

정신분열병과 류마치스 관절염 사이의 음성적 상관관계 : 역학 및 방어적 요인으로서 Prolactin과 Estrogen*

안동성^{1)†} · 이영호²⁾ · 이윤우³⁾

Negative Association between Schizophrenia and Rheumatoid Arthritis : Epidemiology and Prolactin and Estrogen as Protective Factors*

Dong-Sung Ahn, M.D.,^{1)†} Young-Ho Lee, M.D.,²⁾ Yoon-Woo Lee, M.D.³⁾

ABSTRACT

The purposes of this study were to test the negative association between schizophrenia and rheumatoid arthritis(RA) and to clarify the role of prolactin and estrogen as protective factors in this association.

The author compared the prevalence rate of RA between 561 patients with schizophrenia and 222 patients with mood disorder. For investigating the role of estrogen and prolactin, the author checked the plasma prolactin and estradiol level in 80 patients with paranoid schizophrenia and 77 patients with RA.

The results were as follows.

1) Epidemiological data

The prevalence rate of RA in the schizophrenic group was 0/561 and that of RA in the mood disorder group was 2/222. To compare these results between two groups, the author applied the Binomial test using the average prevalence rate of RA(0.8%) in the general population as a reference rate. The prevalence rate of RA in the schizophrenic group was significantly lower than that of RA in the general population. However, the prevalence rate of RA in the mood disorder group was not significantly different to that of RA in the general population.

2) Comparison of plasma prolactin and estradiol level between two groups

The plasma level of prolactin in the schizophrenic group was significantly higher than that of prolactin in the RA group($p=0.000$). However, the plasma level of estradiol in the schizophrenic group was significantly lower than that of estradiol in the RA group($p=0.017$). These results were not consistent across gender. To contrast with the results in the female group, which were consistent with the results in the total subjects, for the male group, the plasma levels of prolactin and estradiol in the schizophrenic group were significantly higher than those of prolactin and estradiol in the RA group.

These results support the results of previous studies which confirm the negative association between schizophrenia and RA. These results also suggest that the elevation of plasma prolactin level in the patients with schizophrenia has a antirheumatic effect while the elevation of plasma estradiol level in the patients with RA has a anti-schizophrenic effect, and that these effects act as a possible mechanism in the negative association between two disorders. However, these results suggest that this association is specific to female patients.

KEY WORDS : Schizophrenia · Rheumatoid arthritis · Negative association · Prolactin · Estrogen.

1998 10 22 23

1)

Department of Neuropsychiatry, Dongsuh Hospital, Masan, Korea

2)

Department of Neuropsychiatry, Seoul Paik Hospital, Inje University College of Medicine, Seoul, Korea

3)

Department of General Medicine and Rheumatology, Seoul Paik Hospital, Inje University College of Medicine, Seoul, Korea

† : , 634 - 850 362 - 1) (0551) 231 - 2341,) (0551) 232 - 1336

서론

1991).

50

(Baldwin 1979 ; Gr-egg 1939 ; Melsop 1974 ; Mohamed 1982 ; Nissen Spencer 1936 ; Pilkington 1956 ; Ross 1950 ; Rothermich Philips 1963 ; Trevathan Tatum 1954 ; Tsuang 1983).

estrogen (Goemaere 1990) 가 (Bijlsma Van Den Brink 1992 ; Cutolo 1986 ; Seeman 1986), (Hazes 1991) estrogen (supersensitivity) (Fields Gordon 1982)

(Al-lebeck 1985). Bates Van Damm(1984)

estrogen

14

가

0.01%(

prolactin estrogen

1%)

가

연구대상 및 연구방법

(protective factor)

1. 역학 연구

가

1) 연구 방법

가

(mood disorder)

(Malek - Ahmadi 1985 ; Spector Silman 1987 ; Vinogradov 1991), Human Lymphocyte Antigen(HLA)

(1)

(Gattaz 1980, Gattaz

(screening)

1981), beta - endorphin (Brambilla 1984 ; Denko 1982 ; Ross 1979),

()

(Csernansky 1990 ; Taylor 1978)

가

candidate anti - gene(Gurling 1986), phospholipase prolactin (Vinog-

(2)

radov 1991) (neurohormone)

가

2

prolactin 가 가 (autoimmune inflammatory response)

(erythrocyte sediment rate : ESR), (rheum - atoid factor : RF)

X -

(Vinogradov 1991).

pr -

olactin 가 prolactin

(Arnet 1988)

(3) 가 DSM - (Am -
 erican Psychiatric Association 1994)
 가
 561 (349 , 212), 222 (
 81 , 141) . 42.
 2) 연구 대상 64(10.34) , 42.51(13.68) ,
 1996 5 1 10 31 가
 5 , 8 ,
 1 .

