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Research Article

### CLINICAL STUDY ON THE EFFICACY OF AN AYURVEDIC DRUG IN THE MANAGEMENT OF NOCTURNAL ENURESIS IN CHILDREN

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#### ABSTRACT

The behavioural problems like bedwetting, stammering, sleepwalking etc in young children are quite common. Among these, bedwetting is one of the obstinate problems. Due to this problem a lot of concealment and profound repercussions occur in family life, since a child's psychosomatic health and mothers pride involved with this problem. It affects small to middle age group of children mainly but adolescents are also found among sufferers, it affects all races and children from all geographical areas. There is no any description regarding Nidana, Samprapti, Rupa of Shaiyyamutra available in Ayurvedicclassics. It is considered as multifactorial behavioural disorder in contemporary medicine. Shaiyyamutra was explained in Ayurvedic classics with respect to its clinical features and treatment. A drug which is nervine tonic and able to increase bladder control and tone of bladder muscles with Grahi, Stambhana and Mutrasangrahaniya properties can be able to reverse the pathology of Shaiyyamutra. With this intention AvartakiPushpa(*Cassia auriculata* Linn.) which is GrahiandStambhana, Mutrasangrahaniya has been taken for the present study. Hence present work will be an effort to evaluate the efficacy of AvartakiPushpaVati in Shaiyyamutra.

**Keywords:** Bedwetting, Nocturnal Enuresis, Shaiyyamutra, Avartakipushpa, *Cassiaauriculatalinn*, Behavioural Disorder.

#### INTRODUCTION

Nocturnal enuresis or bedwetting or Shaiyyamutra is the involuntary urination while asleep after the age at which bladder control usually occurs. Bedwetting is the most common childhood urologic complaint and one of the most common pediatrichealth issues<sup>1-2</sup>. Due to this problem a lot of concealment and profound repercussions occur in family life, since a child's psychosomatic health and mothers pride involved with this problem. The prevalence of enuresis is about 15-25% of children at 5 years of age, 8% of 12 years old boys and 4% of 12 years old girls, only 1-3% of adolescent are still wetting their bed<sup>3</sup>. Boys suffer more often than girls because girls typically achieve each milestone before boys<sup>4</sup>. Acharya Vangasena is the first to describe Shaiyyamutra and its management in Ayurvedic classics<sup>5</sup>.

#### MATERIAL AND METHODS

**Objectives of the Clinical study:**

1. To evaluate the effect of Avartaki(*Cassia auriculata* Linn.) PushpaVati in the management of Shaiyyamutra.
2. To evaluate the effect of placebo in the management of Shaiyyamutra.
3. To compare the effect of both the above groups.

Patients presenting with the symptom of Shaiyyamutra were selected from Kaumarabhritya OPD/IPD of SDMCA & Hospital, Hassan. The patients were included for the study based on the inclusion and exclusion criteria and these were registered as per special Proforma prepared for screening.

#### METHODS OF COLLECTION OF DATA:

##### **Diagnostic Criteria:**

Bed Wetting after the age of 5 years.

##### **Inclusion Criteria:**

1. Patients of Shaiyyamutra (Nocturnal enuresis) were selected from the group of 5-12 years.
2. Children with both persistence and regressive type of Nocturnal enuresis.

3. Shaiyyamutra due to Behavioural, psychological, stress related factors were included.

**Exclusion Criteria:**

1. Patients below 5 years and above 12 years of age.
2. Patients with congenital anomalies of the genito-urinary tract especially of the urethral valve.
3. Enuresis due to disease of the CNS, Spina-Bifida.
4. Diabetes Mellitus and Diabetes insipidus.
5. Urinary tract infections, Epilepsy etc.

**Groups of the Treatment:** 40 patients were divided equally into two groups, each consisting of 20 patients, and treatment were given as per the schedule given below,

**AP GROUP:** Avartaki Pushpa Vati was given orally in the dose of 500mg (1 Vati=500 mg) twice daily with water for two month.

**C GROUP:** Placebo was given in similar way as in above treated group.

**ASSESSMENT CRITERIA**

Patients of Shaiyyamutra in the present study were assessed based on the following criteria's with different grading. Bed wetting frequency, With-holding time, Awakening to use toilet during night, Urgency of micturition, and Mental status.

**Duration of Study:** All the patients were treated for the period of 2 months.

**Drug and Dose:** The flowers of Avartaki which is commonly available in tropical area were collected and dried under shade and made in to Churna (Powder). This Churna were given Bhavana with Avartaki Pushpa Svarasa and Vati were prepared each weighing 500mgs.

**Follow Up:** During treatment the patients were asked to attend the OPD at interval of 15 days for 2 months to know whether the improvement provided by the drug is sustained.

