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TO STUDY THE PRESENCE OF NEUROLOGICAL SOFT SIGNS IN CONTROL POPULATION AND TO COMPARE FINDINGS WITH PATIENT POPULATIONS.

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Abstract

Background: The study was conducted at the Mental Health & Hospital, Agra. It is a tertiary referral center and a postgraduate teaching hospital. The hospital has a wide catchments area which includes diagnosis of schizophrenia and bipolar affective disorder.

Result: The total number of neurological soft signs present in a subject. Schizophrenia group had the highest number of NSS (mean±SD= 10.43±4.13) then were the bipolar group (mean±SD= 5.63±3.46) and least number of NSS were in control group (mean±SD=1.03±1.73) i.e. bipolar group was intermediate between schizophrenia and control group in terms of total number of positive NSS. Results of one way ANOVA revealed significant group differences F (2, 87) =62.05, p<.01. Games-Howell post hoc comparisons revealed significant differences in Schizophrenia vs Bipolar group (p< .01), Schizophrenia Vs Control group (p< .01) as well as in Bipolar Vs Control group (p< .01) i.e. schizophrenia group had significantly higher number of positive NSS than bipolar and control group. Also bipolar group had significantly higher number of positive NSS than control group.

Conclusion: On various subscales of Neurological Evaluation Scale, schizophrenia patients differed from bipolar patients on all the subscale but not on the sequencing of complex motor acts subscale. Neurological Soft Signs are present even during the symptom free period and therefore they are not due to the effects of active illness. Hence, these Neurological Soft Signs in our study may represent a trait like abnormality in both schizophrenia and bipolar disorder.

Keywords: Neurology, Schizophrenia, Bipolar Disorder & Sign

Introduction:

Numerous studies have consistently documented a higher prevalence of NSS in schizophrenia compared to healthy normal controls in the range of 50-65% in schizophrenia as compared to 5% in normal controls (Heinrichs DW & Buchanan RW. 1988)[1]. Neurological signs have been related to subtypes of schizophrenia; familial- versus sporadic schizophrenia (Kinney et al.1991, Griffiths et al. 1998)[2], chronic versus acute schizophrenia (Torrey EF et al. 1980)[3] and disorganized versus non-disorganized schizophrenia (Schroder et al.1992)[4].

Presence of neurological signs in patients diagnosed as bipolar disorder has been reported by several researchers. Goswami et al. (2006)[5] found that soft signs occurred even in patients with bipolar disorder who are in euthymic phase; therefore, it may represent trait deficits. Basu et al (2002)[6] reported similar findings in adolescents diagnosed as bipolar disorder. The prevalence of most signs appears to be significantly different between schizophrenia patients and normal controls, but there are fewer differences between schizophrenia and mood disorder patients. However, several signs like poor stereognosis and rhythm tapping are more prevalent in mood disorder patients than in schizophrenia patients while lack of extinction, dysdiadochokinesia, poor tandem walk, finger-thumb-opposition and articulation are significantly more prevalent in schizophrenia compared to mood disorder patients. Impaired motor coordination seems most specific to schizophrenia (Boks et al. 2000)[7].

Material & Method

The study was conducted at the Mental Health & Hospital, Agra. It is a tertiary referral center and a postgraduate teaching hospital. The hospital has a wide catchments area which includes diagnosis of schizophrenia and bipolar affective disorder. Data

was collected over a period from January 2013 to August 2014.

Sample Size:

The sample consisted of 90 subjects in three groups. The sample was purposive. Written informed consent was obtained from patients prior to the study after explaining the procedure in detail.

Inclusion Criteria for Patients:

1. Those who can give written informed consent

2. Age group ranging from 18-60 years

3. Patients diagnosed as schizophrenia and bipolar affective disorder according to ICD-10 (International Classification of Diseases and Related Health Problems-10)

4. Schizophrenia patients with PANSS subscale scores (4 or less in delusion, 4 or less in hallucination, 5 or less in conceptual disorganisation) and clinically symptom free

5. Bipolar disorder patients in remission for at least 1 month, clinically and with YMRS

scores < 6 and HAM-D score < 6

Exclusion Criteria for Patients:

- Neurological disorders such as seizures, movement disorders, cerebral palsy
- Recent or current medical illness that may impair central nervous system function.
- Comorbidity with any other psychiatric disorder.
- History of substance abuse or dependence, except for nicotine and caffeine.
- Use of any pharmacological intervention other than psychotropic drugs.
- Life time history of head injury associated with loss of consciousness, seizures, neurological deficits, or surgical intervention.

