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Jyotismati Taila and *Ashtamangal Ghrita Nasya* in the management of Mental Retardation - A Comparative Study

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ABSTRACT

Mental retardation is still elusive to researchers due to multidimensionality of psychological, medical, educational and social aspects, which alters mental functions and capability. Mental sub capability divided in 4 categories, Mild, Moderate, Severe and Profound. Chief aim of management of mental retardation is to make child more capable of performing common activities of everyday life by positive improvement in mental sub-capability. Mental retardation required multidimensional management approach. Present study focused on medicinal intervention, particularly analysis of comparative effectiveness of selected drug formulations (*Astamangalghrita* and *Jyotismatitaila*) from classical text of Ayurveda. Study design with the aims to compare the effectiveness of *Jyotismatitaila* and *Astamangal Ghrita Nasya* on Mental retardation. Assessment were based on Mental Status Score and IQ score taken before starting of treatment and after completion of treatment in both group. Obtained data was analyzed statistically. In this study, from result we conclude that both drugs are effective to improve Mental Status parameter and in IQ, but higher percentage and significance wise *Jyotismati Taila* had better result than *Astamangal Ghrita Nasya*.

Key words: Mental Retardation, *Astamangal Ghrita*, *Jyotismati Taila*, IQ, Memory.

INTRODUCTION

Mental retardation is age old problem. Mental retardation is still elusive to researchers due to multidimensionality of psychological, medical, educational and social aspects, which alters mental functions and capability. Thorough evaluation and understanding is necessary to minimize its curb on health of individual, society and nation.

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Definition of Mental retardation based on mental sub-capability. According to the American Association on Mental Retardation (AAMR), Mental retardation is a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18.^[1]

According to WHO - ICD-10 guide for Mental Retardation - Mental retardation is a condition of arrested or incomplete development of the mind, which is especially characterized by impairment of skills manifested during the developmental period, which contribute to the overall level of intelligence, i.e., cognitive, language, motor and social abilities.^[2]

Mental sub capability is divided in 4 categories. Mild (50 IQ to 69 IQ, Educable), Moderate (35 – 49 IQ, Trainable), Severe (20 – 34 IQ) and Profound (Below 20 IQ).^[3]

Prevalence of mental retardation is - Peak among 10-14 years age group (due to late detection) - 85% of all

MR comes under mild degree of MR – ratio of occurrence in Males to Females is 1.6 to 1 - found Higher number in low socioeconomic classes.^[4]

Chief aim of management of mental retardation is to make child more capable of performing common activities of everyday life by positive improvement in mental sub-capability.^{[5],[6],[7]}

Mental retardation required multidimensional management approach, which classified in - preventive and specific measurements.

Prevention include from genetic counseling to prevention during ante-peri-post natal condition and care and support and education during childhood.

While specific measures include special education to child, physiotherapy, speech therapy, counselling, occupational therapy, medicinal intervention etc.

Present study focused on medicinal intervention, particularly analysis of comparative effectiveness of selected drug formulations from classical text of Ayurveda.

In Ayurveda, there are ample evidence of many nootropic drugs uses for improvement and enhancement of mental sub-capability, two formulation were selected for the study are *Ashtamangala Ghrita*^{[8],[9],[10]} and *Jyotismati Taila*.^{[11],[12]} There are numerous study available on effect of *Astamangal Ghrita*^{[13],[14]} in oral mode of administration. So this study taken up *Nasya* (Nasal route) as a mode of administration for *Astamangal Ghrita*, while *Jyotismati Taila* given oral route.

OBJECTIVES OF THE STUDY

To compare the effectiveness of *Jyotismati Taila* and *Astamangala Ghrita Nasya* on Mental retardation

MATERIALS AND METHODS

Study design

The patients for the study were selected from OPD and IPD of *Kaumarbhritya* Dept., IPGT and RA, Jamnagar. Patients were enrolled after they satisfy the inclusion/exclusion criteria, randomly distributed in Group A and Group J, detailed assessment carried out before starting of therapy and after completion of therapy. Obtained data analyze statistically.

Criteria for the selection of patients

Inclusion Criteria

- Either sex
- Age between 5 years – 16 years.
- Having Mental sub-capability

Exclusion Criteria

- Congenital anomalies or deformities
- Having any serious illness
- Profound degree of Mental retardation

Group

Patients were randomly distributed in 2 group

- **Group A** : *Astamangal Ghrita Nasya*
- **Group J** : *Jyotismati Taila*

Posology

- *Astamangal Ghrita(as Nasya)* - instill 6-8 drops according to age in morning - administer 1 week with 1 week gap for 2 months.
- *Jyotismati Taila* (given Orally - mix in milk) - 2 to 10 drops according to age in morning for 2 months.