**Laboratory Investigations:**

1. Routine urine analysis
  - (a) Urine sugar – by Benedict's qualitative test method.
  - (b) Albumin – By glacial acetic acid test method.
  - (c) Microscopic – Examination under low and high power.
2. Earlier reports of X-ray of Lumbo-sacral spine, USG of abdomen, and urine culture if requested to exclude other pathology.

**Record of Findings as per proforma:** Complete history and clinical evaluation of all those patients was recorded in a specially designed proforma which includes both Ayurvedic and Modern method of examination. Like assessment of Bed-wetting status, constipation, Awakens to use toilet during night, and mental status etc.

**Criteria of Assessment of Effects:**

**A. Bed wetting frequency: -**

The severity of bed wetting has been ascribed a scoring as

- 1.) More than 3 times per day -8
- 2.) Daily if more than one time -7
- 3.) Daily if done -6
- 4.) If on Alternative days -5
- 5.) If Weekly twice -4
- 6.) Ones in a week -3
- 7.) Ones in a fortnight -2
- 8.) Ones in a month -1
- 9.) All dry nights -0

**B. With-holding time: -**

- 1.) Able to with-hold the full bladder <1min – 3
- 2.) Able to with-hold the full bladder 1-2min – 2
- 3.) Able to with-hold the full bladder 2- 3 min – 1
- 4.) Able to with-hold the full bladder > 3 min – 0

**C. Awakening to use toilet during night:-**

- 1.) Never awakens spontaneously – 3
- 2.) Self awakens due to wetness – 2
- 3.) Self awakens due to little passage of urine – 1
- 4.) Self awakens when Bladder is full – 0

**D. Urgency of micturition: -**

- 1.) Reflex is uncontrollable – 2
- 2.) Reflex is controllable for shorter duration – 1 (< 4 minutes)
- 3.) Reflex is controllable for longer duration – 0 (> 4 minutes)

Mental status: (Grasping power)

- 1.) Very poor to grasp ideas even with continuous explanation – 2
- 2.) Can grasp ideas by continuous explanation – 1
- 3.) Can grasp ideas with a single explanation – 0

**Dos for the Parents:**

(1) **Vidnyana – (Shastra Jnyana)** (To educate the parents)

a) It is necessary to realize that, a child who is wetting the bed, is not doing it, "To Teach A Lesson" to the parents, the fact is that he/she cannot able to control his Bladder. Hence he/she deserves to be understood rather than punished.

b) If possible provide a bed lamp to a Toilet room and which is switched on during night times, so that he/she identifies the toilet and go for voiding.

(2) **Jnyana: Adhyatma Jnyana or Atma Jnyana:-**

a) No liquids before 3 hrs of retiring.

b) Parents Awakening Therapy: Parents should try to assess the period (time) in which the child usually passes urine in the night and try to wake up the child before 30 min. of the act.

(3) **Sheela (Sheela Manu Sheela nena, by continuous association):**

a) It is the duty of the parents, that child should be made to go for voiding before retiring.

b) Practice of Sadvritta. The duties and obedience are taught to child. (Anushishyet Sada cha Enam Dharmaya Vinayaya ca.).

(4) **Harshana Chikitsa: Harsham Amodanena (Creation of an atmosphere of confidence & enjoyment)**

a) Encourage the Dry nights with rewards. e.g :- By providing one rupee for each dry night. It motivates the child to put more efforts on dry nights.

(5) **Samadhana:**

a) Suppose a baby voids in previous night, instead of scolding him/her. Try to convince the child like O.K. Today you have voided urine; No problem, tomorrow you were controlling. This kind of moral support builds up self-esteem in the baby.

b) While doing Samadhana be jovial to your kid.

(6) **Vismapana:**

a) Try to assess the factors which are actually disturbing the child's Own ego, and if possible try to bring a change.

**DONOTS by the parents:**

1) Kshobhana and Bhratsana (Agitation and Scolding): The child should not be put to shame for this act in the presence of others, especially when he/she is with friends.

2) Virodhi Bhavana (Inducing opposite emotion) It is the duty of each and every parent, not to allow his/her siblings to be criticized by others for their act of bed-wetting.

3) Tarjana (Threatening): Do not give wetted cloths to a child for washing When he/she wakes up with wet nights and makes him afraid.

4) Vitrasana / BhayaDarshana: (Generating fear) Parents should not punish the child when he/she wakes up with wet Nights and show any fear; rather the child should be consoled.

**Advise to Children:**

**(1) Vijnyana (ShastraDnyana):**

- A sun (dry night) and umbrella (wet night) calendar maintained by the child.
- With-hold the full bladder during daytime for at least 3-4 min or longer as per the capacity, till patient reaches a stage of Vinaman (Forward bending).
- Always try to press on proximal middle Phalangeal region of the left little finger (acupressure).