Inclusion Criteria for Controls:

- Age and sex matched with cases
- Those who were willing to give a written informed consent for the study.

Exclusion Criteria for Controls:

- History of any psychiatric illness for which treatment was sought for or history of any co morbid long standing physical illness.
- History of substance abuse or dependence, except for nicotine and caffeine.
- Controls were also excluded if they scored >2 on General Health Questionnaire -12 (GHQ-12).

Results:

Table 1: Mean difference and p values of Games-Howell Post hoc Comparisons of OTHERS SUBSCALE

Variables of NES	Schizophrenia vs Bipolar	Schizophrenia Vs Control	Bipolar VS Control
Rhomberg test	0.03	0.03	-
Adventitious flow	0.33	0.57**	0.23
Tremors	0.47	0.73**	0.27
Cerebral dominance	0.40	0.53	0.13
Memory	0.37	1.37**	1.00*
Rhythm tapping part A	0.33	0.70**	0.37*
Mirror movements	0.43*	0.43*	-
Synkinesis	0.40	0.80*	0.40
Convergence	0.73*	0.90**	0.17
Gaze impersistence	0.73	1.00**	0.27
OTHERS SUBSCALE	4.23**	7.06**	2.83**

OTHERS SUBSCALE:

It included Rhomberg test, Adventitious flow, Tremors, Cerebral dominance, Memory, Rhythm tapping part A, Mirror movements, Synkinesis, Convergence and Gaze impersistence. On others subscale of NES schizophrenia group had the highest mean score (7.80±4.62) then were the bipolar group (3.57±3.05) and least score was of control group

(0.73±1.17) i.e. on others subscale of NES bipolar group scores were intermediate between schizophrenia and control group. Results of one way ANOVA revealed significant group differences F (2, 87) =35.57, p< .01. Games-Howell post hoc comparisons revealed significant differences in Schizophrenia vs Bipolar group (p< .01), Schizophrenia Vs Control group (p< .01) as well as in Bipolar Vs Control group (p< .01) i.e. on others subscale of NES schizophrenia patients scored significantly higher than bipolar and control group. Also bipolar group scored significantly higher than control group.

Table 2: Mean and S.D

Variables of NES	Schizophrenia	Bipolar	Control	Group Difference F (2, 87)
TOTAL NUMBER OF POSITIVE SIGNS	10.43±4.13	5.63±3.46	1.03±1.73	62.05**
NES TOTAL SCORE	22.57±9.88	11.70±7.67	1.80±3.09	58.46**
*Significant at .05 level;** Significant at .01 level				

Table 3: Mean difference and p values of Games-Howell Post hoc Comparisons

Variables of NES	Schizophrenia vs Bipolar	Schizophrenia Vs Control	Bipolar VS Control
TOTAL NUMBER OF POSITIVE SIGNS	4.80**	9.40**	4.60**
NES TOTAL SCORE	10.87**	20.77**	9.90**
*Significant at .05 level;** Significant at .01 level			

TOTAL NUMBER OF POSITIVE SIGNS:

It represented the total number of neurological soft signs present in a subject. Schizophrenia group had the highest number of NSS (mean±SD= 10.43±4.13) then were the bipolar group (mean±SD= 5.63±3.46) and least number of NSS were in control group (mean±SD=1.03±1.73) i.e. bipolar group was intermediate between schizophrenia and control group in terms of total number of positive NSS. Results of one way ANOVA revealed significant group differences F (2, 87) =62.05, p<.01. Games-Howell post hoc comparisons revealed significant differences in Schizophrenia vs Bipolar group (p< .01), Schizophrenia Vs Control group (p< .01) as well as in Bipolar Vs Control group (p< .01) i.e. schizophrenia group had significantly higher number of positive NSS than bipolar and control group. Also bipolar group had significantly higher number of positive NSS than control group.

NES TOTAL SCORE: It is the sum total of score of all the items of the NES. NES Total score of schizophrenia group had the highest mean score (22.57±9.88) then were the bipolar group (11.70±7.67) and least score was of control group (1.80±3.09) i.e. NES Total score of bipolar group were intermediate between schizophrenia and control group. Results of one way ANOVA revealed significant group differences F (2, 87) =58.46, p< .01. Games-Howell post hoc comparisons revealed significant differences in Schizophrenia vs Bipolar group (p< .01), Schizophrenia Vs Control group (p< .01) as well as in Bipolar Vs Control group (p< .01) i.e. NES Total score of schizophrenia group was significantly higher than bipolar and control group. Also bipolar group scored significantly higher than control group.

