

**A DETAILED REVIEW OF LITERATURE ON SHAIYYAMUTRATA WITH SPECIAL
REFERENCE TO ENURESIS****Dr. Vilas Mukunda Shelke^{*1}, Dr. Pravin Dadarao Kadam² and Dr. Shilpy Gupta³**¹Associate Professor in Department of Kaumarbhritya At Sau. Shantadevi Vedprakash Patil Ayurved College and Research Institute, Hatta. Dist- Hingoli, Maharashtra.²Assistant Professor in Department of Kaumarbhritya At Sau. Shantadevi Vedprakash Patil Ayurved College and Research Institute, Hatta. Dist- Hingoli, Maharashtra.³Assistant Professor in Department of Kaumarbhritya At Government Ayurved College, Patna, Bihar.***Corresponding Author: Dr. Vilas Mukunda Shelke**

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Article Received on 13/03/2022

Article Revised on 02/04/2022

Article Accepted on 23/04/2022

INTRODUCTION

Children in the modern age suffer at large due to physical problems; in addition to that they also suffer from psychological problem too. Often this is because their parents are too busy and cannot afford much time to look after them. As a result of that children lack love from their parents which make them unhappy. Although they are too young to express it, they hold the negative impression inside, which affect their personalities.

The events leave a lasting impression on the tender mind of children and later become the cause of behavioural or psychosomatic diseases. The behavioural problems like Bedwetting, Stammering and 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 affect all races and children from all geographical areas. Children are most among the sufferers of bedwetting may because of starting of development of personality and ego since the age of 3 years. which culminates as negativism against parents when they forced them to control the bladder.

Kaumarabhritya emerged as an independent medical specialty right from dawn of civilization. This revolutionary development was the result of increasing awareness among the health professionals that, the problems of children differ considerably from those of adults and from the point of view of medical therapeutics, "A child cannot be considered as miniature adult". Though pediatrics as a science has evolved much since then, this basic observation still remains valid.

Impact of enuresis on children: In the United States, about 25% of enuretic children are punished for wetting the bed. In Hong Kong, 57% of enuretic children are punished for wetting³. Medical literature and studies show that punishing or shaming a child frequently for bedwetting will make the situation worse. Doctors

describe a downward cycle where a child punished for bedwetting feels shame and loss of self-confidence. This can cause increased bedwetting incidents, leading to more punishment and shaming. It's significantly affects self esteem and instills guilt and shame in children.

Conceptual review

Enuresis has been recognized as a problem since the time of Papyrus Ebers, dated 1550 BC. This was one among few medical texts of the time and the mere mention of NE (Nocturnal enuresis) gave some merit to its problematic nature. Treatments advocated since then include use of various portions from animals, organs or plants, for example some remedies included placing a comb from a hen in tepid water and giving it to the child to drink or putting testicles from a hare into a glass of wine and having the child to drink it. Others tried drying the comb of a cock and scattering it over the enuretics bed. Few include the urine of spaded swine, burning leaves between the legs (Okinawa), a rectal suppository of strychnine and sheep fat, cauterization of urinary meatus with silver nitrate to make micturition painful, repeated cauterization of prostatic urethra by silver nitrate through a catheter, stinging nettles applied to the penis, an inflated bag in vagina, collodion poured into the prepuce to seal it, galvanic stimulation to the urethral orifice, a toad tied to the penis so that when the child passes urine, the toad croaks and awakens the child (Nigeria) or a clamp applied.

In 1545, Thomas Phaer in his book of children wrote a section of Pyssying in the Bedde, recommending the trachea of cock or the claw of the goat for treatment.

In 1830, Nye suggested that one should attach one pole of an electric battery to a moist sponge fastened between the shoulders of patient and other to a dry sponge placed over the urinary meatus. While the sponge is dry, no electricity will pass and patients sleep is not disturbed at the moment the sponge is moistened by urination, it becomes a conductor of electricity. Hence, circuit is completed through the body and the patient is aroused. The repeated incidences like that are sufficient for an enuretic child and he gets cured. In the mid 1800's another treatment tried was to induce blisters on the child's sacrum (Glicklich, 1951).

