CLINICAL EVALUATION OF PANCHAGAVYA GHRUTA INBALABUDDHI-MANDYA (MENTAL RETARDATION IN PAEDIATRIC AGE GROUP)

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ABSTRACT

Background: Mental Retardation is defined as sub average general intelligence, manifesting during early developmental period. The child has diminished learning capacity and does not adjust well socially. Objective: The objective was to do a clinical evaluation of PanchagavyaGhruta in Balabuddhimandya (Mental Retardation in Paediatric age group) Materials and Methods: It is a randomized open interventional placebo controlled clinical trial. A total 22 patients were selected from the age group of 3 years to 9 years of age. The selected patients were randomly distributed into two groups. The patients in Group I (n =11) were given GauGhruta and patients in Group II (n = 11) were given PanchagavyaGhruta. Both the groups were studied for the period of 12 months to evaluate the efficacy of the drug. Results: In Group II, the IQ was increased by 36.36% which is statistically highly significant. Conclusion: PanchagavyaGhruta showed encouraging and promising results by significantly increasing IQ without any complication.

Keywords: Mental Retardation, Bal Buddhimandya, PanchagavyaGhruta, Mentally Challenged.

INTRODUCTION

Mental Retardation (MR) is a serious and lifelong disability which burdens heavily on society and the health system. According to WHO, the prevalence rate of MR in industrialized countries is close to 3%. Mental Retardation is a significantly sub-average general intellectual functioning resulting in or associated with concurrent impairments in adaptive behaviors and manifested during the developmental period. Mental Retardation is associated with behavioral problems. Also, there could be associated psychiatric disorders. In Ayurveda, many psychological ailments are described, like Apasmara, Unmada, Atattabhinivesha; but very few references regarding Buddhimandya (MR) are available. It is not described as a special disease entity, but can be considered as Mental deficiency or Mental Retardation by the literal meaning of the term and clinical presentation. AcharyaBhel-la clearly mentions, Bijadosha (genetic fac-
tors of parents), Apathya (improper diet), Vegadharana and Yonidosha (suppression of natural urges) (gynecological disorders) as the causative factors for Garbhavikruti (fetal disorders). Acharya Sushruta has mentioned Adibalaprarutta Vyadhi; which are of two types Matrija (maternal) and Pitruja (paternal), which are derived from the manifestation of Shukra and Shonita, respectively. Some references of Buddhimandya (MR) can also be seen in another group of disorders called as Janmabalaprarutta Vyadhi. Garbha (fetus) is completely dependent upon it’s mother; so any change in mother’s mental or physical state affects the Garbha; causing ailments. They are of two types; Rasakruta and Dauhiradapcharakruta. Rasakruta Vyadhi is caused due to the vitiation of Rasadhatus. If Rasadhatus is impure; owing to the improper diet of mother; the whole chain of dhatu originating from Rasadhatus would be severely affected, precipitating many ailments. The basic function of Rasadhatus is Preenana, i.e., giving nourishment to Manas. Due to the improper nourishment of Manas and Indriyas; de- arrangement of satta, Raja and Tamah occurs in Manas; resulting in many Manasvyadhi. Buddhimandya may be the result of such causes. Every Acharya of Ayurveda has given immense importance to the Dauhrida phase of pregnancy. Acharya Sushruta, clearly states that, if mother’s cravings are not fulfilled, she may deliver a baby suffering from many disorders like Jadata (Mental Retardation), Dwarfism; etc. Latest Research work too underlines the importance of proper diet. Growing fetus needs non-essential amino acids; the deprivation of any one amino acid from the protein synthesizing substrate could retard the rate of protein synthesis and thereby result in more or less failure of brain development during the period of its most rapid growth. In the period of Dauhrida; not only cravings but stress factor is also very important. Mental stress any ways play a very vital role in the development of baby’s brain throughout pregnancy, but it is of utmost importance during this phase. Chronic exposure to stress hormones, whether it occurs during the prenatal period, infancy or childhood has an impact on brain structures involved in cognition and mental health.

MATERIALS AND METHODS –

Study design – It is a randomized open interventional placebo controlled clinical trial. For this study total 22 patients were taken.

SELECTION OF CASES

Inclusion Criteria –
- Patients having Mild MR (IQ 50 to 70) and Moderate MR (IQ 35 to 55) were selected.
- Questioner carrying six questions was prepared according to the age. It is as follows.
  - General information
  - General comprehension
  - Arithmetic
  - Similarity
  - Vocabulary
  - Digit span
  - Picture completion
  - Picture arrangement

The first five tests were evaluated on the basis of answers given orally. The last two tests are concerned with the psycho motor skills of the subjects.

