Effect of Mentat on Language and Learning Disabilities in Children with Mild Mental Deficiencies

S.P. Dixit
Research Fellow, Department of Basic Principles,
Aruna Agrawal
In charge, Psychosomatic and Biofeedback Laboratory, Department of Basic Principles
and
G.P. Dubey
Professor in Charge, Centre of Psychosomatic and Biofeedback Medicine,
Institute of Medical Sciences, Banaras Hindu University, Varanasi.

ABSTRACT
Failure of a child to come up to expectations at school or at home is a crucial problem in present day society. This failure may be due to his or her inability to make progress in reading, spelling or arithmetic; or alternatively, it may involve poor work habits or memory and attention deficits.

On the basis of the above facts a study was conducted on 60 children with mild mental deficiency exhibiting poor learning and language deficiency. Forty such children received Mentat, an Ayurvedic herbal preparation, in the dose of 2 tsp, twice daily for one year; the rest received a placebo in the same dose for the same duration. Neuropsychological assessments were made by using the Wechsler Intelligence Scale for Children (Revised) WISC-R.

Children in the Mentat-treated group started showing improvement in learning and intelligence within six months of therapy, which rose to the level of statistical significance at the end of one year. There was considerable improvement in visual and auditory memory span. These children also exhibited remarkable ability to reproduce correctly the sequence of audiovisual stimuli. Mentat appeared to play a significant role in reducing fluctuation of attention and in increasing auditory and visual memory. The child was able to concentrate better in his studies, thus helping to improve his I.Q. and reduce the gap between his potential for learning and his actual achievements.

Key Words: Mentat, Learning Disabilities, Mental Deficiencies, Wechsler Intelligence Scale for Children, Sequential memory test

INTRODUCTION
Learning disabilities and other cognitive disorders are very common in children with mild mental deficiency. In addition to cognitive deficits, children referred for neuropsychological assessments tend to have a number of behavioural, social and motivational disabilities. They are poorly oriented to academic tasks, poorly motivated, low in self esteem and unadaptive. Difficulties in behavioural personality or adaptive functioning tend to exacerbate learning problems in a child. Strengthening in these areas could help children compensate for their cognitive limitations because the behavioural or motivational difficulties of many children seem to stem from the frustration associated with consistent failure to meet their parents’ or teachers’ expectations.

Agents which only enhance memory will not be sufficient in these cases. Instead, drugs which can improve the attentional deficits - the key constituents of learning duration with improvement in auditory and visual memory - will be highly beneficial in improving intelligence, learning and memory in these children.
Mentat, an Ayurvedic formulation, has shown considerable influence on memory, intelligence and attention span\(^3\). With Mentat there is improvement in attention in children with a history of behavioural disorders\(^4\). Mentat also improves concentration and learning ability even in retarded children\(^5,6\). Improvement in learning has also been noticed in young children on Mentat\(^6\). Keeping the above facts in view a study was conducted to evaluate the potential of Mentat in language and learning disabilities in children.

**MATERIAL AND METHODS**

Sixty school children with mild mental deficiency studying in the II and III standards were selected for this study. The selection was based on the child’s performance in different subtests of the Wechsler Intelligence Scale for Children (Revised) (WISC-R)\(^7\). The WISC-R has eleven subtests - six verbal and five performance.

**The verbal subtests are**

a) Information  
b) Comprehension  
c) Arithmetic  
d) Similarities  
e) Digit span  
f) Vocabulary  

**The performance subtests are**

a) Digit symbol  
b) Picture completion  
c) Block design  
d) Picture arrangement  
e) Object assembly

This test contributes to neuropsychological assessments in several ways. It includes a wide range of verbal and non-verbal skills. The child’s performance in different subtests of this scale is suggestive of cognitive strengths and weaknesses.

Fluctuation of attention was measured by the speed, accuracy and spontaneity with which the child carried out familiar tasks and by his capacity to resist distraction and maintain vigilance.

The tests for sequential memory consist of two parts, visual and auditory. They evaluate the child’s ability to reproduce the auditory and visual stimuli in their correct sequence. Auditory sequential memory is tested by asking the child to reproduce from memory a series of digits as soon as the examiner finishes saying them. To test the visual sequential memory the examiner presents the child with a series of simple designs and asks him to reproduce this series from memory by arranging plastic chips which bear these designs.

