

## A Clinical Study to Evaluate the Effect of Saraswatharishta In Mudhata W.S.R Intellectual Disability Of Children

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**ABSTRACT: Background:** Intellectual disability (intellectual developmental disorder) is a disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains. So in the present study an attempt has been made to evaluate the effect of *rasayana* in *Mudhata*. **Objectives :**

To evaluate the therapeutic effect of Saraswatharishta in *Mudhata* / Intellectual Disability of Children.

**Methods: Study design:** It was an open labeled clinical study with pre and post test design where in minimal 30 patient suffering from Intellectual Disability will be selected and the parameters of signs and symptoms were recorded and scored based on the standard scoring methods and analyzed statistically. **Source of data:** A minimum of 30 children suffering from Intellectual Disability were selected from irrespective of their gender, caste, creed from IPD/OPD Of Shri Dharmasthala Manjunatheshwara Ayurveda Hospital, KuthpadyUdupi after fulfilling the inclusion criteria.**Intervention:** Patients were administered with Saraswatharishta without Gold 12 ml 2times a day for 2 months. **Follow up** -2 months .**Assessment criteria:** Signs and symptoms of Intellectual Disability were evaluated on the basis of DSM 5 criteria ,Adaptive Behavior Evaluation Scale revised 2<sup>nd</sup> Edition 4 to 12 yrs . **Results:..** Saraswatharishta provides a statistically high significant p value (p<0.001), there was remarkable result in improving manasa bhavas and adaptive functioning which involved in the mudhta /intellectual disability of children.The overall improvement in manasa bhava assessment scale 36.09%.**Interpretation and Conclusion:** The overall inference is that Rasayana property of saraswatharishta have effective role in improving the intellectual capacity of children.

**Key Word:** Mudhata, Intellectual Disability, Saraswatharishta

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### I. INTRODUCTION

Raising a child with an intellectual disability can be a daunting and exhausting ask. Family members must cope with the daily stress of seeing their child struggle.It is natural to feel grief, resentment, disappointment and frustration. Sometimes these feelings can lead to feeling of guilt, hopelessness and depression. It is tough to see society treat them like they are less than others because they look different. A child in our society is expected to meet standards, sadly many children are unable to meet the standards.

Intellectual disability (intellectual developmental disorder) is a disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains.<sup>1</sup>The essential features of intellectual disability are deficits in general mental abilities and impairment in everyday adaptive functioning, in comparison to an individual's age, gender, and socio culturally matched peers. On set is during the developmental period. Children with Intellectual Disability can do learn new skills,but they learn them more slow. The pressure to meet our society values was too much and too fast for them.Overall, males are more likely than females to be diagnosed with both mild (average male : female ratio 1.6:1) and severe (average male: female ratio 1.2:1) forms of intellectual disability <sup>2</sup>.

So being a burning problem, it needed effective and safe treatment with the right support, most will be able to do their own works as independently.

The chief aim should be to make the affected children more capable of performing common activities of everyday life. So they can come out from regret and guilt.

Ayurveda explained conditions as “*Mudha*,<sup>3</sup>*Murkha*,<sup>4</sup> *Alpabuddhi*,<sup>5</sup>(indicating stunted growth of mental faculties) appear to be state of ‘Intellectual Disability’

Saraswatharishta,<sup>6</sup> a reputed formulation of Bhaishajya Ratnavali Rasayana Prakarana, specially indicated in *manodosha* ,*chittasamthosha* and as like *Amruth*. It is consider here to increase the Intellectual ability.

## **OBJECTIVES OF THE STUDY**

- 1) To evaluate the therapeutic effect of Saraswatharishta in *Mudhata* / Intellectual Disability of Children
- 2) The conceptual study of *mudhata* and intellectual disability of children.

## **II. MATERIALS AND METHODS**

### **Source of data:**

A minimum of 30 children suffering from Intellectual Disability were selected from irrespective of their gender, caste, creed from IPD/OPD Of Shri Dharmasthala Manjunatheshwara Ayurveda Hospital, Kuthpady ,Udupi after fulfilling the inclusion criteria.

### **Method of collection of data:**

A special proforma were prepared with details of history taking, psychological signs and symptoms of Intellectual Disability.

### **Study design**

It was an open labeled clinical study with pre and post test design where in minimal 30 patient suffering from Intellectual Disability were selected and the parameters of signs and symptoms were recorded and scored based on the standard scoring methods and analyzed statistically. Patients were administered with Saraswatharishta without Gold 12 ml 2times a day for 2 months.

