



## Efficacy of Medhya Rasayana and Behavioural Interventions in the Management of Shyayamutra (Enuresis) in Children: A Double Blind, Randomised, Controlled Clinical Trial

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**Abstract:** Children in this modern age are suffering from many psychosomatic problems, out of those is enuresis, incidences are increasing nowadays, not only affecting the physical, emotional and social development of the child, it affects scholastic performance and ultimately becomes the cause of behavioural and other psychosomatic disorders. Ancient scholars *Brihadtrayi* and *Laghutrayi* have not mentioned *Shyayamutra* except *Sharangadhar*, who mentioned the word *Shyayamutra* under 22 *Balarogas* only. In *Vangasena* and *Bhaishajya Ratnawali* treatment is mentioned but no etiopathogenesis. *Samprapti* can be understood as *Sadhaka Pitta*, *Apana Vayu* and *Tarpaka Kapha* involvement affecting *Manovaha Srotas* causing *Enuresis*. Based on this, Double Blind randomised study was done, both groups having 30 patients each, one group was given *Medhya Rasayana* Syrup with Behavioural Intervention and other group was given Placebo Sugar Syrup with Behavioural Interventions at OPD, Department of Kaumarabhritya, All India Institute of Ayurveda, New Delhi, for one month. The study has proved that *Medhya Rasayana* Syrup along with Behavioural Interventions is more effective in *Shyayamutra* than Behavioural Interventions alone.

**Key Words:** Shyayamutra, Medhya Rasayana, Behavioural Interventions, Enuresis

### I. INTRODUCTION:

Enuresis (from the Greek word enourein - to void urine) has been defined as an involuntary discharge of urine. General population studied in India, shows 2.5% from 0-10 years have enuresis. Prevalence has been difficult to estimate as there is variation in definitions and social standards. As per, the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria, enuresis is defined as Repeated voiding of urine into bed or clothes (whether involuntary or intentional), by either a frequency of twice a week for at least 3 consecutive months, at least or more than 5 years of age (or equivalent development level). There are two types of enuresis. Primary Enuresis, which occurs in children who have never been consistently dry throughout the night and Secondary Enuresis, which refers to the resumption of wetting after at least 6 months of dryness. Normally 85% children attain complete diurnal and nocturnal control of the bladder by five years of age. The remaining 15% gain continence at approximately 15% per year, such that by adolescence only 0.5-1% children have enuresis. At Age 5, ratio of enuresis in male: female is 7:3, at 10 years ratio is 3:2. Altered Circadian rhythm of ADH hormone, increased secretion at night and peak secretion between 4-8 am, lack of this circadian rhythm or impaired response of kidney to ADH leads to enuresis. Other causes are Genetic factor (Chromosome 13), Developmental delay, Unarousable day sleep, Emotional instability, fear etc, U.T.I. and Organic urinary tract disease, Functional bladder instability, Constipation and Deep sleepers theory. Deep sleeper goes very quickly into stage 4 of sleep and stays there for long periods of time. Some times during the night the bladder fills up and by sending signals to the brain, it tries to wake up the sleeper, but cannot wake this person up because they are in deep stage of sleep. They have what we call Rapid Eye Movement (REM) rise. They come up very quickly to the REM stage, usually this is where they wet, and then they dive right back to deep sleep stage again. In this way we can see the enuretic child misses out the benefits of REM sleep, which is the level of sleep needed for the emotional areas of life. Time spent in REM sleep tends to correlate with the degree of brain maturity at birth, consistent with the view that REM sleep plays a major role in brain maturation.

There are two type of managements: Non Pharmacological Intervention-Motivational Therapy, Adequate fluid intake, Behavioural Interventions and Alarm Therapy and Pharmacological Intervention-

Imipramine, Desmopressin, Oxybutyryn. Side effects caused by Imipramine are somewhat uncommon and include dry mouth, nervousness, insomnia, mild gastrointestinal disturbances and personality changes. DDAVP (Desmopressin acetate) tablets have a reported side effect of mild headache. There have been rare cases of significant hyponatremia secondary to water intoxication. Anticholinergics are rarely beneficial for children with exclusive nocturnal enuresis. If these hazardous drugs and noisy treatment will be given to innocent child who suffers emotionally a lot because of bedwetting may lead to other extended behavioural problems.

