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Original Article

COMPARATIVE STUDY ON NEUROCOGNITIVE DEFICITS IN PATIENTS OF SCHIZOPHRENIA AND BIPOLAR AFFECTIVE DISORDER

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ABSTRACT

Objective: Cognitive impairments are central features of schizophrenia and are related to functional status and other aspects of the illness. Aim of this study is to assess and compare neurocognitive impairment in schizophrenia and bipolar affective disorder patients.

Methods: It was a comparative study. 50 consecutive patients of schizophrenia and 50 consecutive patients of bipolar affective disorder were included. We used PANSS for schizophrenia patients and Hamilton Rating Scale for Depression (HRSD**)** and Young Mania Rating scale (YMRS) were administered for bipolar patients. Neuropsychological testing was used to compare the cognitive impairment of schizophrenia and bipolar affective disorder.

Results: The mean age of schizophrenic patients was 37 y and the mean age of BPAD patients was 37.32 y The COWT mean score for schizophrenic patients was 6.98(SD±1.84) and for BPAD patients was 8.44(SD±2.61). The score for schizophrenic patients was-21.21(SD±8.83) and for BPAD patients was-25.43(SD±9.34). The score for schizophrenic patients was 27.10(SD±1.26) and for BPAD patients was 27.52(SD±1.43).

Conclusion: Compared to bipolar patients, patients with schizophrenia had more cognitive dysfunction. Timely assessment and treatment of cognitive dysfunction should be part of standard management protocols in both schizophrenia and bipolar disorder.

Keywords: Cognitive impairment, Schizophrenia and BPAD

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INTRODUCTION

Cognitive impairments are central features of schizophrenia and are related to functional status and other aspects of the illness [1]. The form of cognitive impairments in schizophrenia and bipolar disorders can be viewed from four dimensions: prevalence, breadth, magnitude, and course. Social cognition allows people to understand and interact with one another efficiently; its impairment in both schizophrenia and bipolar disorders appears to be partially responsible for impairments in everyday functioning. Cognitive functions can be indexed at a level more proximal to neurological function through various psychophysiological methods, such as eye tracking and electroencephalogram experiments [2]. In chronic cases, cognitive dysfunction is less severe in BP than schizophrenia but the magnitude of cognitive differences between schizophrenia and BP are modest [3].

It was also assumed that patients with BP only develop cognitive deficits during the course of illness as a result of neurodegenerative changes and that cognitive deficits would be absent or very modest in first-episode BP (FEBP) whereas in schizophrenia it is projected that cognition is impaired, before the onset of the illness and at first-episode which might be a key difference between BP and schizophrenia [4].

A combined assessment approach is mandatory in understanding the deficits [5]. The cause of cognitive dysfunctions in schizophrenic and bipolar patients is lack of cognitive disorders treatment by neuroleptic drugs and psychiatric treatments. Lack of treatment of these disorders indicates specific characteristics in these patients that have been closely investigated so far [6]. Aim of this study is to assess and compare neurocognitive impairment in schizophrenia and bipolar affective disorder patients.

MATERIALS AND METHODS

It was a comparative study. 50 consecutive patients of schizophrenia and 50 consecutive patients of bipolar affective disorder (in remission phase) attending psychiatry OPD of New Medical College Hospital, Kota for treatment during the maintenance phase, who fulfilled the inclusion and exclusion criteria were subjects of the study. Only those schizophrenia and bipolar affective disorder patients were included in study who were having documentary evidence (like hospital discharge ticket or OPD prescription) diagnosed by a consultant psychiatrist and who were in remission for at least last one year and have not received ECT during last one year. Participants were ensured for their confidentiality. Subjects were thoroughly evaluated on the especially designed proforma, which included identification data (name, age, gender etc.) and socio demographic details (education, occupation, marital status etc.). Patients' clinical profiles were also recorded.

We used PANSS for schizophrenia patients and Hamilton Rating Scale for Depression (HRSD) and Young Mania Rating scale (YMRS) were administered for bipolar patients. Only those patients who were having score of<8 on HRSD and<6 on YMRS were included in study. Neuropsychological testing was used to compare the cognitive impairment of schizophrenia and bipolar affective disorder.

Diagnosis of psychiatric disorder was made by using ICD-10 criteria and diagnosis was confirmed by a consultant Psychiatrist.

Data collection ana analysis: Data thus collected were classified, tabulated and analyzed by using appropriate statistical methods. Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 20. The sample data was expressed using descriptive statistics such as mean, standard deviation, percentage, ranges etc. Comparisons between discrete variables were done.

RESULTS

Socio-demographic profile

It was found that age of schizophrenia patients with antipsychotic maintenance treatment were between 18–50 y, with majority 36% of them were in the age group of 31 to 40 y. The mean age of patients was 37 y. The age of BPAD patients with mood stabilizer maintenance treatment were between 18–50 y, with majority 40%

of them were from the age group of 41-50 y. The mean age of patients was 37.32 y. It was found that in the present study, the majority of the patients were male in both groups. On further classification, in schizophrenic group, there were 86% male and 14% female patients. In BPAD group, there were 90% male and 10% female patients. It is evident that majority of patients were of rural background in both schizophrenic and BPAD groups. The patients from urban backgrounds in schizophrenic group were 28% and in BPAD group 26%. Rural patients were 72% in schizophrenic group and 74% in BPAD group as seen in table 1. In schizophrenic and BPAD patients, most patients in both groups were married. The educational status of schizophrenic and BPAD patients, it was found that the majority of the patients in both groups studied up to the middle level (40% in schizophrenic group and 28% in BPAD group).