Table 1. Arthropathic characteristics of the patients who have a high possibility of rheumatoid arthritis

Name	Sex/ Age	Diagnosis	Morning stiffness	3 or more joint areas	Arthritis of hand	Symmetric arthritis	Rheumatoid nodule	Rheumatoid factor	Radiographic changes	Diagnosis
F/45	Schizophrenia	+	both hand, wrist, ankle	PIP, MP, DIP	+	-	ESR 50 RF (-) CRP (-)	negative	osteoarthritis	
F/35	Schizophrenia	+	knee, ankle, hand, wrist	PIP, MP	+	-	ESR 46 RF (-) CRP (-)	negative	osteoarthritis	
F/28	Schizophrenia	-	hand, elbow, hip	DIP	+	-	ESR 21 RF (-) CRP (-)	negative		
M/53	Schizophrenia	-	right thumb	MP	-	-	ESR 16 RF (-) CRP (-)	negative		
M/50	Schizophrenia	-	both knee		+	-	ESR 16 RF (-) CRP (-)	negative		
F/35	Major depression	+	knee, ankle	PIP, MP, DIP	+	-	ESR 62 RF (-) CRP (+) ANA (+) LEtest (+)	negative	SLE	
F/51	Dysthymic disorder	-	both hand, wrist, knee	PIP, MP	+	-	ESR 24 RF (-) CRP (-)	negative		
F/54	Dysthymic disorder	-	both elbow, knee		+	-	ESR 20 RF (-) CRP (-)	negative	R/O fibromyalgia	
F/44	Major depression	+	both hand, wrist, knee	PIP, MP, DIP	+	-	ESR 36 RF (-) CRP (-) ANA (-)	negative	R/O fibromyalgia	
M/35	Major depression	+	both knee		+	-	ESR 12 RF (-) CRP (-) ANA (-)	negative		
F/49	Major depression	+	both hand, wrist, elbow	PIP, MP	+	-	ESR 32 RF (-) CRP (-)	negative	R/O fibromyalgia	
F/55	Dysthymic disorder	+	both hand, wrist	PIP	+	-	ESR 24 RF (+) CRP (-)	negative	rheumatoid arthritis	
F/65	Dysthymic disorder	+	both hand, wrist	PIP	+	-	ESR 30 RF (+) CRP (+)	deformity of both 5th PIP	rheumatoid arthritis	

PIP : Proximal interphalangeal joint, MP : Middle interphalangeal joint, DIP : Distal interphalangeal joint, ESR : Erythrocyte sediment rate, RF : Rheumatoid factor, CRP : C reactive protein, ANA : Antinuclear antibody, LE test : Lupus erythematosus test, SLE : Systemic lupus erythematosus

2. 방어적 요인으로서 Prolactin 및 Estrogen

(p=0.0295),

1) 연구 대상

가 (p=0.5824)(2).

mg haloperidol , 5 20
 가 80 (17 , 63)
 가 77 (15 , 62)

2. 방어적 요인으로서 Prolactin 및 Estrogen

1) 연령 및 성별

48.06(12.53) ,
 50.47(14.63)
 (t = - 1.11, df = 155. p=0.270), (17
 , 63) (15 , 62)
 (chi - square = 0.9970,

2) 연구 방법

prolactin 8
 - 70
 (radioimmunoassay) . estradiol
 3 8
 , 8

df = 1, p=0.7522)(3).

2) 두 군사이의 혈중 Prolactin치와 혈중 Estradiol치

prolactin 53.89(37.85)ng/mL,
 10.24(8.19)ng/mL
 (t = 10.08, df = 85.56, p = 0.000). estradiol
 23.06(17.22)pg/mL,
 37.75(50.03)pg/mL
 (t = - 2.43, df = 91.93, p = 0.017)(3).

3. 통계분석

Binomial test

prolactin estradiol t

가
 prolactin (t = 9.89, df = 68.40,
 p = 0.000) estradiol (t = - 2.88,
 df = 73.99, p = 0.005)

연구 결과

1. 역학연구

561 (349 , 212)
 , 3)
 5 (2

prolactin
 (t = 4.90, df = 17.97, p = 0.000) estradiol (t = 2.70, df =
 21.11, p = 0.013) 가 (4).

고찰

7) 가

222 (81 , 141)
 8 (1 ,

가 가

2
 0.8%(: 0.3 2.

1%)(Lipsky 1997)

Bi -

nomial test

Table 3. Comparison of demographic data, prolactin level and estradiol level between schizophrenia and rheumatoid arthritis group

Group	Case ratio	Test proportion	Observational proportion	p
Schizophrenia	0/561	0.0080	0.0000	0.0295
Mood disorder	2/222	0.0080	0.0090	0.5824

	Schizophrenia	Rheumatoid arthritis	p
Age, yrs(mean, sd)	48.06(12.53)	50.47(14.64)	0.270
Sex(no.) male	17	15	0.752
female	63	62	
Prolactin(ng/mL)	53.89(37.85)	10.24(8.19)	0.000
Estradiol(pg/mL)	23.06(17.22)	37.75(50.03)	0.017

Table 4. Comparison of prolactin and estradiol level between schizophrenia and rheumatoid arthritis group by sex

