

한국인 정신분열병 환자에서 Apolipoprotein E 유전자의 다형성

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Genetic Polymorphisms of Apolipoprotein E in Korean Schizophrenic Patients

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Objectives : Although polymorphisms of apolipoprotein E have been investigated in many neuropsychiatric disorders, results were controversial and even contradictory. The purpose of this study was to investigate the genotypes of apolipoprotein E in schizophrenia and healthy controls, and to compare them in two groups in terms of distribution of apolipoprotein E genotype and allele.

Method : Using polymerase chain reaction and amplified refractory mutation system, apolipoprotein E genotypes were identified in 77 schizophrenics and 115 healthy control persons.

Results : The results were as follows

1) When genotypes of apolipoprotein E were classified into 2/2, 2/3, 2/4, 3/3, 3/4, 4/4 according to phenotypes, there were no statistical differences in genotypes between two groups

2) In terms of allele frequency, there were also no statistical differences between two groups

Conclusion : These results suggest that genotypes and alleles of apolipoprotein E seem to be unrelated to the pathogenesis of schizophrenia.

KEY WORDS : Apolipoprotein E · Schizophrenia · Genotypes.

서 론

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가

가

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5, 11, 18, 19, 6, 8, 22, 12), ApoE, X, ApoE, 가, 가, ApoE, 13)14), ApoE, 가, 가, ApoE, 2), ApoE, ApoE, 4, 가, 가, Apolipoprotein E(ApoE) 299, 15)가, ApoE, 4, 가, 16), 가, ApoE, ApoE, ApoE, 3), ApoE, ApoE, 4), ApoE, 19, 2, 가, 가, 연구방법, 3, 4, 3가, 가, 1. 대 상, Diagnostic and statistical manual of mental disorders - R/, 2001 3 2002 7, 2, 77, ApoE, 5-11), 115, 가, 가, ApoE, 가

2. 연구 방법

EDTA가

ApoE Polymerase Chain Reaction Amplified Refractory Mutation System(Modified ARMS)

Blood DNA kit DNaid (genotech, Korea)

- 70

112 115 codon

Cystein Arginine

ApoE

Oligonucleotide primer Sense primer 2 , Anti-sense primer 2 Primer

Sense Primer

Primer 1 : 5' - GCCCGGCTGGGCGCGGACAT-GGAGGACGAGC - 3'

Primer 2 : 5' - GCCCGGCTGGGCGCGGACAT-GGAGGACGAGC - 3'

Antisense primer

Primer 3 : 5' - CGCGGGCCCCGGCCTGGTAC-ACTGCCAGTCG - 3'

Primer 4 : 5' - CGCGGGCCCCGGCCTGGTAC-ACTGCCAGTCA - 3'

ApoE/ actin hybrid oligonucleotide primer

Internal control

20uL가

40U Taq DNA polymerase, 5mM

dNTP, 10X reacton buffer, 12uL 8-methoxyp-soralen, 2ul genomic DNA Thermal Cycler(Perkin Elmer 2400)

10 denaturation 94 30

denaturation, 68 30 primer annealing,

68 5 final extention 30

2.5% agarose gel

15 Ethium bromide

(1).

3. 통계 분석

ApoE

2/2, 2/3, 2/4, 3/3, 3/4, 4/4 2, 3, 4

SPSS

10.0 for Windows

p<0.05

결 과

46 , 31

37.93 ± 12.69 62 ,

53 38.24 ± 12.85

1 ApoE

ApoE 2/2

가 1 (1.3%), 2/3가 3 (3.9%), 2/4가 2 (2.6%), 3/3가 61 (79.2%), 3/4가 8 (10.4%), 4/4가 2 (2.6%)

ApoE

2/2가 3 (2.6%), 2/3가 8 (7.0%), 2/4가 2 (1.7%), 3/3가 83 (72.2%), 3/4가 17 (14.9%), 4/4가 2 (1.7%)

($\chi^2=1.300, df=2, p=0.615$).

1

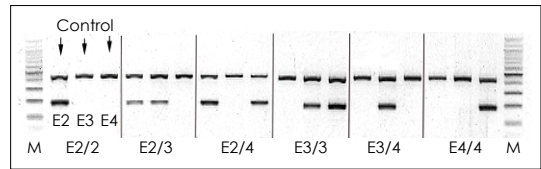


Fig. 1. Example of genotype analysis of ApoE by PCR method. Each genotype was demonstrated when electroporesis and ethium bromide stain was performed(M : marker).

Table 1. Apolipoprotein E genotypes frequencies and allele frequencies between schizophrenic patients(n=77) and control subjects(n=115)

	Schizophrenia	Normal control
Genotype*		
2/ 2	1(1.3%)	3(2.6%)
2/ 3	3(3.9%)	8(7.0%)
2/ 4	2(2.5%)	2(1.7%)
3/ 3	61(79.2%)	83(72.2%)
3/ 4	8(10.4%)	17(14.9%)
4/ 4	2(2.6%)	2(1.7%)
Total	77	115
Allele**		
2	7(4.5%)	16(7%)
3	133(86.4%)	191(83%)
4	14(9.1%)	23(10%)
Total	154	230

* : $\chi^2=2.600$, df=5, p=0.821,

** : $\chi^2=1.095$, df=2, p=0.578

2가 7(4.5%), 3가 133(86.4%), 4가 14(9.1%)
 2가 16(7%), 3가 191(83%), 4가 23(10%)

($\chi^2=0.003$, df=1, p=1.00).

고 찰

ApoE

Lan ¹⁷⁾
 가

4 가
 4 가
 Chen ¹⁸⁾
 ApoE 3가

2, 4 가
 , ApoE 3

Igata - Yi
 ApoE 4가 ¹⁶⁾ ApoE

Joober Town ApoE
 가

¹⁹⁾²⁰⁾

ApoE

¹⁴⁾¹⁸⁾

ApoE

²¹⁾

가

²²⁾

ApoE

2, 3

가

ApoE

PANSS

ApoE

가

ApoE

Pickar ²³⁾

ApoE 4가
 Ohara

가

²⁴⁾

가

가

가

가

ApoE

ApoE

가가

ApoE

가

가

가

가

가

ApoE

중심 단어 : Apolipoprotein E

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