

만성정신분열병 환자들에서 비정상적 불수의 운동과 혈당, 지질과의 상관관계*

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Correlations of Abnormal Involuntary Movements with Blood Glucose, Lipid Levels in Chronic Schizophrenics*

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ABSTRACT

Objects : It has been reported that the incidence of tardive dyskinesia(TD), the remarkable abnormal involuntary movement, was higher in the schizophrenics with high blood sugar levels and that TD had been improved by small amount of insulin - injection for 90 days. And also it was generally known that the blood lipids were higher in the schizophrenics with tardive dyskinesia. Thus, we tried to replicate the correlations of abnormal involuntary movements with blood sugar levels and blood lipids in chronic schizophrenics treated with antipsychotics.

Methods : Thirty - eight male schizophrenic inpatients who were stable in clinical state with medications, were included. The patients who had been already diagnosed as diabetes mellitus(DM), organic brain disorder, substance - related disorder, physical illness were excluded and also we excluded female patients to remove the hormonal effect on TD. Eleven patients who ranked higher(above five) in the Abnormal Involuntary Movement Scale(AIMS) were assigned into 2 groups, a diabinese group and a placebo group. Diabinese or placebos were administrated for 3 weeks with antipsychotics and AIMS was rechecked.

Results : There were no correlations between the total AIMS scores and blood sugar and lipids levels in all subjects. The means of total and subscale scores(objective, face, and extremity) of AIMS did not reveal statistical significances between diabinese and placebo groups. However(total, jaw, face, upper arm, and objective feeling), were statistically higher in the diabinese group than those in the placebo group. And correlations of total cholesterol(TC) with fast blood sugar(FBS), weight with body mass index(BMI) and waist, total glycerol (TG) with BMI were statistically significant.

Conclusion : In this study, there were statistical significances in the changes in ratings of AIMS scores between the diabinese group and the placebo group. Application of oral hypoglycemic agent might be a way of improving abnormal involuntary movements in schizophrenics with abnormal involuntary movements or TD.

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38 . 12

1 Diabinese® (chlorpropamide) 125mg(0.5T)/day (placebo)

AIMS Wisnal - Z® (protease) 0.5T/day 3

24 ‘ , 11

, AIMS 14 ‘ 3

AIMS 3

(, 7 , 21)

25 - 27)

4) 통 계

2. 연구방법

1) 인구통계학적 자료 수집

, diabinese

t - test , AIMS

Mann Whitney test Wil-

coxon W test

pearson 's correlation

0.05

2) 채혈, 혈액학적 검사

12

6

(Fasting Blood Sugar ; FBS), hemoglobin A₁C(HbA₁C), Blood Urea Nitrogen(BUN), Creatinine, AST, ALT, total cholesterol(TC). TG, blood glucose level at postprandial 2hours(PP2hr) Glucose, TC, TG , HbA₁C High performance liquid chromatography(HPLC)

결 과

1. 인구통계학적 특징

38 50.18 ± 9.13 ,

8 45 18.97 ± 9.16

17.89 ± 7.97

62.03 ± 8.16kg , (Body Mass Index ; BMI) 22.57 ± 2.62% . BMI가 25% 7

(18.42%) 165.74 ± 6.6cm,

83.16 ± 9.73 . Diabinese

3) 이상운동유무 측정 및 경구 혈당 강하제 투여

1986 National Institute of Mental Health(NIMH) Abnormal involuntary movement scale(AIMS)²²⁾

8

9

24 AIMS score 5

가²⁸⁾

16.63 ±

14.24mg ,

15.19 ± 15.18mg, 19.10 ±

12.62mg , Diabinese 26.75 ± 17.22

mg, Placebo 13.5 ± 20.52mg (1). 11.82mg/dl, PP2 118.00 ± 34.26mg/dl, 97.00 ± 21.99mg/dl (2).

