Clinical Characteristics of Formal Thought Disorder in Schizophrenia

Hoseon Lee, MD[1] and Joonho Choi, MD, PhD[1]

[1]Department of Psychiatry, College of Medicine, Hanyang University, Guri Hospital, Guri, Republic of Korea

Objectives: Our study aimed to present the distinctive correlates of formal thought disorder in patients with schizophrenia, using the Clinical Language Disorder Rating Scale (CLANG)

Methods: We compared the formal thought disorder and other clinical characteristics between schizophrenia patients with (n = 82) and without (n = 80) formal thought disorder. Psychometric scales including the CLANG, Brief Psychiatric Rating Scale (BPRS), Young Mania Rating Scale (YMRS), Calgery Depression Scale for Schizophrenia (CDSS) and Word Fluency Test (WFT) were used.

Results: After adjusting the effects of age, sex and total scores on the BPRS, YMRS and WFT, the subjects with disorganized speech presented significantly higher score on the poverty of contents of abnormal syntax (F = 7.08, P = 0.01), lack of semantic association (F = 8.02, P =0.01), disclosure failure (F = 60.97, P < 0.001), pragmatics disorder (F = 11.94, P = 0.01), dysarthria (F = 13.61, P < 0.001), and paraphasic error (F = 8.25, P = 0.01) items than those without formal thought disorder. With defining the mentioned item scores as covariates, binary logistic regression model predicted that disclosure failure (adjusted odds ratio [aOR] = 5.88, P < 0.001) and pragmatics disorder (aOR = 2.17, P = 0.04) were distinctive correlates of formal thought disorder in patients with schizophrenia.

Table 1. Comparison of baseline variables and assessment scale scores in schizophrenia patients with and without disorganized speech

	Total sample (n=166)	Disorganized speech		Statistical coefficients	Unadjusted P value	Adjusted p value
		Present (n=84)	Absent (n=82)			
Age, mean (SD) years	46.7 (11.2)	49.7 (10.2)	43.8 (11.2)	=3.556	<0.0001	-
Male, n (%)	85 (51.2)	50 (59.5)	35 (42.7)	=4.710	0.030	-
Unmarried, n (%)	128 (79.0)	69 (85.2)	59 (72.8)	=3.722	0.054	0.342
Unemployed, n (%)	156 (95.1)	80 (96.4)	76 (93.8)	=0.578	0.447	0.446
Below high school graduate, n (%)	108 (73.0)	58 (79.5)	50 (66.7)	=3.066	0.080	0.869
Religious Affiliation, n (%)	99 (61.9)	50 (61.7)	49 (62.0)	=0.001	0.969	0.217
Hospital				=3.135	0.077	0.139
A	144 (86.7)	69 (82.1)	75 (91.5)			
B	22 (13.3)	15 (17.9)	7 (8.5)			
Age at onset, Mean(SD) years	25.0 (6.9)	24.8 (6.4)	25.5 (7.5)	=-0.575	0.567	0.073
Brief Psychiatric Rating Scale, mean (SD)	40.1 (!2.3)	47.4 (11.5)	32.7 (8.1)	=9.533	<0.0001	-
Young Mania Rating Scale, mean (SD)	7.3 (6.9)	10.7 (7.4)	3.9 (4.2)	=7.386	<0.0001	-
Calgary Depression scale, mean (SD)	1.8 (2.6)	1.5 (2.4)	2.0 (2.7)	=-1.022	0.308	0.0145
Word Fluency Test, mean (SD)	11.4 (6.0)	9.5 (5.7)	13.3 (5.7)	=-4.226	<0.0001	-
Chlorpromazine equivalent dose, mean (SD) mg	911.4 (952.5)	1057.9 (783.0)	777.3 (1,089.9)	=1.908	0.058	0.423

Table 2. Comparison of formal thought disorder item scores in schizophrenia patients with and without disorganized speech

	Total sample (n=166)	Disorganized speech		Statistical coefficients	Unadjusted P value	Adjusted p value*
		Present (n=84)	Absent (n=82)			
Excess phonetic association, mean (SD)	0.10(0.3)	0.19(0.5)	0.01(0.1)	t=3.140	<0.0001	0.002
Abnormal syntax, mean (SD)	0.52(0.8)	0.99(1.0)	0.07(0.2)	t=7.762	<0.0001	<0.0001
Excess syntactic constraints, mean (SD)	0.32(0.6)	1.31(1.2)	0.17(0.4)	t=-0.327	0.562	0.744
Lack of semantic association, mean (SD)	0.71(1.0)	1.31(0.7)	1.23(0.4)	t=7.786	<0.0001	<0.0001
Referential failures, mean (SD)	0.12(0.4)	0.20(0.0)	0.04(0.1)	t=2.206	<0.0001	0.029
Disclosure failures, mean (SD)	0.99(1.0)	1.76(0.9)	0.22(0.5)	t=13.034	<0.0001	<0.0001
Excess details, mean (SD)	0.63(0.8)	0.94(0.9)	0.34(0.5)	t=5.066	0.001	<0.0001
Lack of details, mean (SD)	0.98(1.0)	1.37(1.0)	0.62(0.8)	t=4.985	0.001	<0.0001
Aprosodic speech, mean (SD)	0.58(0.8)	0.67(0.8)	0.49(0.8)	t=1.288	0.369	0.199
Abnormal prosody, mean (SD)	0.17(0.5)	0.30(0.7)	0.04(0.2)	t=3.160	<0.0001	0.002
Pragmatics disorder, mean (SD)	0.45(0.8)	0.77(0.9)	0.13(0.4)	t=5.436	<0.0001	<0.0001
Dysfluency, mean (SD)	0.39(0.6)	0.55(0.7)	0.23(0.5)	t=3.084	<0.0001	0.002
Dysarthria, mean (SD)	0.60(0.9)	1.04(1.0)	0.20(0.5)	t=6.284	<0.0001	<0.0001
Poverty of speech, mean (SD)	0.87(1.0)	1.01(1.1)	0.74(0.9)	t=1.585	0.056	0.115
Pressure of speech, mean (SD)	0.36(0.6)	0.51(0.7)	0.21(0.5)	t=2.912	<0.0001	0.004
Neologisms, mean (SD)	0.12(0.4)	0.23(0.6)	0.02(0.1)	t=2.750	<0.0001	0.007
Paraphasic error, mean (SD)	0.27(0.7)	0.45(0.8)	0.07(0.3)	t=3.627	<0.0001	<0.0001

Table 3. Binary logistic regression analysis to identify predictors of presence of disorganized speech

	B	SE	Wald	Adjustment p-value*	Adjustment p-val	OR*	95% CI
Disclosure failures	1.771	0.391	20.521	<0.0001	5.879		2.732 - 12.651
Pragmatics disorder	0.773	0.371	4.345	0.037	2.166		1.047 - 4.479

*: adjusted for the effects of age, gender, and total scores on the Brief Psychiatric Rating Scale, Young Mania Rating Scale, and Word Fluency Test

Discussion: Disclosure failure and pragmatics disorder might be used as the distinctive indexes for formal thought disorder in patients with schizophrenia.