**Shayyamutra:**The word *Shayyamutra* is formed of two words : *Shayya+Mutra*. Neither of the *Brihatrayees* nor the *Laghutrayees* had explained the etiopathogenesis of *Shayyamutra* *Govinda Das Sen* advises the use of *Ahiphena* or the *Bimbeemoola* rasa is said to cure the child from bed wetting. *Vangasena* advises the damp soil (with child's urine) to be administered with honey and ghee to a child with bed wetting. *Medhya Rasayana Syrup* has four ingredients *Mandookparni (Centella asiatica)*, *Yashtimadhu (Glycirrhis glabra)*, *Guduchi (Tinospora cordifolia)* and *Shankhpushpi (Convolvulus plauriculis)* mentioned in *Charak Samhita*, Syrup is formed to make it more palatable inspite of the drug forms mentioned in *Charak Samhita*.

**Medhya :**The concepts of various scholars regarding the meaning of '*Medha*' are as follows: 1. Chakrapani - '*Dharanvati dhi medha*' (*Charaka Sutra* 26) means a type of *Dhi* which has the power of retention of knowledge. 2. Dalhana - described *Medha* as 'Unobstructed, subtle and very deep knowledge gained by all the senses' (*Sushruta Chikitsa Sthana* 28/1-5) 3. Arunadatta - '*Buddhi Vishesha Medha*' meaning *Medha* is one of the faculty of *Buddhi* 4. Hemadri - opined on the term *Medha* as '*Grihitasya aviccedena dharayitum shakti*' (*A.H.Su.* 5/37) which means unobstructed and uninterrupted perception and retention of knowledge in all the aspects of an object 5. Amarkosha - '*Medhyate sangachhate sarvam iti*' means proper understanding about the knowledge of the existing objects. Knowledge cannot be understood without *Medha*.

*Medha* (Intelligence) is a unique characteristic possessed by human beings. The word *Medha* implies higher intellectual functions. It can be understood as the faculty of *Buddhi* which has the power to retain the experiences or knowledge and to recall that retained knowledge when needed. It protects an individual from indulging in to *Pradnyaparadha*. The term *Medha* has been used mainly in 2 ways viz. *Grahana Shakti* (Grasping power) and *Dharana Shakti* (Retention power). *Acharya Charaka* has mentioned examination of *Medha* by inference of *Grahana shakti*. A person is able to obtain the knowledge of existing objects and retain it through *Medha*.

**Rasayana:** The word '*Rasayana*' is formed from two words *Rasa* and *Ayana*. The word *Rasa* is derived from Sanskrit *Dhatu 'Rasa gato'* by adding '*Acha' Pratyay*' to it. The word '*Ayana*' has various meanings as given in '*Shabdakalpadruma*' and '*Vachaspatyam*'. They are movement, place, site, pathway, abode, etc.

*Charaka Acharya* has defined *Rasayana* as the substance which invigorate a healthy person by producing the best quality of *Rasa, Rakta* and all other *Dhatus*. Chakrapani says along with physical excellences, psychic excellences like sharp memory etc. are also endowed of *Rasayana*.

**Behavioural Interventions:** It comprises of five points. Motivational Therapy-A counselling that is intended to increase the patients commitment to a treatment goal can be called as motivational counselling. It is a form of behavioural modification promoting positive reinforcement using praise and reward 2. Conditioning: Parents were advised to awake children at least once in night for urination 3. Fluid maintenance: Taking plenty of water at day time and restriction of fluid for 2 hours before sleep at night 4. Reward: Giving star or prize or on a trip as a reward for dry night 5. Bladder Retention: Retention control training (a form of bladder training) aims to increase the bladder capacity by using exercises such as delaying urination for extended periods of time during the day or drinking extra fluids and stream interruption exercises in the wash room.

