

만성정신분열병 환자의 흡연후 추적안구운동의 호전*

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Improvement of Smooth Pursuit Eye Movements after Cigarette Smoking in Chronic Schizophrenic Patients*

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ABSTRACT

This study was done to examine whether cigarette smoking improved smooth pursuit eye movement(SPEM) abnormalities in chronic schizophrenic inpatients.

Fifteen schizophrenic and twelve alcoholic subjects abstained from their usual cigarette smoking for a minimum of nine hours and their baseline performances during the constant velocity smooth pursuit tasks were assessed. Then, the subjects smoked as much as they desired in a 10 minutes period and were retested immediately after smoking and 15 minutes after smoking. Electrooculographic recordings during the eye movements were converted and saved as digitized files. Power spectral density curves and natural logarithm value of signal/noise(Ln S/N) ratios were computed from them.

In the schizophrenic patients, Ln S/N ratios increased significantly immediately after smoking compared to baseline. But, Ln S/N ratios showed no statistically significant changes after 15 minutes compared to baseline. In alcoholic subjects, Ln S/N ratios showed no statistically significant changes immediately after smoking and after 15 minutes compared to baseline.

In conclusion, SPEM was improved in schizophrenic patients immediately after smoking and we hypothesized that nicotinic receptor dysfunction maybe a candidate mechanism for smooth pursuit eye movement abnormalities in schizophrenia.

KEY WORDS : Cigarette smoking · Nicotine · SPEM(Smooth Pursuit Eye Movement) · Ln S/N ratio · Schizophrenia · Alcoholism.

서 론

가

가

(Leonard 1996).

1998

1)

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: , 660 - 280 92) (0591) 750 - 8084,) (0591) 759 - 0003

(linkage) (Freedman 1997).

P50

가

8%,

51 86% 가 ((Lipton 1983 ;

67% , 85%

Clementz Sweeny 1990),

가

(de Leon 1995) ,

(Holzman 1974, 1984 ; Levy 1983 ;

(Gopalaswamy Morgan 1986 ; Lohr Flynn 1992 ;

1998) (Holzman Levy 1977 ;

Masterson O'shea 1984)

Holzman 1978, 1980 ; Spohn Patterson 1979)

가

(1995)

(PA -

NSS)

가

4

(de Leon 1996).

가

가

vulnerability

가

(Holzman 1988 ; Grove 1992)

(de Leon 1996),

가

(sensory gating)

가 (Freedman

가

1994 ; Leonard 1996)

가

P50

P50

P50

가

, Olincy

second

50 mili

(1998)

가

(gating)

P50 가

(Adler

연구대상 및 방법

1992 ; Freedman

1994) 80 90%

(Siegel 1984), 가 (first de -

1. 연구 대상

gree relative)

50%

2

Diagnostic and

(gating)

Statistical Manual 4 (American Psychiatric Association 1994)

(Leonard 1996).

P50

lithium

(pharmacological bolck -

, sedative - hypnotics

ade)

(Lu -

가 triazolam

2

ntz - Leybman 1992),

가 (Freedman 1995) ,

(psychosis)

alpha - 7

가

15

locus

가

the social sciences)

Goff (1992)

15

5

Ln S/N ratio

6

ANOVA

2. 인구추적운동의 측정 및 분석

(1993)

15 Ln S/N ration

paired sa-

mple t test

±

(lateral canthus)

p<0.05

가

400Hz sampling

연구 결과

4Hz sampling

2Hz low pass filter

arti-

1. 연구대상의 인구학적 특성

fact

, DADisp

42.3 ± 7.3

(power spectrum)

37.3 ± 8.2

40cm

1 × 0.8cm

가

19.2 ± 2.0

17.8 ± 3.8

1

()

() 18.2

20.6 ± 7.0

가

6

(28.2degree/sec)

16.8 ± 7.8

(1).

2. 정신분열병 환자군과 알코올리즘 환자군에서 표적에 대한 인구 추적운동에서의 Ln S/N ratio값의 비교

9

15

Ln S/N ratio

2.70 ± 0.58, 2.91 ± 0.41,

2.95 ± 0.34

2.89 ± 0.25,

2.92 ± 0.34, 2.99 ± 0.25

ANOVA

6

7

9 30

baseline

10

15

10

15.5

hamming window

fast fourier tran-

sformation

0.27 0.67Hz

signal power 0.68 2 Hz

noise power

signal/noise ratio

(Ln S/N ratio)

Table 1. Demographic characteristics of the schizophrenic and alcoholic subjects(mean ± S.D.)