Criteria for Assessment

Assessment were based on Mental Status Score and IQ score (by S. Shukla-1976)^[15] taken before starting of treatment and after completion of treatment in both group.

Criteria for Assessing Total Effect

After completion of the treatment given to the patients of Group A, Group J of mental retardation were finally assessed and evaluated in terms of cured, markedly improved, moderately improved, improved and unchanged. The same procedure or methods of assessment and evaluation was applied to the patients of both group of studies.

Results

Table 1: Patients completed the study

	Group A	Group J	Total	%
Borderline	5	3	8	30.77
Mild	3	6	9	34.62
Moderate	2	3	5	19.23

Severe	2	2	4	15.38
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Table 2: Effect of therapies on Mental Status

Mental status	Group A	Group J
Attention	53.85%↑(M-0.59, SE-0.148, T-3.924)**	80 %↑ (M-0.86, SE-0.097, T-8.831)***
Behavior	69.23%↑ (M-0.75, SE-0.179, T-4.179)**	56.25 %↑(M-0.75, SE-0.132, T-4.857)***
Concentration	63.64 %↑(M-0.58, SE-0.148, T-3.924)**	81.25 %↑ (M-0.93 , SE-0.071, T-13)**
Consciousness	43.75 %↑ (M-0.69, SE-0.148, T-3.924)**	81.25 %↑ (M-0.93, SE-0.071, T-13)***
Communication	25 %↑ (M-0.41, SE-0.148, T-2.803)*	64.71%↑ (M-0.79, SE-0.113, T-6.904)***
Emotions	64.29% ↑(M-0.75, SE-0.179, T-4.179)**	60 %↑ (M-0.04, SE-0.132, T-4.837)***
Information	21.05 %↑(M-0.34, SE-0.142, T-2.345)*	64.29 %↑ (M-0.64, SE-0.132, T-4.837)***
Judgments	55 %↑ (M-0.58, SE-0.148, T-3.924)**	92.31 %↑(M-0.86, SE-0.097, T-8.831)***
Orientation	42.86 %↑ (M-0.5, SE-0.15, T-3.316)**	64.29 %↑ (M-0.64, SE-0.132, T-4.837)**
Perception	46.67 %↑(M-0.58, SE-0.148, T-3.924)**	84.62 %↑ (M-0.78, SE-0.113, T-6.904)***
Thinking	37.5 %↑ (M-0.5, SE-0.15, T-3.316)**	69.23 %↑ (M-0.64, SE-0.132, T-4.837)**

Data: ↓ = Decrease, ↑=Increase, * P<0.05, **P<0.01, ***P<0.001

Table 3: Effect of therapies on Memory

Memory	Group A	Group J
Immediate Memory	90.91 % ↑ (M-0.389, SE-0.112, T-7.416)***	130.77 %↑ (M-0.425, SE-0.113, T-16.67)***
Recent Memory	76.92 %↑ (M-0.389, SE-0.112, T-7.416)***	130 % ↑ (M-0.267, SE-0.071, T-13)***
Remote Memory	58.33 %↑ (M-0.514, SE-0.148, T-3.924)*	122.22 %↑(M-0.425, SE-0.113, T-6.904)**

Data:, ↓ = Decrease, ↑=Increase, * P<0.05, **P<0.01, ***P<0.001

Table 4 : Effect of therapies on IQ

IQ	Group A	Group J
Total IQ	8.5 % ↑ (M-5.39, SE-0.937, T-5.752)***	12.41 %↑ (M-6.94, SE-0.527, T-13.156)***
Borderline IQ	8.37 %↑ (M-6.9, SE-1.951, T-3.536)*	10.21 % ↑ (M-7.82, SE-0.962, T-8.125)*
Mild IQ	7.53 %↑ (M-4.86, SE-0.511, T-9.507)*	10.21 %↑(M-6.23, SE-1.12, T-5.006)**
Moderate IQ	8.67 %↑ (M-4.32, SE-2.655, T-1.629)	15.88 % ↑(M-7.42, SE-0.378, T-19.602)**
Severe IQ	8.97%↑ (M-3.51, SE-1.030, T-3.407)	30.61 % ↑ (M-7.06, SE-0.505, T-13.970)*

