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COGNITIVE SYMPTOMES ASSOCIATED WITH ANTIPSYCHOTIC COURSE EXPERIENCE IN RESIDUAL SCHIZOPHRENIA

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Abstract

Urgency. The cognitive symptoms of schizophrenia are recognized either as a part of a negative complex of symptomatic, where cognitive malfunction seem to be the secondary complication of emotional and motivational dysregulation; or as a separate group of schizophrenia manifestations that constitutes a massive part of a residual condition. **Aim** – to evaluate the cognitive functioning and analyze its violation levels in association with antipsychotic course experience in patients with residual schizophrenia. **Materials and methods**. A study was performed on 100 patients of Zaporozhye Regional Clinical Psychiatric Hospital who were treated as inpatients with diagnosis of recurrent schizophrenia (ICD-10:F20.5). The methods used: anamnestic psychodiagnostics and statistical. As a main psychodiagnostics tool we used “Brief Assessment of Cognition in Schizophrenia”. **Results.** The assessment of cognitive functions was established by direct testing in clinical setting. Education in years varied from 9 to 16, mean 11,27±2,12 in the population under study. The basic level of cognitive impairment was established: verbal memory test result was 31,6±11,6; digit sequencing test result was 13,4±5,7; token motor task test result was 40,1±18,3; verbal fluency test result was 41,2±10,7; symbol coding test result was 30,6±13,1; tower of london test result was 12,2±4,5. Some correlations were found: for chlorpromazine we can assume minor negative impact on token motor task (r= -0,22) and verbal fluency test (r= -0,27)

results; for haloperidol we can assume more pronounced but still minor impact on token motor task (r= -0,22), verbal fluency test (r= -0,27), verbal memory test (r= -0,28) and tower of London test (r= -0,20) results; for trifluoperazine we can see minor negative impact on verbal fluency test (r= -0,26); for clozapine we can't find any representative correlations with cognitive tests; chlorprothixene as we can assume have minor negative impact on verbal memory test (r= -0,32) result, but minor positive – on tower of London test (r= 0,21) result; for risperidone also assume minor positive impact on sequence coding test (r= 0,25), but other tests in battery show no significant correlations; for zuclopenthixol we can assume minor negative impact on token motor task (r= -0,22) and verbal fluency test (r= -0,31) results. **Conclusion**. The study on cognitive functioning and its violation levels in association with antipsychotic course experience in patients with residual schizophrenia was performed. Some perspective correlations for cognitive functions testing results and antipsychotic course experience were found token motor test and verbal fluency test results could possibly be minorly negatively influenced by chlorpromazine, haloperidol and zuclopenthixol systematic intake experience, while risperidone and chlorprotexine systematic intake experience could possibly have minor positive impact on sequence coding and tower of London tests results. There were no strong correlations found and no correlation tests with organic brain impairment factors were done yet.

Key words: cognitive function; organic brain impairment; residual schizophrenia.

Urgency. The cognitive symptoms of schizophrenia are one of the controversial concepts which recognized in dualistic manner: as a part of a negative complex of symptomatic, where cognitive malfunction seem to be the secondary complication of emotional and motivational dysregulation; or as a separate group of schizophrenia manifestations that constitutes a massive part of a residual condition. Common diagnostic tools used for schizophrenia symptoms evaluation are rarely focused on cognitive symptoms even as a part of negative manifestations which could be explained by their low impact on a clinical condition, thus data on cognitive impairment in schizophrenia needs more than case history analysis to collect [1-3, 6].

Besides the direct ruination caused by mechanisms standing behind schizophrenia progression, cognitive impairment could be caused by additional organic comorbidities both causal and specific for schizophrenia, such as antipsychotic systematic use, low potential of

early involvement into preventive treatment programs, abnormal lifestyle, eating habits, physical activity level and various behavioral risks [1, 8, 9].

Factor that has protentional major impact on cognitive functioning in residual schizophrenia is the side effects and long-term negative consequences of antipsychotic therapy as psychomotor violations, there are signals of its amplifying effect on schizophrenia cognitive symptoms what conceptualized in "Neuroleptic-induced deficit syndrome" (NIDS) [1, 4, 9].

In previous studies basing on an archive clinical data analysis, we have introduced the concept of "Antipsychotic course experience" (ACE), which represents systematic prescription of specific antipsychotic (or specific combination of several antipsychotics) during single inpatient treatment cycle (in average from 3 to 6 weeks) which resulted in positive clinical effect and become acceptable stereotype of further treatment [9].

Aim – to evaluate the cognitive functioning and analyze its violation levels in association with antipsychotic course experience in patients with residual schizophrenia.

Materials and methods. A study was performed on 100 patients of Zaporozhye Regional Clinical Psychiatric Hospital who were treated as inpatients with diagnosis of recurrent schizophrenia (ICD-10:F20.5). Gender distribution is 43 (71,7%) male and 17 (28,4%) females. Mean age is 55,0±13,1 year, mean disease experience is 31,2±13,1 year, mean clinical manifestation age is 22,1±6,9 years.

The methods of a study were: anamnestic (clinical and anamnestic data analysis) psychodiagnostics (psychometric) and statistical. As a main psychodiagnostics tool we used "Brief Assessment of Cognition in Schizophrenia" (BACS) [5, 7].