**(2) Vismarana (Forgetting):**

- This was done by engaging him/her at work or any other entertainment (like, cross-world, jumbling cubes, color cubes, jumbling letters, etc) before retiring, so that his / her thoughts were diverted from the act of bed wetting.

**(3) Samadhana (Consolation):**

- Child should be advised not to worry because many other children also had the same problem, and that they were treated successfully.

Don't be dejected, unhappy and depressed; you must sincerely desire to be happy.

**(4) Ashvasana (Assurance):**

- He should be assured, not to worry and that he will definitely come out of this problem, by giving examples saying that I too had this problem but now I have come grown out of this problem.

**(5) Dhairya: DhairyamAvishadana :-(Emotional balance in crisis)**

- He should be advised to develop self-confidence, and remove hopelessness, shame and guilt from his mind.
- The child is advised not to worry if somebody criticizes, since criticism cannot hurt him without his consent.

**(6) Harshana: Improving the libido**

- For every good progress or Dry nights he should be rewarded by giving chocolates (not in night) toys or 5 Rupee or whatsoever

**(7) Dhyana (Meditation):-**

- By giving Mani [sacred pearls] or praying God or even by candle concentration for 20 min. both in early morning and before retiring.
- On every night before retiring he/she has to go with positive thought i.e. by chanting the sentence that "Today I will not wet the bed".

**(8) Jnyana (AtmaJnyana Self-realization):**

- Child should be educated by giving proper explanations of anatomy and physiology of urinary bladder and role of Manas.
- Child should be advised not to take any liquids 3 hours before retiring.

**OBSERVATIONS**

In the present study 43 patients were registered and they were randomly assigned into two groups i.e. Group - A (20patients who received AavartakiPushpaVati) and Group - B (20patients who received Godhumavati). However one child from Group

A and two children from Group B did not complete the course of treatment.

Age wise distribution of registered subjects shows that 55% (n=22) were of age group of 6-9 years, 30% (n=12) were in the age group of 9-12 years and 15% (n=6) patients were in the age group of 12-16 years. Sexwise distribution showed that 45% (n=19) were male and 55% (n=19) were female. Religion wise distribution showed that 95% (n=38) were Hindus, whereas only 5% (n=2) of the patients were from Muslim community. Socio-Economic Status wise distribution showed that 72.50% (n=29%) patients belonging to lower middle economic status whereas 12.50% (n=5) and 15% (n=6) patients belonging to the upper middle and poor economic status respectively. Domicile wise distribution showed that 77.50% (n=31) were belonging to urban area and 22.50% (n=9) were belonging to rural area. Type of family wise distribution showed that 75% (n=30) were from joint family, whereas 25% (n=10) patients were belonging to nuclear family. Observation on birth history showed that reveals 60% (n=24) of the patients delivered by FTND, followed by 22.50% (n=9) of the patients delivered by FTCS, whereas 10% (n=4) of the patients delivered by LSCS who were preterm & 7.50% (n=3) of the patients delivered by other method of labour. Observation on developmental history showed that 92.50% (n=37) patient have normal development, while 2.50% (n=1) patients had history of delayed walking up to 18th month of the life and same number of patients 5% (n=2) had history of delayed speech i.e. monophonic words up to 2nd year of life. Observation on immunization status showed that 92.5% (n=37) patients had received the complete schedule of immunization while 7.5% (n=3) children have not received complete immunization. Observation on school performance showed that 25% (n=10) were very good in their school performance whereas 25% (n=10) were good in their school performance followed by average performance by 27.50% (n=11) of children and poor performance by 22.50% (n=9) of children. Observation on the onset of bed-wetting showed that 70% (n=28) patients came with Primary onset, 30% (n=12) patients came with secondary onset. Observation on the quantity of urine showed that 60% (n=24) of the patient's passes urine in normal quantity as that of in day time, followed by 25% (n=10) of the patients passes little bit extra amount than that of day time and 15% (n=6) of patient's passes very little in the night. Observation on the time of bed-wetting showed that 42.50% (n=17) of the patients passes urine in the mid night (1-4 Am), followed by 47.50% (n=19) of the parents, passes urine at early night(11pm-1am) and 10% (n=4) of patients parents passes urine in the early morning(4-7am). Observation on the time of bed-wetting showed that Bed-wetting is present in all the patients 100% (n=40). The present study reveals that many of the patients 60% (n=24) don't have any associated symptom but about 2.50% (n=1) of the patients presented along with the symptoms of URTI where as 5% (n=2) of patients with complains of worm infestation, 5 % (n=2) patients came with the fever and 27.50% (n=11) of patients having associated symptoms of Psychological disease.Prakruti wise distribution showed that 57.50% (n=23) patients were Vata -PittajaPrakruti, 12.50% (n=5) of patients were Kapha -PittajaPrakruti and 22.50%

