Psychiatria Danubina, 2012; Vol. 24, Suppl. 1, pp 172–175 *Conference paper*

RECOVERY IN SCHIZOPHRENIA: FOCUS ON NEUROCOGNITIVE FUNCTIONING

Yuliya Zaytseva, Isaac Ya Gurovich, Etel Goland & Yaina A. Storozhakova

Moscow Research Institute of Psychiatry, Moscow, Russian Federation

SUMMARY

Recovery encompasses symptom remission and functional elements such as cognition, social functioning and quality of life. Personal recovery is also important in illness management to help the person stay on track with treatment and focus on activities unrelated to taking medication that maintain mental health. In the present study we aimed to identify neurocognitive functioning in two clinically stable groups of patients with personal recovery and non-recovered patients. The results showered generalized cognitive deficits in both groups while the non-recovery group was more impaired in verbal and visual memory, acoustic and tactile gnosis and neurodynamics and executing functioning. Interestingly the recovery group demonstrated lack of programming of actions and sufficient error monitoring and self-correction whereas the non-recovery group was significantly more impaired in all executive domains. The obtained results could be beneficial in identifying a target for psychosocial treatments and specifically cognitive remediation for patients with schizophrenia to facilitate the process of recovery.

Key words: *recovery - schizophrenia and schizophrenia spectrum disorders - neurocognitive functioning*

* * * * *

INTRODUCTION

Since the time of Kraepelin, schizophrenia has been considered a chronic illness with an almost inevitably deteriorating course. Even though the heterogeneity of outcomes in schizophrenia has been acknowledged (Bleuler 1950), unfavourable outcomes confounded the prognosis with the diagnosis (McGorry 1992).

As a result recovery from schizophrenia has been considered rare or even impossible (Warner 1985). However, a number of epidemiological longitudinal outcome studies with large numbers of patients, have reported symptomatic and social recovery from schizophrenia after many years of illness (Ciompi et al. 1980, Harding et al. 1987, Harrison et al. 2001, Huber et al. 1980, Ogawa et al. 1998). An optimistic view of the course of illness emanating from the recovery movement emphasizes recovery as a process of developing a meaningful life beyond illness (Mental Health 1999).

Recently several models have been established which define recovery from either clinical or psychological perspectives. Thus, clinical recovery is repeatedly associated with symptomatic and functional remission (Slade et al. 2009). Another type of recovery, known as illness management (Gingerich et al. 2005) derives from general management of chronic illnesses such as hypertension, diabetes, and HIV disease. The third type of recovery, personal recovery (Slade et al. 2009), involves functioning at one's best despite ongoing symptoms of illness. Anthony (1993) defines such a type of recovery as 'the development of new meaning and purpose as one grows beyond the catastrophe of mental illness'.

Many studies have been focused on the predictors of recovery in schizophrenia reporting stable social life and normal social functioning (Albert et al. 2011), high premorbid social adaptation (Bobes et al. 2009), shorter duration of untreated psychosis (Faber et al. 2011) and several neurocognitive tests, especially tests measuring speed of processing (Faber et al. 2011). At the same time there might be other factors which facilitate recovery in schizophrenia. Although, cognitive symptoms are rarely eliminated when present at the onset of illness, they have been found to correlate and predict better social learning, social problem solving, and acquisition of social skills in schizophrenia (Green, 1996). Kapelowicz et al (2005) showed several domains of executive functioning to be associated with recovery, however they rather predicted clinical recovery then personal one.

The aim of our study was to evaluate neurocognitive functioning in remitted patients with chronic schizophrenia and schizophrenia spectrum disorders who experienced personal recovery and compare it to the neurocgnitive functioning of non-recovered group.

METHODS

All participants have been under continuous observation in Moscow Research Institute of Psychiatry for more than 5 years. We classified patients as being recovered (n=24) if they had a stable remission of both negative and psychotic symptoms during the last 2 years, had not been hospitalized during the last 2 years, had a GAF score of over 60, had a job or were studying and possessed the features of personal recovery, demonstrating specifically the development of new meaning and purpose in life, hopefulness, identification of personal goals and re-establishing identity. Non-recovered patients (n=24) matched by demographical

Table 1. Basic characteristics of recovered and non-recovered patients

Parameters	Recovery (n=24)	Non-recovery (n=24)	Statistics		
			test	df	*p* value
Gender (female)	41.6%	41.6%	Z=0.207		0.83
Age	34.43±9.49	33.81±9.46	t=0.186	30	0.853
YOE	13.25±1.87	13.25±1.94	t=0.000	30	1.000
PANSS positive	10.8±3.2	12.2±2.9	t=0.361	30	0.781
PANSS negative	12.4±3.8	13.6±3.2	t=1.326	30	0.245
PANSS general	21.8±4.6	22.4±5.6	t=0.853	30	0.245
Years of illness	16.5±10.36	16.5±10.36	t=0.000	30	1.000
Living alone	20.83%	4.16%	Z=1.147		0.15
GAF	72.25±11.50	60.62±9.72	t=0.431	30	0.669