Discussion

In our study NES total score in schizophrenia group was significantly higher than bipolar group and control group. Our findings are supported by various studies comparing NSS in schizophrenia and mood disorder patients (Krebs et al. 2000, Boks et al. 2004) and schizophrenia patients and controls (Gupta et al. 1995, Shibre et al. 2002, Keshavan et al. 2003, Venkatasubramanian et al. 2003, Varambally et al. 2006, John et al. 2008)[8,9,10,11&12]. Among studies that included a healthy control group, all except one (Gureje et al. 1988)[13], have reported increased neurological impairment in patients with schizophrenia. The only study reporting no differences between patients with schizophrenia and

healthy subjects (Gureje et al. 1988)[13] included only 4 NSS and was conducted with a population in Nigeria, where there is a high rate of obstetric complications. These results strongly support the proposition that neurological signs significantly differentiate patients with schizophrenia from healthy control subjects.

Conclusion

On various subscales of Neurological Evaluation Scale, schizophrenia patients differed from bipolar patients on all the subscale but not on the sequencing of complex motor acts subscale. Neurological Soft Signs are present even during the symptom free period and therefore they are not due to the effects of active illness. Hence, these Neurological Soft Signs in our study may represent a trait like abnormality in both schizophrenia and bipolar disorder.

References

1. Heinrichs DW, Buchanan RW, 1988. Significance and meaning of neurological signs in schizophrenia. Am J Psychiat 145(1), 11–18.
2. Kinney DK, Yurgelun-Todd DA, Woods BT, 1991. Hard neurologic signs and psychopathology in relatives of schizophrenic patients. Psychiatry Res. 39, 45-53.
3. Torrey EF, 1980. Neurological abnormalities in schizophrenia patients. Biol. Psychiatry 15 (3), 381–388.
4. Schroder J, Geider FJ, Binkert M, Reitz C, Jauss M, Sauer H, 1992. Subsyndromes in chronic schizophrenia:do their psychopathological characteristics correspond to cerebral alterations? Psychiatry Res. 42, 209-220.
5. Goswami U, Sharma A, Khastigir U, Ferrier IN, Young AH, Gallagher P, et al., 2006. Neuropsychological dysfunction, soft neurological signs and social disability in euthymic patients with bipolar disorder. British Journal of Psychiatry 188, 366-373.
6. Basu S, Ram D, Das SC,Gupta SC, 2002. A case controlled study of neurological soft signs in childhood and adolescent mania. Hong Kong Journal of Psychiatry 12, 6-10.
7. Boks MP, Russo S, Knegtering R, Bosch RJ, 2000. The specificity of neurological signs in schizophrenia: a review. Schizophrenia Research 43, 109-116.
8. Gupta S, Andreasen N, Arndt S, et al., 1995. Neurological soft signs in neuroleptic-naıve and neuroleptic-treated schizophrenic patients and normal comparison subjects. Am J Psychiatry 152, 191–196.
9. Shibre T, Kebede D, Alem A, et al., 2002. Neurological soft signs (NSS) in 200 treatment-naıve cases with schizophrenia: a community- based study in a rural setting. Nord J Psychiatry 56, 425–431.
10. Keshavan MS, Sanders RD, Sweeney JA, et al., 2003. Diagnostic specificity and neuroanatomical validity of neurological abnormalities in first-episode psychoses. Am J Psychiat 160(7), 1298–1304.
11. Venkatasubramanian, G., Latha, V., Gangadhar, B. N., Janakiramaiah, N., Subbakrishna, D. K., Jayakumar, P. N. and Keshavan, M. S., 2003. Neurological soft signs in never-treated schizophrenia. Acta Psychiatrica Scandinavica 108, 144–146.
12. Varambally S, Venkatasubramanian G, Thirthalli J, Janakiramaiah N, and Gangadhar BN, 2006. Cerebellar and other neurological soft signs in antipsychotic-naïve schizophrenia. Acta Psychiatrica Scandinavica 114, 352–356.
13. Gureje O, 1988. Neurological soft signs in Nigerian schizophrenics: a controlled study. Acta Psychiat Scand 78(4), 505–509.