Scoring of IQ –

\[ IQ = \frac{MA}{CA} \times 100 \]
Patients were selected from the age group of 3 years to 9 years of age.

**Exclusion Criteria –**

- Patients having severe MR (IQ 20 to 40) were rejected.
- Patients suffering from any other anomalies like CVS abnormalities, Genetic disorder, Tuberculosis etc were rejected.
- Patients not regular in the treatment were rejected.

**TRIAL DRUG –**

A classical preparation of medicated Ghee known as “Panchagavya Ghruta” or “LaghuPanchagavya Ghruta” was selected for the study. The reference was taken from CharakSamhita. 14

**CONTENTS OF PANCHAGAVYA GHRUTA**

- Gau – Shakra Rasa (Fresh cow dung juice)
- Gau – Dadhi (Cow milk curd)
- Gau – Kshira (Fresh cow milk)
- Gau – Mutra (Fresh cow urine)
- Gau – Ghruta (cow ghee)

All the five ingredients were taken in equal proportion. The PanchagavyaGhruta was prepared according to GhrutapakaVidhi.

**DOSAGE –** The advised dose was 10 ml / day. The drug was administered 15 mins before and after meals twice a day for 12 months. For AnupanakoshaJala was advised for all the patients.

**GROUPING OF PATIENTS –**

All the 22 patients, selected for the study were divided into two groups, namely Group I and Group II. The Group I and Group II were selected by simple random sampling technique.

**GROUP I (ON GAU GHRUTA)**

A total of 11 patients were in this group. They were administered GauGhruta along with luke warm water; 15mins before and after meals; twice a day; for 12 months. The dose was 10ml/day.

**GROUP II (ON PANCHAGAVYA GHRUTA)**

A total of 11 patients were in this group. They were given panchagavyaghruta in a dosage of 10ml/day; along with luke warm water 15mins before and after meals; twice a day; for 12 months.

**CRITERIA OF ASSESSMENT**

For the assessment of result, IQ was kept as a parameter. Wechsler Test was used to scale the intelligence and memory (cognitive domain). Adaptive skills of patients were tested using Vinland Adaptive Behaviour Scale. The observations found were recorded as results. The result was analysed by the following parameters.

<table>
<thead>
<tr>
<th>Satisfactorily Improved</th>
<th>Improvement in IQ of more than 75%.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderately Improved</td>
<td>Improvement in IQ of more than 50% upto 74%.</td>
</tr>
<tr>
<td>Improved</td>
<td>Improvement in IQ of more than 25% upto 49%.</td>
</tr>
<tr>
<td>No change</td>
<td>No improvement in IQ or improvement upto 24%.</td>
</tr>
</tbody>
</table>

**FOLLOW UPS**

Both the groups were studied for 12 months. The IQ of each patient was calculated before the start of the study and after the completion of 12 months of trial period.

**STATISTICAL ANALYSIS**

All the observations obtained were analysed statistically and the inference was drawn according to the Mean, Median, SD, SEM and P value of the parameters. Test applied was one way ANOVA, i.e., kruskalwallies test with Dunn’s multiple
comparison test. It is an non parametric test, as data does not follow normal distribution of Gaussian curve. P value summary was taken by comparing with baseline before treatment values. (Abbreviations: SD = Standard deviation, SE = Standard Error, P value = Actual probability value, n = number of observations)

**OBSERVATIONS AND RESULTS**

After the study, observations found in both the groups were calculated statistically to find out the significance of result.

**TABLE 1**: Distribution of patients in both Groups according to the degree of Mental Retardation.

<table>
<thead>
<tr>
<th>Degree of Mental Retardation</th>
<th>Group I</th>
<th>Group II</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Border Line</td>
<td>5</td>
<td>4</td>
<td>9</td>
<td>40.90%</td>
</tr>
<tr>
<td>Mild</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>27.27%</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>31.81%</td>
</tr>
</tbody>
</table>

**TABLE 2**: Effect of treatment on IQ

<table>
<thead>
<tr>
<th>Result</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Effect</td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group I</td>
<td>46.18</td>
<td>46.31</td>
<td>18.18</td>
<td>0.14</td>
<td>0.13</td>
</tr>
<tr>
<td>Group II</td>
<td>45.64</td>
<td>45.09</td>
<td>36.36</td>
<td>0.17</td>
<td>0.26</td>
</tr>
</tbody>
</table>