Data:, ↓ = Decrease, ↑=Increase, * P<0.05, **P<0.01, ***P<0.001

Table 5: Overall Effect of therapies

Overall effect	Group A	Group J
Markedly improved	41.66 %	21.43 %

Moderately improved	16.67 %	7.14 %
Improved	25 %	57.14 %
Overall improvement	83.33%	85.71%
Unchanged	16.67 %	14.29 %

- In the present study, registered 26 patients randomly distributed in Group A – 12 patients and Group J – 14 patients, categorized under Borderline (8 patients-30.77%), Mild (8 patients-34.62%), Moderate (5 patients - 19.23) and Severe (4 patients - 15.38) degree of Mental retardation
- In observational result found most of pts belonging to the age group of 9-12 years (57.14%), males (71.43%), middle socio-eco status (60%) and all were from urban habitat. These data fall in lines of international prevalence rate among age group, male-female ratio and predominance of mental retardation in lower and middle socio-economical Status.
- Abnormal social behaviour (77.14%), delayed milestone (68.57%), impaired memory / slow learning (100%) and speech defect (40%) were observed as primary sign and symptoms in the present study. Convulsion (31.43%) and bed wetting (48.57%) were observed as dominant associated symptoms in patients.

DISCUSSION

Comparative effect of therapies on Mental Retardation

Effect of therapies on Mental Status

In comparison of Group A and Group J, Group A provided better relief and significantly improve behaviour (69.23%) and emotions (64.29%), while rest of other Mental Status parameter showed better result with Group J with highly significance. (table 2)

Effect of therapies on Memory

Group J had better improvement with highly significant result in all 3 types of memory in term of improvement in immediate memory (130.77%), recent memory (130%), remote memory (122.22%). Group A also had good result to increase Memory of

all type but less in percentage compare to group J. (table 3)

Effect of therapies on IQ

Group J had better improvement with highly significant result in all 4 categories of IQ in mental retardation i.e., total IQ (12.41%), borderline IQ (10.21%), mild IQ (10.21%), moderate IQ (15.88%) and in severe categories IQ (30.61%). Group A also showed good result to increase IQ but less in percentage compare to group J. In moderate and severe categories only Group J showed significant result. (table 4)

Overall effect of therapies

In comparison of overall effect, group A achieve better result in markedly and moderately improvement, but overall improvement (markedly improve, moderately improve and improve) is better in Group J. (table 5)

Nootropic effect of *Ashtamangal Ghrita* and *Jyotismati Taila* is well established in *Ayurveda*. Both drugs having potency of improving intellect, improves memory recall power and retention span thereby memory enhancer action, induces alertness, improves concentration, reduces rate of cell death of neurons, improves ability of thinking and reasoning and improves concentration, alertness, and other cognitive functions.^{[16]-[21]} In present study, both the drugs proves nootropic effect with assessing Mental status and IQ parameters. But possibly *Jyotismati* (the natural luminosity (*Jyoti*) of the mind (*Mati*) having advantage of nervine stimulant and neuroprotective effect^[21] in compare to *Ashtamangal Ghrita*, reflected in higher percentage and more significant in *Jyotismati Taila* group. Result of comparative effect of therapy also reflect that study with combine therapy of both drugs need to be evaluated for overall more beneficial effect to manage Mental retardation.

CONCLUSION

In this study of mental retardation found most of patients were belonging to the age group of 9-12 years, males, and all were from urban habitat. Children of lower and middle income groups were observed more affected in comparison to children

belonging to higher income group. The delayed cry, neonatal diseases were also noticed in some of the patients. Delayed milestone, abnormal social behavior, impaired/slow learning, convulsions, enuresis observed in majority of patients. In comparison of both drugs, *Astamangala Ghrita Nasya* is better therapy for improvement in behavior and emotion parameter of mental status, while *Jyotismati Taila* is better in rest of all mental status parameter. *Astamangala Ghrita Nasya* and *Jyotismati Taila* both were better in improvement in all type of memory and IQ in all category, but higher percentage of improvement was found with *Jyotismati Taila* group. In comparison of overall effect, *Astamangal Ghrita Nasya* achieve better result in markedly and moderately improvement, but total improvement (markedly improve, moderately improve and improve) is better in *Jyotismati Taila*. In present comparative study both drug was proved their efficacy with good result. In future, combine therapy of these drug need to evaluate to cover all aspect of Mental retardation. Present scientific study has been proved satisfactorily with significant result, even then period of this study may be extended to find out the minute efficacy of the drugs in order to standardize the parameters adopted in existing scientific work.

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