Table 1: Socio-demographic of both schizophrenia and BPAD

Variable	Schizophrenia		BPAD		Total	
	N	%	N	%	N	%
AGE						
<20	3	6	2	4	5	5
21-30	12	24	15	30	27	27
31-40	18	36	13	26	31	31
41-50	17	34	20	40	37	37
Gender						
Male	43	86	45	90	88	88
Female	7	14	5	10	12	12
Domicile						
Urban	14	8	13	26	27	27
Rural	36	72	37	74	73	73
Marital status						
Married	36	72	39	78	75	75
Unmarried	8	16	8	16	16	16
Divorced	4	8	1	2	5	5
Separated	0	0	0	0	0	0
Any other	2	4	2	4	4	4
Married	36	72	39	78	75	75
Educational status						
literate	0	0	0	0	0	0
Primary	9	18	10	20	19	19
Middle	20	40	14	28	34	34
Secondary	7	14	8	16	15	15
Sr. Secondary	3	6	9	18	12	12
Graduate	7	14	8	16	15	15
Post Graduate	4	8	1	2	5	5
Professional	0	0	0	0	0	0
Any Other	0	0	0	0	0	0

Age of onset and duration of illness

The age of onset of illness for schizophrenic patients was (28.46±8.16) and for BPAD patients was (29.84±9.74). The duration of illness for schizophrenic patients was (8.54±5.69) and for BPAD patients was (7.48±4.74).

Neurocognitive tests

Controlled oral word association test (COWT)

The COWT score was assessed for all patients. The mean score for schizophrenic patients was 6.98(SD±1.84) and for BPAD patients was 8.44(SD±2.61) and it was statistically significant. This result showed that neurocognitive deficit was more in schizophrenic patients group than BPAD patients group.

Stroop test

The Stroop test was performed by all patients. The score for schizophrenic patients was-21.21(SD±8.83) and for BPAD patients was-25.43(SD±9.34); the difference was statistically significant for both groups ($P<0.05$). This result showed that neurocognitive deficit was more in schizophrenic patients group than BPAD patients groups. A negative interference score value represents a pathological ability to inhibit interference, where a lower score means greater difficulty in inhibiting interference.

MMSE score

The MMSE test was given to all patients. The score for schizophrenic patients was 27.10(SD±1.26) and for BPAD patients was 27.52(SD±1.43) and was statistically not significant.

DISCUSSION

The present study was conducted on 50 consecutive patients of schizophrenia and 50 consecutive patients of bipolar affective disorder (in remission phase) who attended psychiatry OPD. The mean age of schizophrenic patients was 37 y and mean age of BPAD patients was 37.32 y which is similar to a study done by Basant K. Pradhan *et al.* reported mean age in schizophrenic patients was 32.66 y and in BPAD patients, mean age was 37.23 y [7]. It was found that in present study majority of the patients were male in both groups. Carissa N. Kuswanto *et al.* (2013) demonstrated Neuro cognitive functioning in schizophrenia and bipolar disorder: clarifying concepts of diagnostic dichotomy v/s continuum at the Institute of Mental Health, Singapore found that male patients were more in schizophrenic group as compared to BPAD group [8]. In the present study it is evident that the majority of patients were of rural background in both schizophrenic and BPAD groups. Sandeep Grover *et al.* (2006) they reported that there was no clinical significance seen for BPAD patients and in schizophrenic patients and locality [9].

The neurocognitive deficit was more in schizophrenic patients group than BPAD patients group in Controlled Oral Word Association Test (COWT) i. e BPAD patients were able to tell more words than schizophrenia patient SD Ravi Kiran *et al.* found similar findings that The mean values show that BPAD patients (7.04) were able to tell more words than schizophrenia patients (6.42) [10]. While performing STROOP test, the score for schizophrenic patients was 21.21 (SD±8.83) and for BPAD patients was-25.43(SD±9.34); the difference was statistically significant for both groups. Eva María Sánchez-Morla *et al.* (2009) found interference on schizophrenic patients (177.84±68.11) and on BPAD patients (166.9±62.3) [11].

Lori L. Altshuler *et al.* (2004) found interference on schizophrenic patients (151.7±36.6) and on BPAD patients (140±54.7). the score of these studies were plus (+) whereas the score in our study were in minus (-). This is because of the fact that the method of scoring was different in both studies. They recorded total time taken in 3 different sets, whereas in our study, we asked to read as much words as he/she could in 45 seconds in each of 3 sets [12].

CONCLUSION

Compared to bipolar patients, patients with schizophrenia had more cognitive dysfunction. The study has identified persistent deficits in social and neurocognition despite remission, having significant clinical implications in terms of developing remediation programs for social cognition and planning early interventions for patients who may develop cognitive deficits associated with BPAD and schizophrenic. Timely assessment and treatment of cognitive dysfunction should be part of standard management protocols in both schizophrenia and bipolar disorder.

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AUTHORS CONTRIBUTIONS

All authors have contributed equally

CONFLICT OF INTERESTS

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