**Research Question:** What is the efficacy of oral administration of *Medhya Rasayana* syrup and Behavioural Interventions in the management of *Shayyamutra* (enuresis) of children in comparison with that of Behavioural Interventions alone?

**Hypothesis: Null hypothesis (H<sub>0</sub>):** There is no significant benefit of adding *Medhya Rasayana* Syrup to Behavioural Interventions in the management of *Shayyamutra* (Enuresis).

**Alternate Hypothesis (H<sub>1</sub>):** There is significant benefit of adding *Medhya Rasayana Syrup* to Behavioural Interventions in the management of *Shayyamutra* (Enuresis).

**Aim:** To evaluate the efficacy of *Medhya Rasayana* and Behavioural Interventions in the management of *Shayyamutra* (Enuresis).

**Primary Objective:** To evaluate the efficacy of *Medhya Rasayana* and Behavioural Interventions by measuring the frequency of bed wetting in enuretic children .

**Secondary Objectives:**1. To evaluate the effect of Behavioural Interventions on *Shayyamutra* 2. Improvement in quality of life of *Shayyamutra* patients

## II. METHODOLOGY:

Two groups were taken having 30 patients each, based on computerised randomised table. Group A was given *Medhya Rasayana* Syrup with Behavioural Intervention and Group B was given Placebo Sugar Syrup with Behavioural Interventions at OPD, All India Institute of Ayurveda, New Delhi, for one month at OPD of Department of Kaumarabhritya, All India Institute of Ayurveda, New Delhi. Masking was done on 3/2/2019 and Unmasking done on 26/5/2020. Inclusion Criteria: Age group of 5-16 years of either sex, Repeated enuresis (at least twice a week for at least 3 consecutive months), Patients who are willing to participate in the study and come for follow up. Exclusion Criteria: Bladder neck abnormalities, Genetic factors involvement, Worm infestation, Urinary Tract Infections, Mental Retardation, Cerebral Palsy, Autism Spectrum Disorders. Parameter for assessment of study outcomes were A) Cardinal Feature: changes in the frequency of bed wetting B) Associated Features(Quality of life) using Peds QL™4.0 Generic Core Scale. T Paired and Unpaired Test were used for statistical analysis.

**Observations:** Out of enrolled 65 patients, 3 patients dropped out because of early complete relief and 2 were unable to come within window period. 52.30% were male and 47.70% were female. 36.92% were of 5-7 age group, 30.77% were of 8-10 year age group, 23.08% were of 11-13 year age group, 9.23% were of 14-16 year age group. 95.38% patients had deep and sound sleep.

**Table 1. Comparative Effect on cardinal feature and Quality of Life of Group A and Group B**

Features	N	B.T./A.T. (Group A) (Mean±S.D.)	P value within the Group A	B.T./A.T. (Group B) (Mean±S.D.)	P value within the Group B	P value *significant #non significant≥05	
Bedwetting	30	B.T.= (4.8±1.186)	0.000	B.T.= (4.4±1.30)	0.000	0.001	P<0.05*
		A.T.= (0.7±1.022)		A.T.= (1.7±1.20)			
Physical functioning	30	B.T.= (24.3±3.58)	0.000	B.T.= (21.7±4.43)	0.000	0.014	P<0.05*
		A.T.= (21.5±3.32)		A.T.= (19.9±3.98)			
Emotional functioning	30	B.T.= (10±2.03)	0.000	B.T.= (9.9±2.06)	0.000	0.084	P>0.05#
		A.T.= (6.5±2.29)		A.T.= (7.1±2.55)			
Social functioning	30	B.T.= (11.2±1.86)	0.000	B.T.= (11±1.64)	0.000	0.197	P>0.05#
		A.T.= (8.1±2.01)		A.T.= (8.5±2.10)			
School functioning	30	B.T.= (12.4±2.19)	0.000	B.T.= (12.3±2.18)	0.000	0.000	P<0.05*
		A.T.= (9.2±1.187)		A.T.= (10.2±1.81)			

