Psychiatria Danubina, 2011; Vol. 23, Suppl. 1, pp 155–157 *Conference paper*
© Medicinska naklada - Zagreb, Croatia

NEUROCOGNITIVE FUNCTIONING IN DRUG-NAIVE PATIENTS WITH FIRST EPISODE OF PSYCHOSIS BEFORE AND AFTER TREATMENT

Yuliya Zaytseva, Isaac Gurovich, Gayane Sarkisyan & Vagan Sarkisyan

Moscow Research Institute of Psychiatry, Russia

SUMMARY

Cognitive deficit is a core feature of schizophrenia mostly grasping memory, psychomotor processing, attention, thinking, and executive functioning and is already present in the prodromal phase of the illness and is detected at the onset. Recent studies have been focused on the differentiation of cognitive functioning in relation to the diagnostic categories, which reveal cognitive heterogeneity in schizophrenia and schizophrenia spectrum disorders. The study demonstrated that along with changes in the clinical state, specifically, with reduction of psychopathological symptoms, patients with schizoaffective disorders show more positive dynamics with better chances to back up while in schizophrenia the cognitive dysfunction is more defoned and less prone to improvement.

Key words: *first episode of psychosis - schizophrenia and schizoaffective disorder - neurocognitive functioning - drug-naive patients*

* * * * *

INTRODUCTION

Neurocognitive deficits detected in the majority of schizophrenia patients are verified by structural and functional changes in the brain (Rund et al. 2004, Keefe 2008). Most of the researchers underlined a variety of diffuse and quite prominent neurocognitive dysfunctions in schizophrenia, which suggests a "generalized deficit" (Andreasen et al. 1999, Blanchard 1994). However, several authors point out that together with the generalized deficit of cognitive functions there is "a selective deficit" such as specific memory dysfunction and lack of executive functioning (Braw et al. 2007, Hoff et al. 1992; Hutton et al. 1998).

Recent research appeared to be more differentiated and is focused on the studying of neurocognitive functions in patients within various diagnostic categories (Harrow et al. 2000, Joyce et al. 2005), the courses of schizophrenia (Braw et al. 2007), which demonstrate cognitive heterogeneity in schizophrenia spectrum disorders. However, the number of studies of neurocognitive functioning in schizoaffective disorder is extremely limited.

The results of studies conducted over the last decade justify schizoaffective disorder in the intermediate position between schizophrenia and affective disorders (Gooding et al. 2002) due to the instability of emotional regulation the authors propose to treat schizoaffective psychosis as a "hybrid" similar to schizophrenia and affective disorders. However, to date almost all researchers share the view that the level and the general contour of cognitive impairment in patients with schizoaffective disorder is closer to schizophrenia than to affective disorders (Evans et al. 1999). On the other hand, it is necessary to mention that these neuropsychological studies of patients with schizophrenia and schizoaffective disorder within each of these diagnostic categories are heterogeneous due to a wide spectrum of schizophrenic disorders and different approaches in the their diagnosis.

The aim of our study was to evaluate neurocognitive functioning in first episode patients with paranoid schizophrenia and schizoaffective disorder from the perspective of the leading psychopathological syndrome (paranoid syndrome in paranoid schizophrenia and affective-delusional syndrome in schizoaffective disorder) upon the first admissions to the psychiatric services and after comprehensive treatment. Inclusion of drug naive psychotic patients is proved to be valuable as these patients are not biased with the effect of pharmacological treatment on cognition and furthermore their cognitive functioning is not affected by the course of illness.

METHODS

Comparative analysis of neurocognitive functioning of patients with first episode of schizophrenia and first episode schizoaffective disorder was performed within the framework of a complex investigation of neurophysiological and neuropsychological parameters. 16 patients experiencing a first episode of paranoid schizophrenia (group 1, female-31.3%, mean age=25.83±6.27) and 16 patients with schizoaffective disorder (group 2, female-37.5%, mean age=31.41±3.26) were included in the study. Diagnoses were ascertained according to ICD-10 criteria. All patients underwent neuropsychological testing based on Luria`s systematic approach (Luria 1966). The Luria diagnostic test consist of numerous procedures designed to demonstrate specific dysfunctions of memory, attention, motor functions, gnosis, spatial functions, neurodynamics and executive functioning. Cognitive functions were evaluated according to 0-3 rating scale, where 0 is no deficit, 3-