2. 혈액학적 검사 결과

FBS 77.55 ± 10.46mg/dl, PP2hr 102.47 ± 23.88mg/dl, TC 152.66 ± 30.88mg/dl, TG 103.11 ± 44.00mg/dl, HbA1C 5.42 ± 0.27mg% . FBS, PP2hr, TC, TG(<200mg/dl)

2 (5.26%), HbA1c(, 4.5~5.7mg/dl) 8 (21.05%), BMI(<25%) 7 (18.42%) . Diabinese

TC(p=0.01) diabinese

21 FBS 86.33 ± 13.31mg/dl, 92.20 ±

3. 인구통계학적 자료와 혈액학적 검사결과의 상관관계

TC(r= - 0.338, P<0.05),

FBS(r= - 0.492, P<0.01)

FBS(r= - 0.492, P<0.05)

BMI(r=0.805, P<0.01),

(r=0.844, P<0.01)

. BMI (r=0.805, p<0.01), (r=0.748,

P<0.01), (r=0.645, P<0.01), TC(r=0.351,

P<0.05), TG(r=0.360, P<0.05)

. HbA1C FBS(r=0.350, P<0.05)

(r=0.322, p<0.05)

, TG (r= - 0.325,

Table 1. Demographic data(Total and difference between experimental and control group)

	Total(N=38)	Patients with diabinese administration(N=6)	Patients with placebo administration(N=5)	
	Mean ± Sd	Mean ± Sd	Mean ± Sd	Sig*
AGE(years)	50.18 ± 9.13	49.17 ± 9.26	43.60 ± 9.24	0.31
Duration of illness(years)	18.97 ± 9.16	16.83 ± 8.21	13.80 ± 4.60	0.52
Duration of medication(years)	17.89 ± 7.97	16.50 ± 8.50	13.80 ± 4.60	0.58
HEIGHT(cm)	165.74 ± 6.60	1.68 ± 0.04	1.65 ± 0.08	0.20
WEIGHT(kg)	62.03 ± 8.16	62.50 ± 7.23	61.20 ± 6.38	0.78
WAIST(cm)	83.16 ± 9.73	79.38 ± 10.78	84.40 ± 7.57	0.20
BMI(%) †	22.57 ± 2.62	22.24 ± 2.87	22.55 ± 2.05	0.58
Haloperidol dosage(mg)	16.63 ± 14.24	26.75 ± 17.22	13.5 ± 20.52	0.10

* : P <0.05(T-test)

† : BMI : Body mass index >25% ; 7(18.42%)

Table 2. Laboratory data(Total and difference between experimental and control group)

	Total (N=38)	Patients with diabinese administration(N=6)	Patients with placebo administration(N=5)	
	Mean ± Sd	Mean ± Sd	Mean ± Sd	Sig
FBS	77.55 ± 10.46	76.67 ± 9.20	82.00 ± 9.49	0.43
PP2	102.47 ± 23.88	100.83 ± 22.36	90.00 ± 12.67	0.25
TC*	152.66 ± 30.88	119.17 ± 33.55	173.80 ± 10.21	0.01
TG †	103.11 ± 44.00	75.17 ± 27.20	111.40 ± 32.49	0.13
HBA1C ‡	5.42 ± 0.27	5.40 ± 0.39	5.34 ± 0.11	0.93
FBS(21)	54.82 ± 43.03	86.33 ± 13.31	92.20 ± 11.82	0.43
PP2(21)	69.18 ± 56.59	118.00 ± 34.26	97.00 ± 21.99	0.43

* : P <0.05(T-test)

† : abnormal No ; 2(5.26%), ‡ : abnormal No ; 8(21.05%)

FBS : fasting blood sugar, PP2 : sugar level at postprandial 2 hours, TC : Total cholesterol, TG : Triglyceride, HBA1C : Hemoglobin A1C, FBS(21) : fasting blood sugar at 21th day, PP2(21) : sugar level at postprandial 2 hours at 21th day

p<0.05) , BMI(r=0.360, p<0.05)
(3).

(5).

4. 비정상적 운동성

1) AIMS 점수

38 AIMS 9.79±10.94
AIMS 7
(objective) , 1 4
(face) , 5 6
(extremity) , 4
Diabinese AIMS
1(facial expression) (p=0.01)
Diabinese 가 , dia-
7 , 21
Diabinese
(p=0.03)
7 21 (4).