**Table 2. Comparison of percentage of effects of group A and Group B**

Group	Frequency of urination	Physical functioning	Emotional functioning	Social Functioning	School Functioning
Group A	85.42	11.52	35	27.68	25.81
Group B	61.37	8.29	28.28	22.73	17.07

On Statistical analysis between the two groups, effect of A (*Medhya Rasayana* with behavioural interventions) group was found superior to Group B (Placebo with behavioural intervention), on Cardinal feature-bed wetting, with significant p value 0.001.

On Statistical analysis between the two groups, effect of A group was found superior to Group B, on associated features-Physical functioning, with significant p value 0.014 and School function, with significant p value 0.000.

On Statistical analysis between the two groups, A group was found equally effective to Group B, with respect to associated features-Emotional functioning, with non-significant p value 0.084 and Social function with non significant p value 0.197

### III. DISCUSSION:

Contemporary medicine has a lot of concepts regarding its etiopathogenesis. Some are established as common accepted causative factors whereas some are less confirmed or in doubts. Among confirmed etiologies of enuresis **genetic factors** and neurological developmental delay are most accepted and also psychological factors, sleep disorders, sleep apnea, endocrine factors, ADHD, reduced bladder capacity, organic causes etc are among other proven causes. Factors like diet, constipation and improper toilet training are thought as controversial, unconfirmed or mixed causes for enuresis.

Now, this is widely assumed in neurobiology and cognitive science that information is processed unconsciously. Caretakers that occurred prior to the age of two with three, prior to the age of retrievable memories, we may unable to recall such memories because prior to that age the hippocampus, that structure in the brain that is necessary for the recall a memory has not yet matured. These memories remain as unthought knowns. Such memories have also been referred to as somatic memories, indicating that our body remembers even if we can't remember. The unconscious is the area of the psyche in which knowledge is processed and area of emotional conflicts. Conscious allocation of cognitive resources to task-relevant thoughts is necessary for learning. However, task-irrelevant thoughts often associated with fear of failure can enter the mind and interfere with learning of dry nights. Affective thought processes act "as the on/off switch to motivation, which is the process by which goal directed behaviour is initiated and sustained either consciously or unconsciously

**Low ADH secretion** is one of the accepted theory for nocturnal enuresis and its secretion is controlled by hypothalamic pituitary system which found nearby of limbic system. So absence of emotional conflicts would have influence over limbic area as well as its surrounding like hypothalamus which is responsible for control of ADH.

In present hypothesis, stress was given upon the *Mana (Conscious and Unconscious mind)*, *Nidra (Sleep)* and *Sadhaka Pitta* (neurotransmitters) in the pathogenesis of disease. Maturation of the Nervous system is of prime importance in child behaviour and development. The acquisition of sphincter control depends largely on maturation of nervous system and maturation is related to intelligence. This gives us an idea about some substance in brain or *Hridaya* which regulates the maturation of brain that could be *Sadhaka Pitta*, otherwise how could a primary bed wetter resolves bedwetting with age or how can early dry night achievers get bedwetting again. What makes their mind aware of not to wet the bed? It has been proved by various researches, biochemical and hormonal changes affect behaviour. Here maturation of mind should not be considered as neurological maturation only but emotional maturation as well. This may be the basis of administration of behavioural modification for most of the behavioural or psychiatric disorders.

That must be *Sadhaka Pitta* which makes *Mana* to become able in coping with the all emotional conflicts and keeping it free from its untoward effects by negating it with wisdom which is provided by the individual's *Medha* only. Dalhana has nicely described the function of *Sadhaka Pitta* in perceiving the things clearly by *Mana* by dispelling the *Kapha* and *Tama*. So it could be thought that *Mana* takes judgement with help of *Sadhaka Pitta*.

