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SERUM LEVELS OF BRAIN-DERIVED NEUROTROPHIC FACTOR (BDNF) AND NEUROTROPHIN-3 (NT-3) AND COGNITIVE PERFORMANCE IN SUBJECTS WITH SCHIZOPHRENIA

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Introduction: BDNF and NT-3 may participate in neurodevelopment abnormalities. It is not clear if BDNF/NT-3 levels differ between schizophrenic and healthy individuals. Cognitive dysfunctions form the core of schizophrenia and may result from neurodevelopmental abnormalities.

Objectives: Assessment of BDNF and NT-3 serum levels and cognitive performance in schizophrenia.

Methods: Study groups: 33 schizophrenic in-patients and 27 healthy subjects. Clinical symptoms: PANSS, HDRS, CDSS. Cognitive performance: Verbal Fluency Test (VFT), Color Word Interference Test (CWIT), Trail Making Test (TMT), Digit Symbol Substitution (DSYM), Luria Memory Words (LMW). BDNF and NT-3 levels were assessed using ELISA method.

Results: PANSS, CDSS, HDRS scores (mean±SD): 49.2±16.2, 4.3±4.4, 10.1±7.6. Table 1 shows BDNF and NT-3 levels. Table 2 shows cognitive performance. Inter-variables correlations were found: BDNF-CDSS ($r=-0.40, p=0.03$) BDNF-HDRS ($r=-0.51, p=0.003$), NT-3-CWIT1 ($r=0.32, p=0.01$), NT-3-TMTA ($r=0.36, p<0.01$), NT-3-LMW30 ($r=-0.33, p=0.01$).

	Schizophrenia (n=33, W/M 10/23, age 35.7±13.4)	Control (n=27, W/M 17/10, age 36.1±9.4)	p
BDNF [ng/ml]	21.30±5.67	20.55±5.81	0.621
NT-3 [pg/ml]	114.78±261.78 (14.15)	36.47±73.84 (13.80)	0.703

[BDNF (mean±SD) and NT-3 (mean±SD (median)) levels]

Test	Schizophrenia	Control	p
VFT Category 1/2/3 [words]	17.4±6.1 / 8.0±3.2 / 13.8±4.9	24.1±6.6 / 12.8±4.5 / 19.1±5.4	<0.001
CWIT Test 1/2 [seconds]	28.8±10.7 / 82.0±33.9	21.3±3.0 / 51.8±14.5	<0.001
TMT A/B [seconds]	47.8±29.4 / 120.0±65.6	25.1±9.1 / 61.1±31.7	<0.001
DSYM [symbols]	38.4±12.2	61.4±10.2	<0.001
LMW Trial 1st/Trial 10th/After 30 minutes [words]	4.8±1.4 / 8.6±1.3 / 7.1±1.9	6.1±1.1 / 9.8±0.4 / 9.1±1.0	<0.001

[Cognitive performance (mean±SD)]

Conclusions: There were no differences in BDNF or NT-3 levels between groups. Schizophrenic patients had lower cognitive performance. An association between BDNF and depressive symptoms was confirmed.