3) Diabinese 및 위약 투여에 의한 AIMS 변화

Diabinese AIMS
7 21 22.17±8.93, 17.17
±8.73, 18.33±6.64, 19.00±
10.63, 18.80±10.99, 18.60±10.64
AIMS 7
3(jaw)
3 5(upper arm)
Diabinese objective, face, extremity
(p<0.05)
Diabinese objective
(p<0.05)
(6).

2) 혈액 검사자료와 Baseline AIMS Score 사이의 상관관계

AIMS
objective, extremity, face

고 찰

Table 3. Correlations of laboratory data and demographic data in total subjects

	WEIGHT	WAIST	HIP	FBS	PP2	TC	TG	HBA1C
AGE	-0.085	0.103	-0.052	-0.047	0.115	-0.027	0.251	-0.133
DOI	-0.192	-0.219	-0.272	-0.492 [†]	0.010	-0.338*	-0.299	-0.045
DOM	-0.155	-0.153	-0.246	-0.377*	-0.072	-0.318	-0.263	-0.018
HPDOS	0.156	-0.068	0.114	-0.021	0.011	-0.242	-0.325*	0.322*
ACDOS	0.012	-0.119	-0.121	-0.124	0.007	-0.211	-0.326*	-0.055
BMI	0.805 [†]	0.748 [†]	0.645 [†]	-0.077	0.188	0.351*	0.360*	-0.025
WEIGHT		0.708 [†]	0.844 [†]	0.050	0.283	0.340*	0.306	0.108
WAIST			0.698 [†]	0.145	0.179	0.346*	0.486 [†]	0.035
HIP				0.100	0.178	0.323*	0.325*	0.033
FBS					-0.007	0.205	0.193	0.350*
PP2						0.287	0.274	0.059
TC							0.460 [†]	-0.004
TG								-0.098

DOI : Duration of illness, DOM : Duration of medication, Prescript : Prescription of Anticholinergics , HP dose : Haloperidol dosage BMI : Body mess index, FBS : fasting blood sugar, PP2 : suger level at postprandial 2 hours, TC : Triglyceride, TG : Total glycerol, HBA1C : hemoglobin A
Pearson's correlation test(r), * : P<0.05, † : P<0.01

Table 4. Baseline AIMS score and comparison of diabinese and placebo administration group

	Total patient (N=36)	Patient with diabinese administration(N=6)	Patient with placebo administration(N=5)
	Mean \pm Sd	Mean \pm Sd	Mean \pm Sd
Baseline AIMS			
Total	9.79 \pm 10.94	22.17 \pm 8.93	19.00 \pm 10.65
item 1*	0.55 \pm 1.16	2.17 \pm 1.33	0.00 \pm 0.00
2	1.11 \pm 1.48	3.17 \pm 1.17	2.40 \pm 0.55
3	1.13 \pm 1.49	2.50 \pm 1.52	1.60 \pm 1.67
4	0.97 \pm 1.40	3.00 \pm 1.55	1.40 \pm 1.67
5	1.53 \pm 1.72	3.00 \pm 1.26	2.80 \pm 1.64
6	0.66 \pm 1.34	1.00 \pm 1.55	2.20 \pm 2.05
7	0.42 \pm 1.11	0.50 \pm 1.22	1.40 \pm 1.95
8	1.11 \pm 1.35	1.83 \pm 1.60	2.60 \pm 1.34
9	1.18 \pm 1.27	2.50 \pm 1.05	2.40 \pm 1.14
10	1.13 \pm 1.30	2.50 \pm 1.05	2.20 \pm 1.30
Objective	13.73 \pm 15.33	6.09 \pm 11.80	7.36 \pm 6.60
Face*	8.36 \pm 10.83	3.71 \pm 5.40	3.21 \pm 4.37
Extremity	4.45 \pm 4.00	2.00 \pm 5.00	3.46 \pm 2.66
7th day AIMS			
Total		19.17 \pm 8.73	18.80 \pm 10.99
item 1*		1.83 \pm 1.17	0.00 \pm 0.00
2		2.67 \pm 1.03	2.40 \pm 0.55
3		1.83 \pm 1.47	1.60 \pm 1.67
4		2.67 \pm 1.37	1.40 \pm 1.67
5		2.50 \pm 1.22	2.80 \pm 1.64
6		0.67 \pm 1.03	2.20 \pm 2.05
7		0.50 \pm 1.22	1.40 \pm 1.95
8		1.83 \pm 1.60	2.60 \pm 1.34
9		2.50 \pm 1.05	2.40 \pm 1.14
10		2.17 \pm 0.75	2.00 \pm 1.58
Objective		6.25 \pm 11.80	7.36 \pm 6.44
Face		3.74 \pm 5.40	3.21 \pm 3.83
Extremity		1.60 \pm 5.00	3.46 \pm 2.65
21th day AIMS			
Total		18.33 \pm 8.64	18.60 \pm 10.64
item 1*		1.83 \pm 1.17	0.00 \pm 0.00
2		2.67 \pm 1.03	2.40 \pm 0.55
3		1.67 \pm 1.37	1.60 \pm 1.67
4		2.50 \pm 1.38	1.40 \pm 1.67
5		2.33 \pm 1.21	2.80 \pm 1.64
6		0.50 \pm 0.84	2.20 \pm 2.05
7		0.50 \pm 1.22	1.20 \pm 1.64
8		1.83 \pm 1.60	2.60 \pm 1.34
9		2.33 \pm 1.03	2.40 \pm 1.14
10		2.17 \pm 0.75	2.00 \pm 1.58
Objective		6.07 \pm 11.60	7.02 \pm 6.18
Face		3.78 \pm 5.40	3.21 \pm 3.76
Extremity		1.33 \pm 5.00	3.46 \pm 2.64

