

한국인 알코올리즘과 Catechol-O-methyltransferase(COMT) 유전자 다형성의 연합

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An Association Study of COMT Gene Polymorphism with Korean Alcoholism

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ABSTRACT

An association study with Korean alcoholic patients(n=50) and normal controls(n=53) was performed to find the relationship between catechol - O - methyltransferase(COMT) gene polymorphism and alcoholism using polymerase chain reaction - restriction fragment length polymorphism. When we compared the allele and genotype frequencies of Nla COMT gene polymorphism in alcoholism and normal controls, there was no significant difference between two groups. Our results do not support an association between the Nla polymorphism of COMT gene and alcoholism.

KEY WORDS : Alcoholism · Association · COMT · Polymorphism.

서 론

Benjamin Rush(1790)

가
(American Psychiatric Association 1987).

가
(American Psychiatric Association 1987), 가 , ,

(Cloninger 1981 ; Goodwin 1979).

가

4, 5, 6, 11, 12, 22

(association)

(linkage) (Hill 1975, 1988 ; Schmidt 1998 ; Koob Bloom 1988 ; Thomasson 1991 ; Tiihonen 1999).

Catechol - O - methyltransferase(COMT) S - adenosyl - L - methionine methyl levodopa,

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, 139 - 792

1 17

) (02) 971 - 5272,) (02) 971 - 5272

가 가 . 221 가 가
(soluble form ; S) N -
50 (membrane bound form ; MB)
22q11
(Tenhunen 1994). COMT
(single autosomal locus)
(COMT^L) (COMT^H) 가
(Grossman 1992).
108 가
(Lotta 1995). , 108
(Tiihonen 1999) 22 q11
COMT type 1(late - onset)
(Cloninger 1987) 가
COMT
. Kauhanen (2000)

COMT , Ishi-
guro (1999) DSM - IV
COMT
. COMT
가
(polymerase chain reaction ;
PCR) COMT

실험재료 및 실험방법

1. 연구대상

1998 6 1998 10 Y
50
H
18 65 53
가
2 가 Diagnostic and st-
atistical manual of mental disorders - (DSM - ; Am-
erican Psychiatric Association 1994)

DSM - (American Psychiatric Association 1994)
(, caffein nicotine

), 2 1
, 4
18 65 .

2. COMT 유전자의 분석

1) Genomic DNA 추출법

5ml EDTA tube
24 DNA 가 가 -20
. DNA 1.0ml eppen-
dorf tube phosphate buffer saline(PBS) 1ml
가 15,000rpm 15
PBS 1ml 가
15,000rpm 15 .
(6~9

) . 가
5% Chelex resin 100 μl 가
100 2 DNA tem-
plate (Lee 1997).

2) COMT 유전자의 분석

GenBank accession num-
ber Z26491 158 codon (Tenhunen
1994) Primer Detective program(Clou-
Tech)
Sense 5' - CTCATCACCATCGAGA-
TCAA - 3' antisense 5' - GATGACCCTGGT-
GATAGTGG - 3' Tiihonen (1999)
. Antisense

100 μM dNTP, 30 pmol primer(sense antisense),
template가 DNA 0.2 μg/ μl, 0.5 unit Taq DNA
(Promega) 가 50 μl .
95 3 1 , 95 30 ,
55 30 , 72 1 30 ,
72 10 1 .
DNA 10 μl 37 5 unit
Nla 3 18% acrylamide
120V . Xylene
cyanole dye가 20cm
ethidium bromide 5

3) 통계처리 및 분석

DNA

SPSS/PC+ version 8.0

COMT

χ^2 -test

p<0.05

결과

COMT

1

COMT

(allele, $\chi^2=2.145$, d.f.=

(genotype, overall $\chi^2= 2.716$,

1, p=0.153)

d.f.=2, p=0.257)

고찰

가

가

가

가 가

(Martin Sher 1994 ; Cloninger 1987 ;

Blasfield 1985 ; Schuckit 1985)

(Gade 1998 ; Vanyukov 1995).

가

(polymorphic gene loci)가

(Cloninger 1990).

type 1 type 2 가

(Cloninger 1987). Type 2

(early onset),

sive antisocial behavior)

(impul-

type 1

25

(late onset)

(Cloninger 1987).

(brain imaging studies)

(dopaminergic neurotransmission)

type 1 (Hietala 1994 ; Volkov 1996 ;

Tiihonen 1995, 1998) , type 2

(Tiihonen 1995).

(ethanol - induced euphoria)

(limbic areas)

(Yoshimoto 1991),

COMT

가

COMT

가

honen 1999).

가

(Tii-

가

가

, DSM -

COMT

Nla

COMT

가

COMT

Nla

가

22q11

COMT

COMT

Ishiguro (1999)

Tiihonen (1999)

Ishiguro (1999)

Hoda

(1996)

COMT

exon 1

intron 2

Nla

Table 1. Genotype and allele frequencies of the Nla COMT gene polymorphism in alcoholics and normal controls

	N	Genotype frequency			Allele frequency	
		H/H (%)	H/L (%)	L/L (%)	H (%)	L (%)
Alcoholics	50	17 (34)	28 (56)	5 (10)	62 (62)	38 (38)
Normal controls	53	13 (24)	29 (55)	11 (21)	55 (52)	51 (48)

N : number of individuals
 Allele, $\chi^2=2.145$, d.f.=1, p=0.153
 Genotype, overall $\chi^2=2.716$, d.f.=2, p=0.257
 H : COMT^{val} high activity allele
 L : COMT^{met} low activity allele
 () : %

22q11
(Kauhanen 2000),
(Ishiguro 1999).

22q11

(Byerley Coon 1995).

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Rush B(1790) : An inquiry into the effects of spiritous liquors on the

가

가

가

가

가

COMT

COMT

COMT

N1a

N1a

가

중심 단어 :

COMT

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