### **Duration of clinical study:**

**Intervention:** 2 months

**Follow up** : 2 months

### **Diagnostic criteria:**

*Mudhata* was diagnosed as per classical reference and Intellectual Disability was diagnosed on the basis of Diagnostic criteria mentioned in DSM 5

### **Inclusion criteria:**

1. Patient fulfilling the diagnostic criteria.
2. Patients of age group between 4 to 12 years.

### **Exclusion criteria:**

1. Associated with complications of other systemic disorder.
2. Major and minor cognitive disorders, Autism spectrum disorder, Communication Disorder and Specific learning disorders.

### **Assessment criteria:**

- Signs and symptoms of Intellectual Disability were evaluated on the basis of DSM 5 criteria
- Manasa bhava assessment scale
- Adaptive Behavior Evaluation Scale revised 2<sup>nd</sup> Edition 4 to 12 yrs

**Observation:** Maximum number of children in this study were in the age group of 10to 12 years i.e.63%,97% of the total patients were Hindus, Maximum number of patients belonged to the middle socio economic strata (73%) , Although maximum number of patients were delivered caesarean (70%); The indicates that 100% of children having mixed diet. Majority of the patients (67%) had a sound and undisturbed sleep. majority of the patients had poor exercise(60%),18 number of children (60%) reported of regular bowel evacuation. In this study 57 % of patients had normal temperament. in this study 49% of patients had friendship with same sex and with opposite sex also, 52% of patients are addicted to watching t v programs, According to the *saririka prakrti* maximum number of these children 57% were *kaphavata pradhana*, Maximum number of patients (80%) had *avara sara*, 73% of the total number of patients had a *avaraSamhanana*, In this study total number of patients (100%) the *satva* was found to be *avara*,70% children had an *avara satmya*, In maximum number of children i.e.93%, the *vyayama sakti* was *avara*, In 67% of the patients the *pramana* was found to be *avara*.

## **III. DISCUSSION**

While defining *swastha*, it has been quoted that *prasanna athmendriyamana* are the most important characteristics. So the degree of affliction of *mana* causes disturbance in human beings. *Manas* is one of the complicated topic in ayurveda ,action of *medhya rasayana* and its *rasayana* property acting in *manas* and its

guans are more interesting .hence the objective is to find out the efficacy of rasayana in reduced intellect of children. Maximum number of children in this study were in the age group of 10to 12 years i.e.63%. This was followed by 37% children in the age group of 7 to 9 years. While only 0% children were reported in the age group of 4 to 6 years. The child is expected to learn to adopt few communication skills, running, skipping, acquire sphincter control, up till 10 to 15, have fine co-ordination and play competitive games by the age of 5 years. Any deficit in this normal development worries the parents . this worries drives them to consult a physician in case of further delay. Thus maximum cases are reported between this time period of 4 to 12 years. 97% of the total patients were Hindus, while Muslims and Christians community contributed 3% and 0% respectively. This data proves the geographical distribution of particular sect. Maximum number of patients belonged to the middle socio economic strata (73%) , while 14% patients were of upper middle and (13%) lower middle class none (0%) from the high socio economic group. exposure to various infections, Malnutrition, untimely treatment and faulty delivering techniques are much more common in the lower middle class and middle class. This may contribute to higher incidence of reduced intellect in this group.