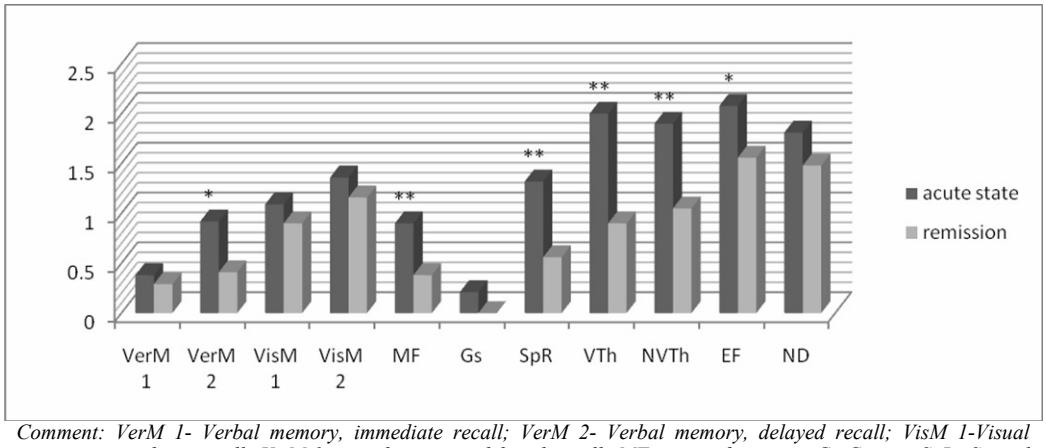
marked deficit. Psychopathological symptoms were rated on the Positive and Negative Symptoms Scale (PANSS; Kay et al. 1987). Assessment was done twice in acute state and in 2 months in remission.

All patients were offered treatment in Early Intervention Centre (a division of the Moscow Research Institute of Psychiatry) and were drug naive at admission and later on were receiving monotherapy with atypical antipsychotics. Controlling for age, gender and education, multivariate analyses of variance were used to compare mean performance levels of neurocognitive tests.

RESULTS

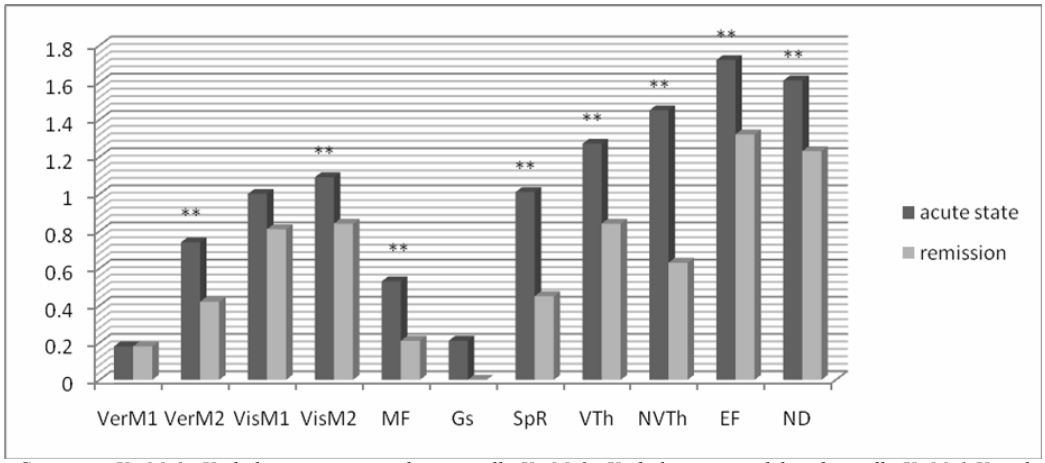
The schizophrenia patients manifested more severe negative and positive PANSS scores than patients with schizoaffective disorder (p=0.03). Patients did not differ significantly in their average chlorpromazine equivalent (CPZ) daily dosage.

Patients of both groups demonstrated generalised deficit in all cognitive domains during the acute state with more prominent impairment of the verbal memory ($p \leq 0.05$) and executive functioning ($p \leq 0.05$) in schizophrenia patients while patients with schizo-affective disorder showed considerable deficit of spatial functions ($p \leq 0.001$). In remission, an overall multivariate analysis (MANOVA) indicated significant differences in performance in most tests among groups (F=13.71, df=29, df=11, p=0.00031). In patients with schizoaffective disorder the significant improvement was found in verbal and visual memory, gnosis, spatial motor skills, verbal and non-verbal thinking, attention, neurodynamics and executive functioning whereas in patients with schizophrenia the deficits remained marked in verbal memory, verbal thinking and executive functioning, thus other functions (gnosis, motor functions, non-verbal thinking) improved but to a lesser extent than in the schizoaffective group (Figure1, Figure 2).



*Comment: VerM 1- Verbal memory, immediate recall; VerM 2- Verbal memory, delayed recall; VisM 1-Visual memory, immediate recall; VisM 2- visual memory, delayed recall; MF- motor functions; Gs-Gnosis; SpR- Spatial functions; VTh- Verbal thinking; NVTh-Non-Verbal Thinking; EF-Executive functioning; ND- Neurodynamics. **- p≤0.05 according to Mann-U criteria*

Figure 1. Dynamics of neurocognitive functioning in patients with paranoid schizophrenia at the onset and in remission.