**Borderline IQ**

<table>
<thead>
<tr>
<th>Result</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>78.33</td>
<td>78.44</td>
<td>27.27</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>Group II</td>
<td>79.00</td>
<td>79.16</td>
<td>45.45</td>
<td>0.10</td>
<td>0.16</td>
</tr>
</tbody>
</table>

**Mild IQ**

<table>
<thead>
<tr>
<th>Result</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>63.33</td>
<td>63.04</td>
<td>27.27</td>
<td>0.07</td>
<td>0.08</td>
</tr>
<tr>
<td>Group II</td>
<td>62.00</td>
<td>62.15</td>
<td>45.45</td>
<td>0.09</td>
<td>0.15</td>
</tr>
</tbody>
</table>

**Moderate IQ**

<table>
<thead>
<tr>
<th>Result</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>40.33</td>
<td>40.43</td>
<td>27.27</td>
<td>0.09</td>
<td>0.10</td>
</tr>
<tr>
<td>Group II</td>
<td>32.05</td>
<td>32.45</td>
<td>36.36</td>
<td>0.11</td>
<td>0.15</td>
</tr>
</tbody>
</table>

**TABLE 3**: Showing the distribution of cases according to the result obtained in Group I and Group II.

<table>
<thead>
<tr>
<th>Result</th>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of cases</td>
<td>%</td>
<td>No of cases</td>
</tr>
<tr>
<td>Satisfactorily Improved</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Moderately Improved</td>
<td>2</td>
<td>18.18</td>
</tr>
<tr>
<td>Improved</td>
<td>2</td>
<td>18.18</td>
</tr>
<tr>
<td>No change</td>
<td>7</td>
<td>63.63</td>
</tr>
</tbody>
</table>

It is observed that, in none of the Groups no patient was found to have satisfactorily improved according to the parameters of this study. In Group I, 2 patients showed Moderately improved result whereas in Group II 5 patients showed this result, giving an impressive result of 45.45% In Group I, 7 patients reported no change and in Group II only 4 Patients reported no change. In both the Groups 2 patients were observed to be improved.
In borderline IQ, Group I showed statistically significant (P > 0.05) improvement at 27.27%. In Group II, IQ increased by 45.45% after the study; which is statistically highly significant.

When overall effect on IQ in Group I and Group II was studied it was found that Group I provided statistically significant (P> 0.05) improvement (18.18%) and in Group II the overall IQ was increased by 36.36%; which is highly significant.

**DISCUSSION**

In the present study all the patients belonging to both the Group were assessed according to IQ scale by Wechsler Test and for adaptive skills; Vinland Adaptive Behaviour scale was used.

As per the observations in Group I, 45% patients showed improvement in concentration, 32% in orientation, 42% in consciousness, 45% in emotion, 27% in thinking, 45% in memory remote, 63% in memory recent, 54% memory immediate, 36% in perception, 28% judgement.

In Group II, it was observed that 72.72% patients showed improvement in concentration, 72% patients in orientation, 65% in consciousness, 63% in memory remote, 82% in memory recent, 72% in memory immediate, 61% in perception and 45.45% in Judgement. When the overall effect of therapy was observed it was found that Group II reported significant improvement.

**CONCLUSION**

*Balbuddhimandya* (MR in Paediatric age group) is a good subject, with a vast potential, both clinically as well as literary. There is no direct reference in *Ayurvedic* classics regarding this ailment. Hence, it has a very wide horizon for research scholars to explore. *Balbuddhimandya* is observed in all socio economical classes of the society. But, lower income group is found out to be the most affected followed by the middle income group. Poor hygiene during pregnancy, unhygienic–undernourished diet, economical burden, stress, physical labour, and exposure to various infectious diseases like STD could be the contributing factors.

Majority of the *Balbuddhimandya* patients were observed having low IQ, SQ, EQ.

*PanchagavyaGhruta* showed encouraging results in elevating IQ levels in *Balbuddhimandya* patients which was found out to be statistically significant.

Every component of *panchagavya-ghruta* is easily available across India. Making this *ghruta* does not require great skills hence, can be made at home by everyone.

*PanchagavyaGhruta* significantly improved IQ in the study. It has shown improvement in other aspects of IQ and SQ like orientation, consciousness, Memory, Thinking, Concentration; etc. *PanchagavyaGhruta* can be safely given to patients of *Balbuddhimandya* (MR); without fear of any side effects.

**REFERENCES**