Although maximum number of patients were delivered caesarean (70%); and 30% were delivered normal. The data indicates that caesarean delivery was recorded in more than one third of the cases. Meconium aspiration which is often a cause of or associated with caesarean section, cause hypoxia which may also lead to reduced mental function. The indicates that 100% of children having mixed diet.This data proves the geographical distribution of particular food habit. Majority of the patients (67%) had a sound and undisturbed sleep. In 33% children the sleep was disturbed. In children the sleeping hours are more than in adults. Also predominance of *tamas* and *kapha* may be the cause for very sound sleep. majority of the patients had poor exercise(60%) Remaining 40% had moderate exercise. Exercise also plays a vital role in improving the mental health. 18 number of children (60%) reported of regular bowel evacuation. In 40%, the bowel habit was found to be irregular. They had history of constipation. Mentally ill children usually have irregular eating habits, may become hard due to lack of proper water intake and constipation is reported. The association of vitiated *vata* along with vitiated *kapha* as is usually found in cases of *mudhata* may be the reason of irregular bowels. In this study 57 % of patients had normal temperament. 33% were calm 10% were cruel in nature. An aggressive and hyperkinetic state and negative or pessimistic attitude is usually responsible for this abnormal behavior in the mentally ill children. in this study 49% of patients had friendship with same sex and with opposite sex also.2% of patient had friendship with adults.52% of patients are addicted to watching t v programs and 48% are addicted to mobile phone. Patients with intellectual disability are always prone to addiction other than studying. *Prakriti*- According to the *saririka prakriti* maximum number of these children 57% were *kaphavata pradhana* while 13% were *pittakapha* dominant and 7% children were found to be *Vatpitta* dominant. According to their *manasa prakriti* maximum number i.e. 77% of children were *tamasa pradhana* while 23% were *rajasa pradhana* .Vitiated *vata* and *kapha dosa* are usually involved in the pathogenesis of *mudhata*. In the present case the child has *kapha vata prakriti* the chances of the disease becoming *asadhya* or *krcchra sadhya* are higher. According to the description of different *manasika prakritis* the *tamasa pradhana* usually has a reduced intellect. Maximum number of patients (80%) had *avara sara* while 20% had *madhyama sara*, *pravara sara* was not present in any of the patients. There is a association between the normal growth and development pattern. If one is impaired the other is also affected. Thus in maximum number of children growth being also affected, *sara* was found to be *avara*. 73% of the total number of patients had a *avara Samhanana* while 27% had *madhyama samhanana*. In the severely and moderately reduced intellect children the compactness of body is not proper. In this study total number of patients (100%) the *satva* was found to be *avara*. The mentally ill children usually lack self-confidence, they are not self-dependent and cannot think and judge the situation correctly. *Acarya Caraka* has told that person having *avara* and *madhyama satvabala* are vulnerable to diseases, which is supported in the above study.70% children had an *avara satmya* and 30% had *madhyama satmya*. *Satmya* stands for such factors are wholesome to the individual even when continuously used. In the present study maximum children had *avara satmya* and hence they did not get proper nourishment for both body and mind. In maximum number of children i.e.93%, the *vyayama sakti* was *avara* while in 7% children it was found to be *madhyama*. Growth is also affected in most of these cases and the compactness and *sarata* of *dhatu*s being reduced in these children, so they usually cannot do strenuous exercise. In 67% of the patients the *pramana* was found to be *avara*. The *pramana* of 33% children was *madhyama* . The disproportion amongst body parts is a common feature of intellectually disabled children .

On *Manasabhavas*– *Medha*– The capacities to understand, comprehend and conceptualize were improved significantly . There was an increase of 21.32% .The data shows that saraswatharishtha provided the improvement in boosting the *medha* .*Smrti*-The capacity of recalling and retaining which were considered under the *manasabhava Pariksa – smrti*, showed a statistically highly significant improvement 24.65% (P<0.001) which shows the effect was statistically significant. saraswatharishtha have direct role in improving the memory *Dhrti*– The data reveals that after the treatment there was an increase in *dhrti* by 25.32% (P<0.001) and was highly significant on boosting the courage and insight of the children, that help them to do daily activities more

fast and perfect. *Vijnana*– the improvement in the capacity of proper judgment and better insight into the situation, was increased by 24.988% which was highly significant ( $P < 0.001$ ). The assessment is done by looking how perfectly the work has been done (*vyavasayeneti pravarti*), the performance clarity indicates his knowledge and logic application with work. *Krodha*– The anger was reduced. The effect was highly significant ( $P < 0.001$ ) as the decrease in *krodha* was 26.165%. Excessive uncontrollable anger is one of the risk factor in intellectually disabled children, it can cause self harm as well as homicide also. Here *saraswatharishta* can play a vital role in reducing the *krodha*. *Soka*– Study provided 31.818% relief in grief from sorrowful disposition which is statistically highly significant ( $P < 0.001$ ). Excessive *soka* as well as lack of *soka* is one of the phenomenon can be seen in mentally ill children. some times there are not even to control there feeling. *Rasayana* can control the *manasa bhavas* like *soka* again proved in this study. *Bhaya*– In this study fear of children was decreased by 30.318% which was statistically highly significant ( $P < 0.001$ ). fear to wards doing daily activities and specific phobias are also markedly reduced. *Harsha*– In this study *harsha* of children was increased by 30.318% which was statistically highly significant ( $P < 0.001$ ). children those who are very introvert improved there social interaction and depressed mood also gets changed. Factors affecting the intelligence is always in controversy. Is intelligence inherited or built? There are lot of factors affects one's intelligence and memory it begins from one's life and continue till death biological, social factors, psychological and family factors also have vital role in impairment of intellect. Acharyas mentioned ayurveda can made changes in this conditions like impaired intellect and memory. Ayurveda also gives importance to genetic and hereditary aspect of *buddhi* and *medha*. “*mano buddhestatha nidra aalasyam mada eva cha*” these are derived from *akasha bhuta*. “*Agneyani medha*,” indicates that *medha* is originates from *agni*.

Here mentioned the total effect on *saraswatharishta* in conceptual, social and practical domain of children with ABES –R2 4-12 Years Scale Effect on conceptual domain–On overall communication: The effect was highly significant ( $P < 0.001$ ) on the overall communication of the patients. The data reveals that *saraswatharishta* given orally provided the maximum improvement in conceptual domain specially in communication. It was calculated on the basis of a series of 5 questions had the raw score of 30. These tests basically estimate communication, of the child. The data thus reveals there is improvement in the above mentioned mental capacities On overall functional academics:–The effect was highly significant ( $P < 0.001$ ). It was calculated on the basis of a series of 5 questions had the raw score of 30. These tests basically estimate functional academics of the child. The data thus reveals there is improvement in the above mentioned mental capacities.