Table 2. Neurocognitive functioning in recovered and non-recovered groups

Cognitive tests	Recovery (n=24)	Non-Recovery (n=24)	Mann-Whitney test	
			Z scores	P
Verbal memory	0.72±0.61	1.50±0.69	-3.287	0.001 **
Visual memory	1.37±0.64	1.90±0.79	-2.185	0.028 **
Kinesthetical praxis	0.65±0.81	0.81±0.79	-0.778	0.436
Kinetical praxis	1.25±0.67	1.47±0.54	-0.771	0.440
Spatial praxis	0.95±0.75	1.04±0.95	-0.252	0.800
Visual gnosis	0.45±0.68	0.81±0.79	-1.596	0.110
Acoustic gnosis	0.05±0.15	0.61±0.72	-3.024	0.002 **
Optico-spatial gnosis	0.90±1.02	1.45±1.05	-1.729	0.083
Tactile gnosis	0.05±0.22	0.54±0.80	-2.497	0.012 **
Verbal thinking	0.75±0.71	1.77±0.92	-3.386	0.001 **
Non-verbal thinking	0.80±0.95	1.59±0.90	-2.611	0.009 **
Neurodynamics	1.30±0.57	2.36±0.65	-4.259	0.001 **
Executive functioning	1.20±0.52	1.86±0.77	-3.035	0.002 **

and clinical characteristics fulfilled the criteria of clinical recovery however they have not showed any personal recovery features (see table 1).

Groups were also matched by diagnosis and the diagnoses at inclusion according to ICD-IV for the samples: schizophrenia (n=18), schizophreniform disorder (n=2), schizoaffective disorder (n=5). Patients used atypical antipsychotics in more than 95% of cases (mainly risperidone). The average dosage was 2.5–3 mg haloperidol equivalents per day.

All patients underwent neuropsychological testing based on Luria`s systematic approach (Luria 1966). The Luria diagnostic test consist of numerous procedures designed to assess verbal and visual memory, motor functions, gnosis, and praxis, verbal and non-verbal thinking. Cognitive functions were evaluated according to 0-3 rating scale, where 0 is no deficit, 3- marked deficit. Moreover, the overall parameters of neurodynamics (optimal level of cortical tone is essential for the organized course of mental activity) and executing functioning differed in rating and were evaluated as follows: *neurodynamics*: 0-normal; 1- inability of the stable productive performance; 2- presence of non-severe exhaustion, delay in activity, impulsivity, inertness; 3- exhaustion, significant oscillations with the loss of the program, severe impulsivity, severe inertness; *executive functioning*: 0- normal, 1-slight decrease in the control of activity with the ability of correction, difficulties in programming of actions, 2- necessity of secondary correction, 3-difficulties in self –monitoring, impossibility of the correction. Scores of the recovered subjects were compared to scores of non-recovered using nonparametric statistics with the significance level of $p \leq 0.05$.

RESULTS

Patients in the recovered group showed better performance than in the non-recovered group on the following neurocognitive subtests: verbal memory (z=-3.287, p=0.001), visual memory (z=-2.185, p=0.028), acoustic gnosis (z=-3.024, p=0.002), tactile gnosis (z=-2.497, p=0.012), verbal thinking (z=-3.386, p=0.001) and non-verbal thinking (z=-2.611, p=0.012) and overall parameters of neurodynamics (z=-4.259, p=0.001) and executive functioning (z=-3.035, p=0.002) (see table 2).

When we analyzed the distribution of overall neurodynamics scores we found that a significantly higher proportion of personally recovered patients demonstrated less exhaustion and impulsivity, most

likely scoring neurodynamics from 1 to 2, whereas the non-recovery group showed prominent exhaustion, severe impulsivity and inertness. In the recovery group the deficit in executive functioning was predominantly due to the programming of actions (scoring as 1 in sequencing of movements, setting the algorithm in the arithmetical task, following the sequence in story retelling and the story depictions etc) while mistakes were potentially corrected by patient or with external correction (by examiner). The non-recovery group showed major deficit in control (2 to 3 scores) which was apparent in monitoring of actions, difficulties of error correction even with external help.

DISCUSSION

The study was desinged to identify the peculiarities of neurocognitive functioning in patients with personal recovery from schizophrenia which possibly facilitate the recovery process. Taking into account the stable clinical state, the comparison between the two clinically stable groups of recovered and non-recovered patients with schizophrenia allowed us to pinpoint weaknesses and also strengths of cognition in the recovery group. Despite the fact that both groups were cognitively impaired and the cognitive deficit was quite diffuse, the recovery group have more potential in memory processing and less impaired gnosis (tactile and acoustic perception) as well as in overall neurodynamics and executive functioning.