(n=9) of patients were Pitta - VatajaPrakruti while only 07.50 % (n=3) patients are with Pitta -KaphaPrakruti. Diet wise distribution showed that 67.50% (n=27) showed mixed food habits, whereas 32.50% (n=13) patients are strictly Vegetarians. Observation on family history showed that 47.50% (n=19) of patients did not reveal any family history of Shaiyyamutra while 12.50 % (n=5) of patient don't remember exactly the familial incidence correctly and 40% (n=16) patients showed positive family history of Shaiyyamutra. clear incidence of Nidanas found School fear in 50% (20) children's, them 17.50% (07) children having excess fear of parents, followed by 10% (04) children's have recurrent URTI either Tonsillitis or Adenoiditis & same number of patients also suffering with some concentration Problems 07.50% (3) children having feeling of Loneliness, and some having problems of aggressiveness (01) 02.50% and chronic disease (01) 02.50%. Observation on the causes showed that clear incidence of Nidanas found School fear in 50% (n=20) children's, them 17.50% (n=7) children having excess fear of parents, followed by 10% (n=4) children's have recurrent URTI either Tonsillitis or Adenoiditis & same number of patients also suffering with some concentration Problems 7.50% (n=3) children having feeling of Loneliness, and some having problems of aggressiveness 2.50% (n=1) and chronic disease 2.50% (n=1). Observation on various triggering factors showed that 10% (n=4) children having excess fear and 12.50% (n=5) having fever and same number of patients 12.50% (n=5) having exam stress, 17.50% (n=7) taking excess liquid in the evening periods. 20% (08) children having trigger of excess cold and 7.50% (n=3) children having trigger of scolding or beating, 7.50% (n=3) of having Anxiety / excitement and others either have Late night TV watching, 2.5% (n=1).

## RESULTS

The effect of the therapies in both treated and placebo group are 28.68% and 16.66% in bed-wetting frequency, 37.93% and 6.89% in urgency of micturition, 34.14% and 27.65% in withholding time, 36.17% and 18.60% in awakening to use toilet at night and 44.82% and 21.42% in mental status respectively at the end of two months of treatment. The overall effect of both the therapies in both treated and placebo group are 0% and 0% in the number of patients totally cured, 8% and 1% showed marked improvement, 11% and 6% showed moderate improvement, 1% and 12% showed mild improvement, 0% and 1% showed no improvement respectively.

## DISCUSSION

Shaiyyamutra was explained in Ayurvedic Classics with respect to its clinical features and treatment. A drug which is nervine tonic and able to increase bladder control and tone of bladder muscles with Grahni, Stambhana and Mutrasangrahaniya properties can be able to reverse the pathology of Shaiyyamutra. With this intention AvartakiPushpa (*Cassia auriculata* Linn.) which is Grahni and Stambhana, Mutrasangrahaniya has been taken for the present study.

## Mode of action of AavartakiPushpaVati

As AavartakiPushpa is Tikta and KashayaPradhana, hence by means of Kashaya Rasa it does the action of Stambhana, thereby it is Mutrasangrahaneeeya, on Mutra-Vahasrotas. When we administer the drug it controls the frequency of micturition thus it controls bed wetting. Shaiyyamutra sometimes may be due to worm infestation and AavartakiPushpa is one of the best anthelmintic drug. AavartakiPushpa may be having tonic action on the sphincters and also it might be increase the strength of the muscle by which bladder can hold urine for a longer time and prevent bed-wetting at night. AavartakiPushpa is widely used in headaches due to its analgesic property and due to the same analgesic property the reverse reflux of bladder distention is suppressed and there will not any bladder contraction up to certain limit, thus there will not micturition at night. Vata is the main responsible factor in this disease which causes frequent and involuntary micturition, AavartakiPushpa having Katu Vipaka and acts as Tridoshaghna especially vata Shamaka thus breaks the Samprapti of the disease on Doshik aspect.

## CONCLUSION

Both the drugs showed highly significant ( $P < 0.001$ ) result on cardinal symptom bedwetting. Comparatively group A drug AavartakiPushpaVati was found highly significant ( $P < 0.001$ ) on chief complaint (bedwetting). Though both the drug showed highly significant result on bedwetting, Godhumvati failed to cure the disease. It was found capable in reducing the frequency of bedwetting. Results obtained in the assessment of withholding time in both the groups are statistically significant, with high percentage of improvement in treated group at the end of treatment course which proves the effect of bladder exercise for the improving bladder tone, with the same manner AavartakiPushpaVati also shows to have the property of increasing the bladder tone as it increase the tone of Uterine muscles which is already proven.

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