Psychiatric Disorders in Temporal Lobe Epilepsy: 
The Laterality Effect

By G. D. SHUKLA and B. C. KATIYAR

SUMMARY Relationship between the psychiatric diagnosis and the side of temporal EEG focus was analysed in 62 temporal lobe epileptics. Neurotics had right temporal foci significantly more frequently, while there was no such laterality effect in other psychiatric diagnostic groups.

Some workers have attempted to relate the psychiatric disturbances in temporal lobe epilepsy to the side of the epileptogenic focus. Flor-Henry (1969a, b) observed that a left temporal focus was more likely to be associated with a schizophrenic reaction and a right-sided focus with an affective psychosis. Falconer and Taylor (1970) found neurotic syndromes to be related to a non-dominant lesion and Serafetinides (1965) found an association between 'psychopathy' and a lesion on the dominant side. In an exhaustive review of the subject, Flor-Henry (1976) concluded that schizophrenia and paranoid psychosis were associated with epilepsy of the dominant hemisphere whilst manic-depressive psychosis, dysphoric emotional instability and depressive or anxiety reactions appeared with epilepsy of the non-dominant hemisphere.

The present communication is a part of a comprehensive psychiatric study of 62 patients with temporal lobe epilepsy, and aims at elucidating the relationship between the type of psychiatric disturbance and the laterality of the epileptogenic focus.

Results

There was no relationship between laterality and diagnoses of normality, psychosis or behaviour disorder (P > 0.35). However, neurotics had right-sided temporal foci significantly more often (P < 0.005) than left-sided.

Discussion

It is only recently that attempts have been made to define the electroencephalographic correlates of psychiatric disturbances in epileptics. Although such disturbances were found to be three times more common in cases with focal seizure activity in the temporal lobes than in those with foci elsewhere (Gibbs, 1951), Flor-Henry (1969a, b, 1972) was probably first to point out that the laterality of the temporal lobe focus was a significant determinant of the type of associated psychiatric abnormality. His observations were subsequently confirmed by Gregoriadis et al (1971).

Our finding, the tendency of neurotics to have a right temporal focus is in agreement with that of Falconer and Taylor (1970). However, we failed to find any laterality effect in other diagnostic groups. This was contrary to the observations of Flor-Henry (1969a, b, 1972), who found schizophrenia and affective psychosis to be related to left- and right-sided foci respectively. Similarly, our findings were contrary to the assertion of Serafetinides (1965) that 'psychopathy' was associated with a lesion on the dominant side.
### Table I

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>No. of cases*</th>
<th>Left temporal focus</th>
<th>Right temporal focus</th>
<th>Significance of difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>13</td>
<td>5</td>
<td>6</td>
<td>t = 0.36, P &gt; 0.35</td>
</tr>
<tr>
<td>Neurosis</td>
<td>23</td>
<td>5</td>
<td>14</td>
<td>t = 2.70, P &lt; 0.005</td>
</tr>
<tr>
<td>Psychosis</td>
<td>12</td>
<td>6</td>
<td>5</td>
<td>t = 0.39, P &gt; 0.35</td>
</tr>
<tr>
<td>Personality disorder</td>
<td>14</td>
<td>6</td>
<td>7</td>
<td>t = 0.20, P &gt; 0.40</td>
</tr>
</tbody>
</table>

* Two normals, four neurotics, one psychotic and one with a personality disorder had bitemporal foci.

Kristiensen and Sindrup (1978a, b), in their controlled study of a large series of psychotic patients with temporal lobe epilepsy, reported a relationship between psychosis and bilateral temporal lobe involvement. Psychotic patients had a significant preponderance of bilateral temporal medio-basal spike foci recorded on sphenoidal electrodes, indicating deep temporal lobe dysfunction as an important factor in the pathogenesis of psychosis. However, they did not find any correlation between psychosis and a unilateral EEG focus in either of the temporal lobes. Mignone et al (1970) were also unable to find any relationship between a left temporal focus and psychosis. It appears, therefore, that the development of psychosis depends on the severity of the epileptogenic lesion rather than on the side involved.

### References


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