Luria`s systemic approach allowed us to qualitatively analyze executive functioning in 3 dimensions: formulation of the goal, programming of the action and control. Interestingly, recovery patients seems to have more prominent deficit in programming of actions then in control while the non-recovery group demonstrate deficits in all domains and do not benefit even from external correction. In other words, the following results suggest that executive dysfunction is not homogenous and retaining control possibly helps in fulfilling new individual goals and enable better social adjustment. At the same time, the lack of the programming of actions might serve as a target for psychosocial interventions.

CONCLUSION

It is obvious that even when a person is in remission (clinical recovery) from any severe illness, he or she still needs to work on personal recovery, returning to work, studies and other previous activities, and perhaps even relearning some activities if the illness was prolonged (Barber et al. 2012). In this case cognition could be a factor which facilitates the recovery process.

Acknowledgements: None.

Conflict of interest: None to declare.

REFERENCES

1. *Albert N., Bertelsen M., Thorup A., Petersen L., Jeppesen P. et al. Predictors of recovery from psychosis. Analysis of clinical and social factors associated with recovery among patients with fist-episode psychosis after 5 years. // Schizophrenia Research. –2011. –Vol. 125. –P. 257-266.*
2. *Anthony W. Recovery from mental illness. //Psychosocial Rehabilitation Journal. –1993. –Vol. 16. –P. 12–23.*
3. *Barber M. Recovery as the new medical model for psychiatry. // Psychiatric Services. – 2012. – Vol.63. – N.3. – P. 277-279.*
4. *Bleuler E. Dementia Praecox or the Group of Schizophrenias. Translated and edited by J. ZINKIN. New York: International University Press.-1950.*
5. *Bobes J., Ciudad A., Alvarez E., San L., Polavieja P., Gilaberte I. Recovery from schizophrenia: results from a 1-year follow-up observational study of patients in symptomatic remission. // Schizophrenia Res. –2009. –Vol. 115. –P. 58–66.*
6. *Ciompi L. Catamnestic long-term study on the course of life and aging of schizophrenics. // Schizophrenia Bulletin. – 1980. – Vol.6. –P. 606–618.*
7. *Faber G., Smid H.G.O.M., Van Gool A.R., Wunderink L., Wiesma D., van den Bosch R.J. Neurocognition and recovery in first episode of psychosis. // Psychiatry Research. –2011. – Vol.188. –P. 1-6.*
8. *Green M.F. What are the functional consequences of neurocognitive deficits in schizophrenia? American Journal of Psychiatry. –1996. –Vol. 153. –P.321–330.*
9. *Gingerich S., Mueser K.T. Illness management and recovery; in Evidence-Based Mental Health Practice. Edited by Drake RE, Merrens MR, Lynde DW. New York, Norton. – 2005.*
10. *Harding CM, Brooks GW, Ashikaga T, Strauss JS, Breier A. The Vermont longitudinal study of persons with severe mental illness, II: Longterm outcome of subjects who retrospectively met DSM-III criteria for schizophrenia.// Am J Psychiatry 1987; 144: 727–735*
11. *Harrison G., Hopper K., Craig T., Laska E., Siegel C., Wanderling J. Recovery from psychotic illness: a 15- and 25-year international follow-up study. // Br J Psychiatry. – 2001. –Vol.178. –P. 506–517*
12. *Huber G., Gross G., Schuttler R., Linz M. Longitudinal studies of schizophrenic patients. // Schizophrenia Bulletin. – 1980. –Vol. 6. –P. 592–605.*
13. *Kapelowicz A., Liberman R.P., Ventura J., Zarate R., Mintz J. Neurocognitive correlates of recovery from schizophrenia. //Psychological Medicine. – 2005. Vol.35. –P.1165-1173.*
14. *Luria A.R. Higher Cortical Functions in Man. New York: Basic Books. –1966.*
15. *Mental Health: A Report of the Surgeon General. Rockville, Md, US Department of Health and Human Services, US Public Health Service. – 1999.*
16. *McGorry P.D. The concept of recovery and secondary prevention in psychotic disorders. // Australian and New Zealand Journal of Psychiatry. – 1992. –Vol.26. –P.3-17.*
17. *Ogawa K., Miya M., Watarai A., Nakazawa M., Yuasa S., Utena H. A. Long term follow-up study of schizophrenia in Japan with special reference to the course of social adjustment. // Br J Psychiatry. – 1987. –Vol. 151. – P. 758–76.*

18. *Slade M. Personal Recovery and Mental Illness: A Guide for Mental Health Professionals. Cambridge, United Kingdom, Cambridge University Press. – 2009.*

19. *Warner R. Recovery from schizophrenia: psychiatry and political economy. London: Routledge & Kegan Paul. – 1985.*

Correspondence:

Yuliya Zaytseva
Moscow Research Institute of Psychiatry
Poteshnaya str. 3, Moscow 107076, Russian Federation
E-mail: cirrata@googlemail.com