	Male			Female		
	Schizophrenia(N=17)	Rheumatoid arthritis(N=15)	p	Schizophrenia(N=63)	Rheumatoid arthritis(N=62)	p
Prolactin(ng/mL)	28.96(15.95)	9.43(3.74)	0.000	60.62(39.29)	10.44(8.94)	0.000
Estradiol(pg/mL)	28.24(7.70)	17.24(14.05)	0.013	21.63(18.82)	42.80(54.33)	0.005

가 (Allebeck 1985).
 Tsuang (1983) 가
 1. 정신분열병과 류마치스 관절염의 음성적 상관
 가
 1% 가 , 35 50 가
 가
 3 가
 , , , (reproductive fa -
 ctor) (Lipsky 1997).
 가
 (Vinogradov 1991).
 가
 561
 222 2
 0.8%
 Eaton (1992) 1934 1985 ()
 14가 12가
 Allebeck (1985)
 1971 , ,
 1981
 가
 2. 두장애의 음성적 상관에 있어 방어적 요인으로 Estrogen
 과 Prolactin의 역할
 Estrogen , ,
 가
 (Holden 1995). es -
 trogen 가
 , ,
 가 가 가
 가 (Mohamed 1982). 가 (Kaplan
 Diamond 1965). 가
 90%

(Hazes 1991 ; Hazes van Zeben 1991 ; Vandembrouck 1982). (luteal phase) estrogen, progesteron, prolactin (Latman 1983). estrogen androgen androgen estrogen (Lahita 1985). (gender difference) (female sex) (Vandembroucke (1986) estrogen estrogen prolactin (neurostimulatory peptide) (Goldstein 1988 ; Seeman 1982). prolactin (diurnal rhythm) prolactin prolactin prolactin prolactin prolactin pr - IL - 2 Estrogen estradiol (organizing) (Gutierrez 1994). (developmental dysfunction) (degenerative dysfunction) (Seeman 1997). prolactin glutamate (Nagy 1983). prolactin 1990 Folomeev (1990) prolactin estrogen (Meltzer 1997). Blum (1987) estrogen tyrosine hydroxylase prolactin (Nagy (1991) prolactin estradiol D2 (Rossler (1994) estradiol prolactin prolactin prolactin prolactin (Vinogradov 1991). prolactin estradiol

estradiol prolactin , ha -

Hafner (1993) estrogen , , 45 54 loperidol prolactin 가 (Meltzer 1983).
 estrogen prolactin estrogen
 prolactin (tuberoinfundibulum) (Seeman
 Lang 1992). estrogen pr -
 olactin (Buckman Peake 1973),
 prolactin estrogen 가
 (Szymanski 1995). Estradiol
 prolactin pr -
 (Barbarino 1983 ; D' Agata 1982), olactin
 , estradiol pro -
 DiPaolo 1996). Estrogen gesteron prolactin
 가 , (anterior frontal lobe), (Close Freeman 1997). estradiol, pr -
 (cingulate gyrus), (primary olfactory cortex) olactin, dopamine
 (nucleus accumbens) , ,
 5 - hydroxytryptamine2A(5 -
 HT2A) 가 , estrogen dopamine estradiol prolactin
 , dopamine 가
 가 5 - HT2A es - 가 . estradiol 37.75
 trogen (Fink 1996). prolactin 23.06(17.22)pg/mL
 estrogen 가 prolactin 53.89
 (37.85)ng/mL 10.24(8.19)ng/mL
 prolactin .
 가 . Van Putten (1991) (estrogen 가
 prolactin 가 , prolactin 가
) ,
 prolactin prolactin prola -
 ctin 가 ,
 estradiol ,
 prolactin homovanylic acid(HVA) 가
 가 (Meltzer 1983),
 prolactin 가
 prolactin 가 가 , estradiol prolactin 가
 prolactin 가 가 , 가
 prolactin (Kuruvilla 1992). Liebermann(1993) 가 가
 , 가

가 estradiol 222 (81 , 141)
 가 42.80(54.33)pg/mL
 21.63(18.82)pg/mL
 actin 60.62(39.29)ng/mL
 10.44(8.94)ng/mL
 estradiol (p=0.0295),
 28.24(7.70)pg/mL 17.24(14.05)pg/mL
 , prolactin 가 (p=0.5824).
 28.96(15.95)ng/mL 9.43(3.74)ng/mL
 prolactin 2. 두 군사이의 혈중 Prolactin치와 혈중 Estradiol치
 prolactin 53.89(37.85)ng/mL,
 10.24(8.19)ng/mL
 (p=0.000). estradiol
 23.06(17.22)pg/mL, 37.75(50.03)pg/
 mL (p=0.017).
 가 pr -
 olactin (p=0.000) estradiol
 (p=0.005)
 prolactin(p=0.000) estradiol (p=0.013) 가

결론

가 1) 2)
 trogen prolactin
 561 (349 , 212),
 222 (81 , 141)
 2)
 lopidol 가
 80 (17 , 63)
 77 (15 , 62)
 prolactin estradiol
 1. 역학연구결과
 561 (349 , 212)

- 1) 중심 단어 : Pr -
 olactin · Estrogen.
 es -
 가
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