While explaining about *Dharaniya Vegas*, in context of emotional conflicts *Acharyas* have said that it should be withhold inside and should not outburst with the emotions. *Acharya* have also emphasized to overcome the negative emotions by improving *Manobala*. That means there is something in *Mana* which will be activated to overcome these emotions after sometime that person will be normal. That well known factor (action of neuro transmitters) is person's *Medha* and is responsible for discrimination of good and bad by perceiving through all the senses which is controlled by *Sadhaka Pitta* (nerotransmitters).

*Acharya Bhela* has told the same while describing the qualities of *Sadhaka* in *Sarirasthanana*. It may be the reason behind the success of behavioural modification in *Manas* related disorders. This explains emotional conflicts are normal phenomenon of *Mana* due to conflicts between *Raja* (positive attitude) and *Tama Guna* (negative attitude). But if it persists for a long or if any problem with *Sadhaka Pitta* functions, it could manifests as behavioural problems by vitiating the *Manasika Doshas*. This problem may be due to vitiating or reduced secretion of *Sadhaka Pitta* or reduced reception of *Sadhaka Pitta*. Site of *Tarpaka Kapha* is brain and it provides nutrition to the neurotransmitters. Vitiating of *Sadhaka Pitta* when affects



that area of brain which works on bladder sphincter control in night, results in *Apana Vayu Dushti*. As, in this disorder thrice of the *Sharirika Doshas* are involved along with *Manasika (Raja and Tama Dosh)*, a nootropic drug (*Medhya Rasayana*) is required, which would have *Tridosha Shamaka* effect along with *Satvavajaya Chikitsa* (Motivation therapy). Therefore *Medhya Rasayana* Syrup was selected and was also a good solution to Deep sleeper children who miss out the benefits of REM sleep.

### Motivational Therapy

**a) The “Pygmalion effect”** usually refers to the fact that people, often children, students or employees, turn to live up to what’s expected of them and they tend to do better when treated as if they are capable of success. Children were counselled that enuresis is a very common problem. Sometimes, few children learn late to control urine at bed, but it is not a matter of shame. We and your family completely believes you, now with the effect of medicine and your own determination, you will learn very soon. Everything is normal and no need to worry at a tall.

**b) Auto suggestion:** By “Auto-Suggestion” is meant the application of the principles of Suggestion by one self upon oneself. In Auto Suggestion the individual plays the dual role of suggester and suggestee, respectively. It may seem strange to think of one’s suggesting to oneself “with authority,” but it is true that if one will use the authority of his will he may impress upon his subconsciousness such suggestions as he may wish to place there, and may thus make over his entire character, or develop within himself the qualities which he may desire. Children were told to self-promise at night before sleeping to remain aware about urine urge while sleeping and to immediately go to bathroom for urination when feel bladder full, to awake immediately on urination call by parents and to told self that very soon I will be able to keep dry night.

**c) Self-affirmation :** begins with the premise that people are motivated to maintain the integrity of the self. Integrity can be defined as the sense that, on the whole, one is a good and appropriate person. Children were motivated that they are very good and they should believe in themselves.

**Conditioning:** Parents were advised to awake children (alarming the child) at least once in night for urination. It was observed that, alarm missed nights were again wet nights. It is usually seen that, reappearance of the bed wetting occurs after sudden stopping behavioural interventions, sudden interruption of new circadian cycle may affect badly this learning of remain dry whole night. Therefore, it was suggested to the parents to shift the alarm time by increasing it gradually e.g. If child was awakened at 12am then for another few days child should be awakened at 12:30 am then 1:30 am, 2:30 am...and so on till 6:00 am so that child will gradually learn to remain dry throughout night, without a need of break for urination. Because Conditioning therapy increases Pygmalion effect in children, showing parents trust, that child will learn with their support. It also improves auto suggestion effect, where child is believing in self, that he will learn to remain dry in night by observing self-dry nights. But while giving this behavioural intervention, this is very important to maintain it, not to break the rhythm. If parents miss to awake child, it can break the effect of self-suggestion then it becomes difficult to give desired results to the child. This disorder is self limiting and improves with time by itself, but the guilty, which child suffers due to enuresis, affects self esteem, physical function, emotional function, social functioning and school functioning. Therefore early intervention is required.