	Schizophrenics (N=15)	Alcoholics (N=12)	Significance
Age(yrs)	37.3 ± 8.2	42.3 ± 7.3	NS
Duration of smoking(yrs)	16.8 ± 7.8	20.6 ± 7.0	NS
Amount (No. of cigarette/day)	17.8 ± 3.8	19.2 ± 2.0	NS

Compared by t-test, NS denotes p > 0.05

3. 통계처리

SPSS/PC + (statistical package for

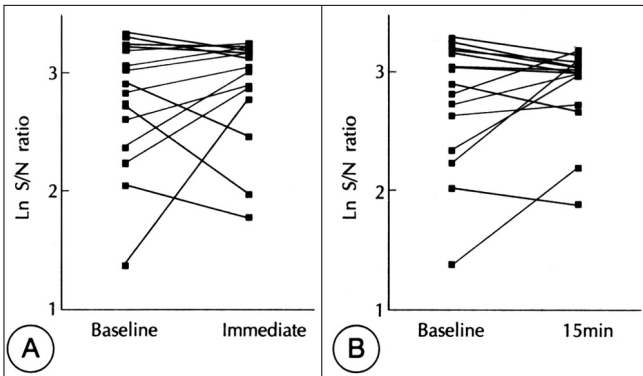


Fig. 1. Ln S/N ratios between baseline and immediately after smoking (A) and between baseline and 15 minutes after smoking (B) in schizophrenics. There was significant improvement ($p=0.032$) in (A) but there was no significant improvement ($p=0.066$) in (B) by paired t-test.

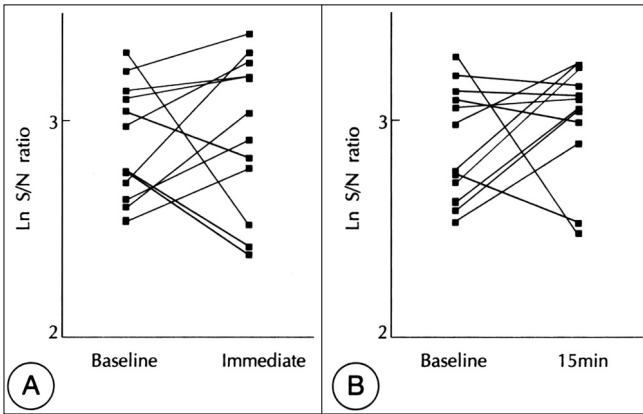


Fig. 2. Ln S/N ratios between baseline and immediately after smoking (A) and between baseline and 15 minutes after smoking (B) in alcoholics. There were no significant improvements in (A) ($p=0.857$) and (B) ($p=0.374$) by paired t-test.

0.35 가 , 15 0.25
 ± 0.49 가 . Paired t - test
 $p = 0.032$ 가
 15 $p = 0.066$
 가 (1).

4. 알코올리즘 환자군에서 표적에 대한 안구 추적운동에서의 흡연의 영향

0.02 \pm 0.38
 가 , 15 0.10 \pm 0.37 가
 . Paired t - test p 가
 0.857, 15 $p = 0.374$
 (2).

고 찰
 (gating)
 가
 P50 가
 P50 가
 P50 가
 가
 가
 (Luntz - Leybman 1992 ; Freedman 1995 ; Free -
 dman 1997) 가

Olincy (1998) 가
 Ln S/N ratio가 가
 (1).

(2).
 Olincy (1998) , Klein
 Andresen(1991)
 . Olincy (1998) ,
 (9
) , Klein Andresen(1991)
 1 가
 가 , Olincy (1998) ,

(cholinergic agonist)
 2
 가
 가
 (de Leon 1995 ;

Gopaldaswamy Morgan 1986 ; Lohr Flynn 1992 ; Masterson O'shea 1984)

가

가

가

Ln S/N ratio

1A2 (induce) (Nemeroff 1996), (Glassman 1993),

cytochrome P450

가

가

가

가

가

가

alpha7 -

가

가

P50

()

가

(Luntz - Leybman

1992)

(Freedeman 1994)

8

결론

alpha7 -

가

, alpha7 -

가

15

(15q13 - 14)

(Freedman 1997)

P50

17 ,

12

(electrooculography)

()

(power spectral density)

Ln S/N ratio

() ,

trait

(endop -

henotype)

1)

가

2)

S/N ratio ,

Ln

paired t - test

(p=0.032),

가

15

가

가

가

(p=0.066).

3)

S/N ratio

15

Ln

paired t - test

(p=0.857, 0.374).

(1990)

가

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