

# 자살시도 환자의 혈소판내 세로토닌 농도와 심리학적 특성에 관한 연구\*

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## Platelet Serotonin Level and Psychological Features of the Suicidal Attempters\*

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### ABSTRACT

**Objectives :** Significant progress has been made in understanding psychosocial, psychological, and environmental factors associated with suicide. However it is only recently that attention has been paid to the understanding of the neurobiology of suicide. The aim of this study was to examine the relationship between platelet serotonin level and suicidal behavior and psychological features of the suicidal attempters.

**Methods :** After a suicidal attempt platelet serotonin level was measured from 21 patients and compared it with those from depression patients and normal controls. Also MMPI, HAM-D, Barratt impulsiveness scale(BIS) were done to evaluate their psychological features.

**Results :**

- 1) There was no significant difference in sex ratio of the suicidal attempters.
- 2) There was no significant difference in platelet serotonin levels among three groups.
- 3) The analysis of MMPI revealed that the scores of D, Hs, Pt in clinical scales were significantly higher in suicide patients and scores of D, Pa, Si were in depression patients.
- 4) The HAM-D score was significantly higher in depression and suicide patients, especially in depression patients.
- 5) The analysis of Barratt impulsiveness scale revealed that the scores of nonplanning, motor and cognitive impulsiveness scale were significantly higher in suicide patients.

**Conclusions :** There was no significant difference in platelet serotonin levels among three groups. However the analysis of psychological features revealed significant differences. Therefore we concluded that psychological examinations are benefit to evaluate the suicidal tendency.

**KEY WORDS :** Suicide · Serotonin · MMPI · HAM-D · BIS.

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서 론

Lloyd (1974) 가  
 . Arango (1995)  
 5 - HT<sub>1A</sub> 가 ,  
 가  
 Traskman - Bendz(1993) 5 -  
 HIAA  
 가, 5 - HIAA  
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 10 11 12  
 (Hales 1999 ; Sainsbury 1986).  
 가 1 berg(1997) As -  
 10 25 , HIAA 가 5 -  
 가 가 가 가  
 (Tsuang 1992). 10 Mann Malone(1997)  
 (1990) 10 , HVA MHPG  
 14.7 가  
 가 5 - HIAA  
 (Cormier 가 Owen  
 Klerman 1985 ; Vigderhous Fishman 1978) (1983) Crow (1984) 가  
 (Beck 1990 ; Hendin 1991) . 5 - HIAA 가  
 , Arranz (1997)  
 18 , 가  
 , 1960  
 가  
 가 가 . Oreland (1981)  
 가  
 . Stahl(1985)  
 가  
 가 (Banki 1984 ; Mann Malone 1997 ;  
 Roy 1986 ; Virkkunen 1989). 5 - HT<sub>2A</sub>  
 , 1993 ; Cook 1994). (Andres  
 , 가  
 가 Pandey (1995) 5 - HT<sub>2A</sub>

20 45  
Rao (1998)  
5-HT<sub>2A</sub>

sma, PRP) 70  
가 4M HClO<sub>4</sub> 가  
(supernatant) 5 N NaOH  
가  
0.1N HCl 가 HPLC(High  
Performance Liquid Chromatography)

3

## 연구대상 및 방법

### 1. 연구대상

1998 8 11  
21 ( 10 , 11 )

14 ( 6 , 8 ),

10 ( 5 , 5 ) (

1).

가

Amitriptyline 975mg, Fluoxetine 520mg, Alprazolam 19.5mg

12

(Paraquat ), 6 ( , ), 2

( , )

DSM -

### 2. 연구방법

#### 1) 혈소판내 세로토닌 농도검사

10 20ml 0.5ml 0.15M EDTA

(ethylene diamine tetra - acetic acid)

(Ficol Paque) 2ml 2000rpm

20 (platelet rich pla -

### 2) 정신의학적 면담 및 임상 심리검사

1

가 , , , ,

(1989)

(MMPI 566 ) , Hamilton(1960)

24 HAM - D(Hamilton Rating Scale for  
Depression) , (1992)가

(BIB - 10 Barratt Impulsiveness Scale 10th ed)

### 3) 통계분석

SAS

t -

ANOVA

## 결 과

가 10 (47.6%), 가 11 (52.4%),

가 6 (42.9%), 가 8 (57.1%),

가 5 (50.0%), 가 5 (50.0%)

가 ( 1).

36.1 ± 9.0 , 35.

6 ± 6.9 ,

33.9 ± 4.9

( 1).

**Table 1.** Demographic data of the subject

Subject	Suicidal attempters (N=21)	Depressed patients (N=14)	Normal controls (N=10)
Age <sup>a</sup> (years)	36.1 ± 9.0	35.6 ± 6.9	33.9 ± 4.9
Sex(No.(%))			
Male	10(47.6)	6(42.9)	5(50.0)
Female	11(52.4)	8(57.1)	5(50.0)

a : Mean ± SD

**Table 2.** Serotonin levels in the platelet

Subject	Suicidal attempters	Depressed patients	Normal controls
Serotonin level(ng/ml) <sup>a</sup>			
Male	236.81 ± 100.02	227.57 ± 200.72	273.12 ± 164.14
Female	218.05 ± 141.08	322.63 ± 163.48	71.06 ± 193.72
Average	227.43 ± 114.05	303.30 ± 168.09	272.09 ± 160.56

a : Mean ± SD

**Table 3.** Minnesota multiphasic personality inventory

Scale	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
Suicide	61.38 ± 13.20	65.14 ± 9.32	67.19 ± 9.12	52.48 ± 7.18	47.71 ± 5.47	52.43 ± 6.78	68.29 ± 10.01	51.29 ± 5.51	42.29 ± 7.64	59.90 ± 9.06
Depression	61.43 ± 9.61	72.07 ± 7.02	53.43 ± 8.56	54.64 ± 6.69	54.71 ± 5.57	67.00 ± 5.33	55.71 ± 9.51	55.50 ± 8.37	51.57 ± 8.33	69.64 ± 7.06
Normal	51.70 ± 7.94	53.00 ± 8.59	55.10 ± 6.06	49.90 ± 8.75	53.00 ± 8.16	50.20 ± 9.16	52.30 ± 5.66	47.60 ± 5.52	50.20 ± 7.08	52.60 ± 9.14