*Comment: VerM 1- Verbal memory, immediate recall; VerM 2- Verbal memory, delayed recall; VisM 1-Visual memory, immediate recall; VisM 2- visual memory, delayed recall; MF- motor functions; Gs-Gnosis; SpR- Spatial functions; VTh- Verbal thinking; NVTh-Non-Verbal Thinking; EF-Executive functioning; ND- Neurodynamics. **- p≤0.05 according to Mann-U criteria.*

Figure 2. Dynamics of neurocognitive functioning in patients with schizoaffective disorder at the onset and in remission

DISCUSSION

The study demonstrated that despite the multiple abnormalities observed in schizoaffective disorder and schizophrenia, it is impossible to acknowledge just the diffuse cognitive deficits. All neurocognitive dysfunctions can be grouped into syndromes, based on the dysfunction of certain cognitive domains: executing functioning and neurodynamics, as well as verbal and visual memory in both groups with a greater representation of the right hemisphere disturbances in schizoaffective disorder, and more left-hemispheric dysfunction in schizophrenia. Along with the improvement of clinical status in both groups of patients cognitive functions are improving. Thus, in schizoaffective disorder the greater improvement of all cognitive functions occur, while in schizophrenia cognitive deficits are more prominent and more delineated in verbal memory, verbal thinking, executing functioning that indicates the decreased function of left temporal area and prefrontal areas and correspond with the imaging studies which postulated the significant decrease in gray matter volume in these areas in patients with schizophrenia (van Haren et al. 2008).

CONCLUSION

A differentiated assessment of neuropsychological functions in addition to general changes demonstrated the significant differences in cognitive impairment in paranoid schizophrenia and schizoaffective disorder. Such an approach in studying of brain mechanisms in regard to clinical characteristics of the initial psychosis and at the different stages of the disease may contribute to the understanding of the pathogenic mechanisms of schizophrenia and schizophrenia spectrum disorders as well as facilitate more differentiated psychosocial interventions.

REFERENCES

1. *Andreasen N, Nopoulos P, O`Leary DS, et al: Defining the phenotype of schizophrenia: cognitive dysmetria and its neural mechanisms. Biological Psychiatry. 1999; 46 (7): 908-920.*
2. *Blanchard JJ, Neale JM: The neuropsychological signature of schizophrenia: Generalized or differential deficit? American Journal of Psychiatry. 1994; 151 (1): 40-48.*
3. *Braw Y, Bloch Y, Mendelovich S, et al: Cognition in young schizophrenia outpatients: comparison of first-episode with multiepisode patients. Schizophr Bull. 2007; 10: 1093-1098.*
4. *Evans JD, Heaton RK, Paulsen JS: Schizoaffective disorder: a form of schizophrenia or affective disorder? Journal of Clinical Psychiatry. 1999; 60: 874-882.*
5. *Gooding DC, Tallent KA: Spatial working memory performance in patients with schizoaffective psychosis versus schizophrenia: a tale of two disorders? Schizophrenia Research: 2002; 53: 209-218.*
6. *Harrow M, Grossman LS, Herbener E, et al: Ten years outcome: patients with schizoaffective disorders, schizophrenia, affective disorders and mood-incongruent psychiatric symptoms. Br. J. Psychiatry. 2000; 177: P. 421-426.*
7. *Hoff A, Riordan H, O`Donnel DW, et al: Neuropsychological function of first episode schizophreniform patients. Am. J. Psychiatry: 1992; 149: P. 898-903.*
8. *Hutton SB, Crawford TJ, Puri BK, et al: Smooth pursuit and saccadic abnormalities in first-episode schizophrenia. Psychol. Med: 1998; 28 (3): 685-692.*
9. *Joyce EM, Hutton SB, Mutsatsa H: Cognitive heterogeneity in first episode schizophrenia. Br. J. Psychiatry: 2005; 187: 516-522.*
10. *Kay SR, Fiszbein A, Opler LA: The Positive and Negative Symptom Scale (PANSS) for schizophrenia. Schizophr Bull: 1987; 13: 261-276.*
11. *Keefe R.S.E: Should cognitive impairment be included in the diagnostic criteria for schizophrenia? World Psychiatry: 2008; 7: 22-28.*
12. *Riley EME, McGovern D, Mocker D, et al: Neuropsychological functioning in first episode psychosis -evidence of specific deficit. Schizophrenia Research: 2000; 43: 47-55.*
13. *Rund BR, Melle I, Friis S, Larsen TK, et al: Neurocognitive dysfunction in first-episode psychosis: correlates with symptoms, premorbid adjustment, and duration of untreated psychosis. Am J Psychiatry: 2004; 161: 466-472.*
14. *van Haren NE, Cahn W, Hulsshoff Pol HE: Schizophrenia as a progressive brain disease. Europ Psych: 2008; 12:7 2-80.*

Correspondence:
Yuliya Zaytseva
Moscow Research Institute of Psychiatry, Russia
E-mail: zayuliya@gmail.com