After the initial investigations, Mentat was administered in the dose of 2 tsp. twice a day for one year. Follow-up studies were carried out at an interval of three months. At the end of one year the results in the Mentat-treated group were compared with those in the placebo group and the initial findings. Statistical analysis was done by using unpaired ‘t’-test.

**RESULTS**

Data in Table 1 show the effect of Mentat on intelligence quotient and fluctuation of attention in children with mild mental deficiency.

| Table 1: Effect of Mentat on intelligence quotient and fluctuation of attention |
in children with mild mental retardation

<table>
<thead>
<tr>
<th></th>
<th>Placebo</th>
<th>Sample size</th>
<th>Intelligence Quotient</th>
<th>Fluctuation of Attention</th>
<th>Placebo</th>
<th>Sample size</th>
<th>Intelligence Quotient</th>
<th>Fluctuation of Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Initial</td>
<td>6 months</td>
<td>12 months</td>
<td>Initial</td>
<td>6 months</td>
<td>12 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placebo</td>
<td>20</td>
<td>68.50</td>
<td>±14.72</td>
<td>70.20</td>
<td>±13.80</td>
<td>74.80</td>
<td>±15.80</td>
<td>29.80</td>
</tr>
<tr>
<td>Mentat-treated</td>
<td>40</td>
<td>70.20</td>
<td>±16.85</td>
<td>79.80</td>
<td>±10.85</td>
<td>88.90*</td>
<td>±12.87</td>
<td>36.80</td>
</tr>
</tbody>
</table>

* * p<0.01 as compared to basal readings

The I.Q. significantly improved in 40 cases of mild mental deficiency after twelve months of treatment with Mentat, while in the placebo-treated group no significant change in I.Q. was observed.

Fluctuation of attention was reduced after 6 months of treatment with Mentat and there was further significant reduction after one year’s treatment. The placebo-treated group, on the other hand, showed an increase in fluctuation of attention at the end of 6 months and one year.

Children in the Mentat-treated group were able to concentrate better after 12 months’ treatment. With the reduction in fluctuation of attention and improvement in concentration the learning process also improved considerably.

They also appeared to show improvement in audiovisual memory span after 6 months, which rose to statistical significance at the end of one year. The placebo-treated group on the other hand showed slight improvement but never reached the level of statistical significance (Table 2). Children in the Mentat-treated group performed exceedingly well in auditory and visual memory tests. They were able to reproduce from memory a series of digits and many simple designs in their correct order.

<table>
<thead>
<tr>
<th>Placebo</th>
<th>Sample size</th>
<th>Auditory sequential memory span (in a minute)</th>
<th>Visual sequential memory span (in a minute)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Initial</td>
<td>6 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placebo</td>
<td>20</td>
<td>12.24</td>
<td>±3.41</td>
</tr>
<tr>
<td>Mentat-treated</td>
<td>40</td>
<td>14.75</td>
<td>±2.78</td>
</tr>
</tbody>
</table>

* * p<0.01 as compared to basal readings

DISCUSSION

Intelligence, memory and adequate social atmosphere are responsible for the proper development of a child. Many children, particularly those with mild mental deficiency and learning problems, are poorly oriented to academic tasks. They lack initiative and perseverance. School work is disorganised and frequently incomplete. They tend to be more disruptive and noncompliant than others and are prone to other behavioural disturbances like depression. Difficulties in behavioural personality or adaptive functioning tend to exacerbate learning problems; strengthening these areas helps children compensate for cognitive limitations. There is also evidence that children with learning disabilities pay less attention than normal learners and this cannot be attributed to I.Q. alone. The I.Q. alone cannot judge the learning potentiality of a child because, to be a good learner, a child must have less fluctuation of attention, increased power of concentration, spontaneity in word recognition and capacity to memorise things quickly and correctly.

Although it has been seen that the I.Q. cannot be improved after a certain age, in the present study fluctuation of attention and audiovisual sequential memory span were significantly improved by Mentat. Children were able to concentrate better, there was improvement in learning abilities, they
were able to memorise things better. All these factors have contributed towards improving the cognitive skill of the child thus exerting a positive influence on the I.Q.

REFERENCES