**Table 4.** Hamilton rating scores of depression

Subject	Suicidal attempters	Depressed patients	Normal controls
Score <sup>a</sup>	44.10 ± 11.47	51.86 ± 7.97	26.50 ± 5.17

a : Mean ± SD

**Table 5.** Barratt impulsiveness scale

Subject	Suicidal attempters	Depressed patients	Normal controls
Subscales			
Imp Nonp <sup>a</sup>	20.05 ± 2.87	17.43 ± 1.99	12.50 ± 3.03
Imp M <sup>b</sup>	18.38 ± 3.94	15.72 ± 3.15	12.70 ± 2.16
Imp C <sup>c</sup>	18.29 ± 3.08	15.86 ± 2.38	11.30 ± 1.70

a : nonplanning impulsiveness  
 b : motor impulsiveness  
 c : cognitive impulsiveness

**고 찰**

236.81  
 ± 100.02ng/ml, 218.05 ± 141.08ng/ml, 227.43  
 ± 114.05ng/ml, 227.57 ±  
 200.72ng/ml, 322.63 ± 163.48ng/ml, 303.30  
 ± 168.09ng/ml, 273.12 ±  
 164.14ng/ml, 271.06 ± 193.72ng/ml, 272.09 ±  
 160.56ng/ml 가 (F = 1.07, p =  
 0.33)( 2).

D  
 (t = 3.58, p < 0.01), Hs(t = 2.53, p < 0.05), Pt(t = 5.66, p < 0.01)  
 가 , D(t = 5.78, p < 0.01),  
 Pa(t = 5.20, p < 0.01), Si(t = 4.91, p < 0.01) 가  
 ( 3).

HAM - D 51.86 ± 7.97,  
 44.10 ± 11.47 26.50 ± 5.17  
 (F = 21.8, p < 0.01), 11 (52.4%)  
 (t = 2.36, p < 0.05)( 4). 36.1 ± 9.0

(t = 6.60, p < 0.01), (t = 5.17, p < 0.01), 가 4  
 (t = 8.10, p < 0.01), (Kaplan 1998 ; Tsuang 1992). Hales (1999)

(t = 4.50, p < 0.01).  
 (t = 3.19, p < 0.01) (t = 2.22, p < 0.05) ( 5). 가 .

Asberg (1976)  
 가 (Agren  
 1980 ; Brown 1982 ; Agren 1983 ; Banki 1984 ; Ni -  
 nan 1984 ; Roy 1986 ; Mann 1989 ; Virkkunen  
 1989 ; Mann Malone 1997).  
 Mann (1989) Nordstrom (1992)  
 5 - HIAA 가  
 5 - HT<sub>2</sub>  
 Nordstrom (1992)  
 5 - HIAA 가  
 Mann Malone(1997)  
 가 5 - HIAA  
 가 10 (47.6%), 가  
 가  
 가 3  
 가 4  
 (Kaplan 1998 ; Tsuang 1992). Hales (1999)

Robins 가 Kulbok(1988) 2 DSM - -R I  
 106 Verkes (1997) <sup>3</sup>H -  
 paroxetine 가 (state)  
 Hales (1999) 가 1  
 35 , 가 (trait)  
 60 Marazitti (1995)  
 Verkes (1998)  
 227.43 가  
 ± 114.05ng/ml, 303.30 ± 168.09ng/ml,  
 272.09 ± 160.56ng/ml ,  
 가  
 Mann (1992)  
 54 D'Ho -  
 ndt (1994) <sup>3</sup>H - imipramine  
<sup>3</sup>H - paroxetine <sup>3</sup>H - paroxetine  
 가  
 Muck - <sup>3</sup>H - paroxetine  
 Seler (1996)  
 가  
 Verkes (1996)  
 17 가  
 Alvarez (1999) 가  
 Meltzer Arora(1986) <sup>3</sup>H - imipra -  
 mine 가 가 가  
 Marazziti (1995) <sup>3</sup>H - imipramine 가  
 가  
 D, Hs, Pt 가 D, Pa, Si  
 가  
 17 Simonsson (1991) D Pt 가 가  
 5-HT<sub>2</sub> 가 (1996)  
 , 가  
 가 가  
 berstadt Duker(1965) 가 Gil -  
 가 -  
 가 가  
 가 (1996) 가

가 ,  
 가 Kelly King(1979)  
 가  
 HAM - D 51.86 ± 7.97,  
 44.10 ± 11.47 26.50 ± 5.17

HAM - D 가 (Kaplan Sadock 1988)  
 가 (Brodsky 1997 ; McKeown 1998 ; Nordstrom 1996)  
 3가 가  
 가  
 가  
 가  
 가  
 요 약  
 21 , 14 ,  
 10 ,

, HAM - D,  
 ,  
 1) 가  
 2)  
 가  
 3) D, Hs, Pt  
 가 , D, Pa, Si 가  
 4) HAM - D  
 ,  
 5)  
 ,  
 중심 단어 : . HAM - D .

**참고문헌**

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