Social domain– The effect was highly significant ( $P < 0.001$ ). It was calculated on the basis of a series of 19 questions had the raw score of 95. These tests basically estimate social participation of child. The data thus reveals there is improvement in the mentioned mental capacities. On overall leisure–The effect was highly significant ( $P < 0.001$ ). It was calculated on the basis of a series of 9 questions had the raw score of 45. These tests basically estimate social participation of child, understanding the concept of measurement, demonstrate the knowledge of requirement of personal safety. etc The data thus reveals there is improvement in the mentioned mental capacities. On overall self direction–The effect was highly significant ( $P < 0.001$ ). It was calculated on the basis of a series of 5 questions had the raw score of 25. These tests basically estimate in accepting the constructive criticism, verifying the level of accuracy for completing assignments etc. Practical domain–On overall self care –The effect was highly significant ( $P < 0.001$ ). It was calculated on the basis of a series of 6 questions had the raw score of 30. These tests basically estimate self care of toileting needs, ties shoes, fastens article of clothing etc. On overall health and safety–The effect was highly significant ( $P < 0.001$ ). It was calculated on the basis of a series of 8 questions had the raw score of 40. These tests basically estimate the article preference, makes refusals terminates an activity or situation, seeks assistance while needed etc. on overall home living

–The effect was significant ( $P = 0.001$ ). It was calculated on the basis of a series of 8 questions had the raw score of 40. These tests basically estimate demonstrates appropriate mealtime behavior, turns on faucet, flushes toilet etc, take care of personal property etc.

On overall work–The effect was highly significant ( $P < 0.001$ ). It was calculated on the basis of a series of 13 questions had the raw score of 65. These tests basically estimate the social interaction skill, interacts appropriately in a group situation etc. On overall community use–

The effect was highly significant ( $P < 0.001$ ). It was calculated on the basis of a series of 7 questions had the raw score of 35. These tests basically estimate appropriate use of free time, interacts appropriately with one other person etc. Effect of ingredients of *saraswatharishta*–*Saraswatharishta* has twenty three ingredients, those ingredient are proved *medhya*, *rasayana*, *vedanastapaka*, *vatanulomana*,, with pharmacological activities like antistress, antipsychotic, antidepressant, tranquillizer, smooth muscle relaxant, and anxiolytic. *Brahmi*, *shatavari*, *abhaya*, *mishi*, *pippali*, *vacha*, are proved *medhya* drugs. These improve the intellectual capacity of the person. *Brahmi*, *shatavari*, *vidarika*, *abhaya*, *renuka*, *pippali*, *vajigandha*, *amruta*, *vidanga* are considered as *rasayana* drugs. These helps in nourishing the mind and body and keep them in normalcy. *Vacha* acts as

*sanjnanasthapaka*, improves the intellectual capacity of the mind and improves the ability of perception of the reality, acceptance of reality . By observing all the information gathered it is clear that Saraswatharishta helps in improving the intellect as well as treating the *manodosh*a and *manodoshajanya vyadhi*. Thus Saraswatharishta in the present study showed good result in improving the intellect.

#### IV. CONCLUSION

On analysis of features of *mudhata* ,*kapha pradhana tridosha* along with *tamo dosha* vitiated due to the *nidanas* like *asatmyendriyatha samyoga* , *pranjaparadha* or *parinama* produces *mudhata* , and the *lakshnas* are matching with signs and symptoms of intellectual disability. So one can come to conclusion that intellectual disability is considered under the umbrella of *mudhata*. Oral medication by saraswatharishta in a dose of 12 ml bd with *anupana* of water effective in remission of signs and symptoms of *mudhata*. Saraswatharishta provides a statistically high significant p value ( $p < 0.001$ ), there was remarkable result in *manasa bhavas* which involved in the *mudhta*. over all improvement in *manasa bhava* assessment scale 36.09%. Over all improvement in Adaptive Behavior Evaluation rating scale and the changes that occurred in conceptual , social and practical domain was statistically significant with p value  $< 0.001$ . Study showed positive feed back in the management of *mudhata*/intellectual disability. Hence the present study substantiates the *phalasaruthi* of saraswatharishta reducing *manodoshajanya vikara* and act as *rasayana*. After the treatment period , during the follow up the intensity of severity was less when compared to the intensity before treatment. This may due to the *rasayana* property of saraswatharishta, which had its own effect even in the follow up period also.

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