**Fluid maintenance:** Many children have the habit of taking more liquid in evening or after dinner than day time. This results in more excretion, more urine volume in night, difficult to hold result in enuresis. Therefore, fluid restriction before 2 hours of sleep was advised. Many food products like sugar, jaggery, cold drinks, coffee etc. are seen to increase urine output, were advised to be avoided.

**Bladder Stretching Exercises:** Retention control training (a form of bladder training) aims to increase the bladder capacity by using exercises such as delaying urination for extended periods of time during the day or drinking extra fluids. Stream interruption exercises were also advised. Behind performing these two exercises there were two approaches. First was to improve the function of bladder sphincter muscles and second was, as, when we command our brain by doing some practice, then that memory is converted from short term memory to long term memory (conscious to unconscious memory) and the function remain processed during sleeping.

**Nootropic Drug:** The whole study was based upon the concept whether along with behavioural intervention, any drug can improve the learning process of enuretic child. For this purpose *Medhya Rasayana* Syrup was used having four ingredients-*Mandookparni, Yashtimadhu, Guduchi and Shankhpushpi*

**Mandookparni:** The constituent responsible is asiaticoside. *Centella asiatica* possesses this triterpene which is neuro protective and has anti-oxidant properties. *Centella asiatica* shows improvement in the central nervous system, as its asiaticoside derivatives were found to inhibit or reduce H<sub>2</sub>O<sub>2</sub> induced cell

death and lower intracellular free radical concentration, protecting against the effect of  $\beta$  amyloid neurotoxicity (Mook Junk et al.) proves its neuroprotective effect. Leung and Foster studied the assessment of turnover of biogenic amines (nor-epinephrine, dopamine and serotonin) and showed significant reductions of these amines and their metabolites in the brain following administration of fresh juice. The decrease in amine levels was correlated to improved learning and memory in rats. Leung and Foster, observed that a water-soluble fraction of *Centella asiatica* was found to have an anxiolytic effect in animals comparable to diazepam. The extract of *Centella asiatica* was found to increase brain GABA levels .

**Yashtimadhu:** The major constituent useful in brain function is glabridin. Chemically it is a flavonoid polyphenol which is proven to attenuate cerebral injuries in stroke as it is neuroprotective. It is also proved in animal studies that it enhances memory retention. Since scopolamine induced amnesia was reversed by liquorice, it is possible that the beneficial effect on learning and memory may be because of facilitation of cholinergic transmission in brain. Glycyrrhiza glabra, Myristica fragrans, Ascorbic acid, and Metrifonate significantly decreased acetyl cholinesterase activity as compared to their respective vehicle-treated control groups.

**Guduchi:** The major constituent of *Guduchi* is berberine which exhibits a peculiar action. It is isoquinolone alkaloid that has AChE (acetylcholinesterase inhibitory) action; similarly it is MAO – inhibitory. Berberine helps prevent oxidation damage to biomolecules of brain, reduces peptides that interfere with memory function and lowers lipids that hamper cerebral blood flow. Berberine reduces A beta levels by modulating APP (amyloid precursors) processing in human neuroglioma cells without toxicity. Hence it is *Medhya Rasayana*. The most likely antidepressant mechanisms involve inhibiting reuptake of amines in the brain. Improved level of nor-epinephrine, serotonin, dopamine and GABA is observed. Central antioxidant and protective properties play an important role in improving cognition, concentration and memory, also beneficial in improving cerebral ischemia

