Differential Emotion Processing Abnormalities in Schizophrenia and Bipolar disorder: A Optimized Emotional Stroop Study

N Jayaram(1), N.P. Rao(2), V. Vishwanath(2), G. Venkatsubramanian(2), B.N.Gangadhar(2)
(1) Department of Psychiatry, SAKRA World Hospital, Bengaluru, India
(2) Department of Psychiatry, NIMHANS, Bengaluru, India

Introduction and Aim:
Ever since Emil Kraepelin proposed the dichotomy of psychotic disorders classifying schizophrenia and bipolar disorder as distinct entities a century ago, psychiatric classificatory systems, clinical work and research have followed this assumption [1]. Recent studies have generated controversy on validity of Kraepelin’s dichotomy; while genetic studies report overlap between schizophrenia and bipolar affective disorder (BPAD), neuropsychological studies have reported differences [2,3]. Importantly, emotion recognition abnormalities are well described in schizophrenia but the results are inconsistent due to methodological issues, mainly differences in lexical characters of words [4,5]. Emotional stroop test, the emotional analog of the color stroop test is a useful tool to examine emotional interference. However, it is less examined in BPAD and till date no study has concurrently examined emotion processing abnormalities in schizophrenia and BPAD using emotional stroop test. Thus, we aimed to compare emotional interference in schizophrenia and BPAD using an optimized emotional stroop test (OEST).

Methods:
OEST with established methodology was used. The computerized task was constructed using E-prime software for presenting stimuli and recording responses with precise timing. 24 patients (14 males) satisfying DSM-IV criteria for Schizophrenia and 18 patients (7 males) satisfying DSM-IV criteria for BPAD and 58 healthy controls (38 males) were examined. All subjects were aged between 15 and 45 years, had optimal “working” knowledge of English. Symptom profile was assessed using standardized scales. SANS and SAPS and CGI-S and CGI-I was administered. HAM-D and YMRS was administered to BPAD patients. Relative emotional interference index, negative and positive interference scores were computed. Analysis of variance with post hoc analysis was applied.

Results:
The three groups significantly differed in interference score for negative valence words (F = 3.22; p = 0.04) but not for positive valence words (F = 1.54; p = 0.21). On post-hoc analysis, schizophrenia patients had significantly higher interference score for negative valence words (mean ± SD: ±290.75 ±2673.74) than controls (-234.41 ±1641.52) (p = 0.01) and BPAD (-335.44 ±1968.61) (p = 0.04). However, there was no difference between BPAD and controls (p = 0.85). Also the number of errors committed was higher in schizophrenia patients than BPAD (p = 0.01) and controls (p < 0.001). There were no significant correlations between psychopathology related variables and emotional interference scores.

Table 2: Comparative profile of emotional indices between BPAD patients, Schizophrenia patients & controls

<table>
<thead>
<tr>
<th></th>
<th>Patients (N=42)</th>
<th>Controls (N=58)</th>
<th>F</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Schizophrenia (N=24)</td>
<td>BPAD (N=18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive interference</td>
<td>667.83</td>
<td>2662.68</td>
<td>561.80</td>
<td>2296.33</td>
</tr>
<tr>
<td>Negative interference</td>
<td>920.75</td>
<td>2673.74</td>
<td>-335.44</td>
<td>1968.61</td>
</tr>
<tr>
<td>Relative emotional interference index</td>
<td>0.03</td>
<td>0.08</td>
<td>0.03</td>
<td>0.07</td>
</tr>
</tbody>
</table>

* Analysis of co-variance

mean difference is significant at the p < 0.05 level

Conclusion: To the best of our knowledge this is the first study to use optimized emotional stroop test (OEST) with completely lexically matched words concurrently in bipolar disorder and Schizophrenia. Study findings suggest that patients with bipolar disorder and Schizophrenia were at two ends of the relative emotional interference index; while patients with bipolar disorder had positive relative interference index, patients with schizophrenia had negative relative emotional interference index compared to controls. There was also increased negative emotional interference in schizophrenia patients compared to bipolar disorder patients and controls. The lack of association between clinical variables and interference scores raises the possibility that it could be a trait marker.

References

No conflict of interest

Copyright © 2016, Dr Naveen Jayaram (naveenjayaram09@gmail.com)