPR NEO - PI - R
 (Revised NEO Personality Inventory) neuroticism SD
⁶⁾ Tsai¹⁷⁾ Hamer
 5 - HTTLPR 5 - HTTLPR
 TCI SD, C
²³⁾ Thierry
 HA score seasonal affective dis-
 5 - HTT VNTR(variable number tandem repeat) order 5 - HTTLPR s allele가 SD
 HA²⁴⁾ Peirson
¹⁹⁾ SD가
 I allele non - carrier(s/s) I²⁵⁾
 allele carrier(l/s+l/l) (dimension) 1 가
 P 가 Persistence 5 - HTTLPR
 (perseverance) TCI
 가 P 가²⁶⁾
 Benjamin COMT (ho-
 mozygous) 가 5 - HTTLPR
 s - allele 가 Tridimensional Persona-
 lity Questionnaire(TPQ) persistent score
 가²⁰⁾ Comings 가
 , 5 - HT2A, try- 4 3
 tophan hydroxyase가 TCI persistence 가
²¹⁾ Cloninger 1 (type 1 error)가 가

가

5-HTTLPR polymorphism
s/s 가 TCI per-
sistence, self-directedness

중심 단어 : Persistence
Self-directedness (TCI)

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