**Shankpushpi:** The constituent convolvine is responsible for blocking M2 and M4 cholinergic muscarinic receptors. It potentiates effects of arecoline, a muscarinic memory enhancer that ameliorates cognitive defects. The isolated metabolites and crude extract have exhibited a wide of in vitro and in vivo pharmacological effect, including CNS depression, anxiolytic, tranquillizing, antidepressant, antistress, neurodegenerative, anti-amnesic, antioxidant, hypolipidemic, immunomodulatory, analgesic, antifungal, antibacterial, antidiabetic, antiulcer, anticholinergic and cardiovascular activity. Dietary feeding of this plant has been found to increase protein synthesis in the hippocampus, thus enhancing memory and learning in experimental animals.

The normal functioning of *Medha* mainly depends on *Pitta Dosha*. *Pitta* in its normal state is *Katu Rasatmak* and related with *Satva Guna* of *Manas*. All *Medhya Rasayana Dravya* being *Katu-Tikta Rasatmaka*, *Madhura Vipaki* and *Sheeta Veerya* (except *Guduchi*) purifies the *Pitta Dosha* and enhances *Satva Guna*. *Tikta Rasa* has been described as *Medhya* by *Vagbhatacharya*. The *Ushna Guna* of *Guduchi* brings about *Pachana* of *Aama* and increases the *Jatharagni*, *Bhootagni* and *Dhatvagni*. The *Madhura Vipaki* and *Sheeta Veerya Dravyas* can help the function of *Tarpaka Kapha* to go on smoothly owing to its constitution that is favourable for *Kapha Karma*. *Dhriti* i.e *Dharana Shakti*, memory retention capacity which can occur in presence of only *Sheeta Veerya*. Thus, we see that though all the drugs are *Medhya*, each exhibits different functions. Therefore, a combination of these four drug was taken for study.

Syrup *Medhya Rasayana* which is a comprehensive and specialized regimen capable of causing healthful longevity and improving mental faculties by acting at the level of *Rasa* (nutrition), *Agni* (digestion and metabolism) and *Srotamsi* (microcirculation). *Medhya Rasayana* has the action of activating the group of brain cells by nootropic activity.

#### IV. SUMMARY AND CONCLUSION

To evaluate the hypothesis a drug which is well documented, for its excellence over brain power was selected. In present study *Shayyamutra* is presumed as a result of emotional conflicts of child's tender mind due to small age or less intelligence to outgrow of these emotional conflicts or it's a disease where bladder control at bed time achieved due to neurodevelopment delay. Children are always considered as special category that requires more attention and special care, as they are more susceptible for behavioural problems because of immature growing mind.

The role of *Medhya Rasayana* especially in secondary enuresis could be easily understood where psychological factors are the main factors responsible for manifestation of disease. It has action over *Manas Bhava*, so it would have provided expected microenvironment to the *Mana* and improves *Manobala*

by reducing negative emotions. As it is *Tridosha Shamaka*, it is useful in maintaining proper brain physiology and provide a proper brain functioning. Due to *Rasayana* property it would have strengthened all the cells including nervous tissues this way it would have facilitated maturation of mind and other autonomic actions which are thought to be action of *Mana*.

Behavioural Intervention is of great importance in improving enuresis for short time span, but if given in continuity and stopping in tapering manner, with nootropic drugs like *Medhya Rasayana*, enuresis can be completely cured with no recurrence .

In this study, *Medhya Rasayan* Syrup with behavioural intervention was found significantly effective in the treatment of enuresis than behavioural intervention alone.

#### Further Suggestion

- ▶ Multicenter drug trial should be done to check the efficacy of drug as claimed in present study.
- ▶ The effect of *Medhya Rasayana* with Behavioural Interventions was studied. One more study should be done on *Medhya Rasayana* alone.
- ▶ ADH hormonal Assay may be done.
- ▶ EEG study to know the effect of therapy on beta brain wave or REM stage duration should be done

**Area of Conflict: None**

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