The Indian Practitioner (1994): (XLVII), 9, 759-761

The Management of Post-Stroke Functional Disability by an Indigenous Formulation Mentat

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ABSTRACT
An indigenous Ayurvedic Preparation, Mentat, was tried in-patients with post-stroke disability. Out of 24 patients in the study, 13 received Mentat and 11 received a placebo for 12 weeks. EMG recording following neuromuscular stimulation was done at the beginning of the study and after 12 weeks. The final EMG responses in the trial group were found to be better than in the control group.

INTRODUCTION
A stroke is a clinical manifestation of an acute neurological injury as a result of cerebrovascular accident. It can range from a mild and specific functional impairment to a massive and generalised functional deficit, depending on the extent of cerebral injury or ischaemia. The manifestations differ from that of a transient ischaemic attack in that the latter abates within 24 hours\textsuperscript{1,2}.

Functional recovery following a stroke depends on the ischaemic zone that surrounds the infarct, which can be salvaged, the collateral circulation in addition to the vascular pathology that produces the symptoms.

Thus therapeutic efforts in stroke include reducing risk factors as well as underlying pathology and thus preventing a recurrence and maintaining adequate perfusion to the marginally ischaemic zone, followed by a long-term rehabilitation programme\textsuperscript{3,4}.

Mentat is an Ayurvedic herbal preparation containing *Bacopa monnieri*, *Centella asiatica*, *Withania somnifera*, *Evolvulus alsinoides* and *Nardostachys jatamansi* as the main ingredients.

Mentat is a nootropic agent known for memory stimulation and concentration. It helps in rehabilitation of those with behavioural disorders and in disabilities of language and learning\textsuperscript{6-9}. Hence, it has been used in the present trial in post-stroke patients with functional disability where it has been tried for a faster recovery of muscle action potential in response to neuromuscular stimulation.

MATERIAL AND METHODS
Twenty-four patients of stroke with residual functional disability were included in the trial. They were examined for neuromuscular deficits. After a complete clinical examination and baseline laboratory tests, EMG of the most affected limb muscle group was recorded by giving known amount of electrical stimulus to the respective nerve. Out of the 24 patients, 13 received Mentat 2 tablets 3 times daily, for 12 weeks. The remaining 11 patients received a placebo. All patients received physiotherapy to the affected parts.

The initial EMG recordings were compared to those after 12 weeks, in all individuals of both groups.
Table: Changes in muscle action potential, following nerve stimulation under influence of Mentat in post stroke cases

<table>
<thead>
<tr>
<th>Clinical groups</th>
<th>Sample size</th>
<th>Initial</th>
<th>After 6 weeks</th>
<th>After 12 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Resting</td>
<td>After stimulation</td>
<td>Resting</td>
</tr>
<tr>
<td>Placebo</td>
<td>11</td>
<td>1.65 ± 1.38</td>
<td>6.82 ± 1.38</td>
<td>3.94 ± 0.78*</td>
</tr>
<tr>
<td>Treated</td>
<td>13</td>
<td>1.27 ± 0.45</td>
<td>5.38 ± 1.58</td>
<td>5.43 ± 1.38</td>
</tr>
</tbody>
</table>

* p<0.05 as compared to placebo

RESULTS
Muscle action potentials were of very low voltage at the beginning of the study.

There was an increase in the voltage of muscle action potential in response to nerve stimulation in both the groups. This is attributable to the ongoing physiotherapy and the gradual recovery process. However, the voltage improvement in the Mentat treated group was significantly greater. The muscle contraction following the nerve stimulation was also better in the trial group in comparison to the control.

DISCUSSION
Following a stroke, there is a gradual functional recovery in most cases. This is not entirely predictable and the duration required for recovery as well as the final functional status is variable in each case. Physiotherapy plays a very important role in this rehabilitation process. Physical as well as psychological factors may also affect the progress of this process.

Mentat, which acts as a nervine tonic, has been shown to enhance the speed of functional recovery in these patients as seen by the evoked muscle action potentials and muscle contraction, indicating intact nerve pathways.

The present observation supports the use of Mentat in stroke patients as it reduces the duration of hospital stay and thus reduces the cost of therapy, while at the same time it may have a beneficial effect on the psychological reaction of patients towards their ailment.

REFERENCES