Results. By medical anamnesis data analysis the dynamic characteristics of schizophrenic process were established: simple form (ICD-10:F20.6) was prior to recurrent in 7% of cases, paranoid form (ICD-10:F20.0) was prior to recurrent in 67% of cases, catatonic form (ICD-10:F20.2) was prior to recurrent in 19% of cases, hebephrenic form (ICD-10:F20.1) was prior to recurrent in 7% of cases. Constantly progressive dynamic type of schizophrenia progression was observed in 58% of cases, paroxysmal-progressive dynamic type – in 27% of cases, paroxysmal dynamic type – in 15% of cases. Full ("type A") remissions were consistent in 11% of cases; partial ("type B") remissions were consistent in 39% of cases; minor ("type C") remissions were consistent in 50% of cases. 2 or more annual hospitalizations rate were observed in 20% of cases; 1 annual hospitalization rate was observed in 24% of cases; less than 1 annual hospitalization rate was observed in 56% of cases.

The analysis of Antipsychotic course experience was based on criteria of systematic prescription of specific antipsychotic during single inpatient treatment cycle (in average from 3 to 6 weeks) which resulted in positive clinical effect and become acceptable stereotype of further treatment and showed following data: chlorpromazine (CHZ) – 91% of cases; haloperidol (HPD) – 74% of cases, trifluoperazine – (TFP) 53%, clozapine (CZP) – 49% of cases; chlorprothixene (CPX) – 47% of cases; risperidone (RPD) – 38% of cases, zuclopenthixol (ZPX) – 36% of cases. Other antipsychotics were prescribed in various combinations which is hard to systematize in limited study design. In current study we measured ACE in years of average systematic prescription which are showed in table 1.

Table 1

ACE in years of systematic prescription

ACE	Mean	SD
Chlorpromazine (CPZ)	14,2	6,7
Haloperidol (HPD)	9,4	4,4
Trifluoperazine (TFP)	9,8	6,2
Clozapine (CZP)	8,6	3,5
Chlorprothixene (CPX)	9,4	4,9
Risperidone (RPD)	7,6	2,5
Zuclopenthixol (ZPX)	11,2	7,2

The assessment of cognitive functions was established by direct testing in clinical setting. Education in years varied from 9 to 16 with mean 11,27±2,12 in study population. Results presented in table 2.

Table 2.

The assessment of cognitive functions with BACS raw results

Function	Mean	SD
Verbal memory (VM)	31,6	11,6
Digit sequencing (DS)	13,4	5,7
Token motor task (TMT)	40,1	18,3
Verbal fluency (VF)	41,2	10,7
Symbol coding (SC)	30,6	13,1
Tower of London (TL)	12,2	4,5

To find out the relations between cognitive functioning, ACE, and organic brain impairment we performed correlation analysis. Results showed in table 3.

Table 3.

ACE and BACS results correlations in study population

ACE in years	VM	DS	TMT	VF	SC	TL
Chlorpromazine (CPZ)	-0,12	0,02	-0,22	-0,27	0,01	-0,12
Haloperidol (HPD)	-0,28	-0,15	-0,32	-0,38	-0,14	-0,20
Trifluoperazine (TFP)	-0,09	0,01	-0,17	-0,26	-0,16	0,05
Clozapine (CZP)	0,05	-0,01	-0,12	-0,15	-0,06	-0,10
Chlorprothixene (CPX)	-0,32	-0,18	0,08	0,01	0,02	0,21
Risperidone (RPD)	0,01	0,10	0,12	0,01	0,25	0,11
Zuclopenthixol (ZPX)	-0,18	0,10	-0,22	-0,31	0,06	-0,18

Some perspective correlations were found: for chlorpromazine we can assume minor negative impact on token motor task (r= -0,22) and verbal fluency test (r= -0,27) results; for haloperidol we can assume more pronounced but still minor impact on token motor task (r= -0,22), verbal fluency test (r= -0,27), verbal memory test (r= -0,28) and tower of London test (r= -0,20) results; for trifluoperazine we can see minor negative impact on verbal fluency test (r= -0,26); for clozapine we can't find any representative correlations with cognitive tests; chlorprothixene as we can assume have minor negative impact on verbal memory test (r= -0,32) result, but minor positive – on tower of London test (r= 0,21) result; for risperidone also assume minor positive impact on sequence coding test (r= 0,25), but other tests in battery show no significant correlations; for zuclopenthixol we can assume minor negative impact on token motor task (r= -0,22) and verbal fluency test (r= -0,31) results.

It should be mentioned that there were no strong correlations found while there are massive side factors that can influence exact correlation values as organic brain impairment, endocrine status, features of schizophrenic process etc. Still the direction of correlations found fits the theoretical data on NIDS – conventional antipsychotics showed more negative correlations with cognitive testing results, specifically in motor functions tests, while for atypical antipsychotics we cant find similar correlations but in one case – with risperidone and tower of London we found minor positive correlation.

Conclusions. The study on cognitive functioning and its violation levels in association with antipsychotic course experience in patients with residual schizophrenia was performed. The basic level of cognitive impairment was established: verbal memory test result was 31,6±11,6; digit sequencing test result was 13,4±5,7; token motor task test result was 40,1±18,3; verbal fluency test result was 41,2±10,7; symbol coding test result was 30,6±13,1; tower of london test result was 12,2±4,5.

Some perspective correlations for cognitive functions testing results and antipsychotic course experience were found token motor test and verbal fluency test results could possibly be minorly negatively influenced by chlorpromazine, haloperidol and zuclopenthixol systematic intake experience, while risperidone and chlorprotexine systematic intake experience could possibly have minor positive impact on sequence coding and tower of London tests results.

It should be mentioned that there were no strong correlations found and no correlation tests with organic brain impairment factors were done yet.

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