* : Asymp. Significant(2-tailed) at Mann-Whitney U(<0.05)

AIMS : Abnormal involuntary movement scale, item 1 : facial express, item 2 : lip, perioral, item 3 : jaw, item 4 : tongue, item 5 : upper arm, item 6 : lower arm, item 7 : neck, shoulder, hip, item 8 : severity of abnormal movements overall, item 9 : Incapacitation due to abnormal movement, item 10 : Patient's awareness of abnormal movement, Objectives : Sums of AMIS 1 - 7, Face : Sums of AIMS 1 - 4, Extremity : Sums of AIMS 5 - 6

Table 5. Correlations of laboratory data with AIMS score

	FBS	PP2	TC	TG	HbA1C
AIMS Score					
Total	0.169	-0.041	-0.020	-0.114	-0.110
item 1	-0.073	0.122	-0.202	-0.151	-0.093
2	0.193	-0.016	-0.085	-0.099	-0.045
3	0.293	0.100	0.096	0.030	-0.079
4	-0.124	-0.116	-0.267	-0.295	-0.253
5	0.215	-0.090	-0.028	-0.082	-0.148
6	0.010	-0.060	0.056	-0.097	0.010
7	0.180	0.060	0.171	0.111	-0.017
8	0.195	-0.090	0.203	-0.057	-0.116
9	0.191	-0.056	-0.011	-0.144	-0.065
10	0.231	-0.149	-0.077	-0.119	-0.045
Objective	0.141	-0.009	-0.051	-0.113	-0.122
Face	0.103	0.023	-0.131	-0.153	-0.144
Extremity	0.144	-0.088	0.010	-0.102	-0.091

AIMS : Abnormal involuntary movement scale, item 1 : facial express, item 2 : lip, perioral, item 3 : jaw, item 4 : tongue, item 5 : upper arm, item 6 : lower arm, item 7 : neck, shoulder, hip, item 8 : severity of abnormal movements overall, item 9 : Incapacitation due to abnormal movement, item 10 : Patient's awareness of abnormal movement, Objectives : Sums of AMIS 1-7, Face : Sums of AIMS 1-4, Extremity : Sums of AIMS 5-6
 Pearson's correlation test (r), * : P<0.05, † : P<0.01

가
 15% 20%가
 28)
 ,
 2
 HbA1C
 (positive)
 (negative)
 AIMS score
 가
 AIMS score
 29-35)
 가
 23)24)
 TC TG가 AIMS
 가
 Susan 2)
 , Susan(1999) (glu-
 cose intolerance)가
 가
 , Gill-
 man Sandyk¹⁴⁾
 가
 가
 가
 13)
 2
 가
 가

TG, HDL, LDL

³⁸⁾

HbA_{1C} FBS, cholesterol,

24)38)

HbA_{1C}

중심 단어 :

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