In a 328 page symposium edited by Kolvin Mac Keith and Meadow the following three mechanisms relevant to the acquisition of sphincter control were discussed – maturation, learning and conditioning. The conclusions are as follows:

- **Maturation:** The mechanism of sphincter control is a complex one and must depend on the maturation of the nervous system i.e. delayed myelination. Secondly, there is a higher incidence of enuresis in both of uniovular twins than in both of binovular twins – evidence supporting a genetic factor.
- **Learning:** Children learn to control the bladder partially by imitation and partially by instruction and training.
- **Conditioning:** The baby becomes conditioned to empty the bladder when his buttocks feel the rim of the pottie. Psychological disturbances such as unhappiness or punishment for not using the pottie etc. are more likely to cause a relapse of control and ultimate result is enuresis or encopresis.
- Martin Roth in opening a symposium on enuresis remarked that the problem is associated with a poor home, domestic frictions and delinquency in the family. Miller in writing about the findings in the Newcastle, 1000 family survey wrote that the “social correlations” were such that it is reasonable to think that most enuresis occurs in a child with a slow pattern of maturation when that child is in a family where he does not receive sufficient care to acquire proper conditioning. In his study Werry has opined the causes of enuresis. “The most common cause was the environmental variables likely to provoke a high level of anxiety in the child, such as hospitalization, separation from the mother or other emotionally traumatic incidents.”
- Smith has reviewed the organic causes of enuresis. These are – ectopic ureter opening into the urethra or between the urethral and vaginal orifices, obstruction of the urethra in the boy, diverticulum of the anterior urethra, Spina-bifida with Meningocele, Sacral-Agenesis, Sacral-Lipoma, Ectopia Vesicae, Epispadiasis and a complication of circumcision. Stansfeld found that a girl who wets the bed has a chance of urinary tract infection 1 in 20 and that 16% of children with a UTI present as enuresis. Treatment of the infection stops the enuresis in 30% cases

Role of Mana, Nidra and Sadhaka pitta in the pathogenesis of disease Shaiyyamutra

- After reviewing centers for controlling emotions, sleep mechanism in brain, modern medical explanation gave some resemblance with Mana and Nidra told in classics. In this regard functions of reticular formation, hypothalamus and limbic system along with diencephalon, some part of thalamus including brain stem come in light.
- Hypothalamus is said as main controller of endocrine and vegetative functions along with emotional
- In present study it was hypothesized that there may be some problem occurs in these area while sleep, as a result of daytime emotional conflicts.
- Sadhaka Pitta which plays main role in governing emotional behaviors may lies somewhere in these surrounding areas.
- As hypothalamus controls endocrine functions as well emotional behaviors, so it becomes clear that emotional conflicts affect endocrine mechanism, and by this one could understand role of Sadhaka Pitta in controlling endocrine system.
- In context of sleep mechanism, Reticular formation, hypothalamus and lower nuclei in brain stem show some resemblance with functions described for Mana.
- This way it could be seen that Mana, Sadhakapitta and Nidra are almost related to the similar structure or surroundings of brain and are closely associated with the functions of each other and also influence each other.
- Sadhaka pitta vitiation due to any cause may be the cause for stimulation of the areas of hypothalamus such as ventromedial and lateral area which may lead to increased general activity, rage, fear and punishment reactions.
- Recently for enuresis Urine volume, Bladder contraction and sleep are thought as main etiological factors. Hence role of Mana may be correlated with function of hypothalamus and its endocrine functions in Shaiyyamutra manifestation and Sadhaka Pitta could be the responsible factor for hormones and biochemicals in surrounding of limbic with hypothalamus.

FACTORS RESPONSIBLE FOR ENURESIS ENDOCRINE FACTORS

There is a circadian rhythm of diuresis due to which lower volume of concentrated urine is passed at night; this circadian rhythm of diuresis is a maturation process. A lower increase in nocturnal serum ADH levels in NE as compared to controls has been shown in a controlled study. ADH is normally excreted from the pituitary gland and it enhances water reabsorption thereby allowing the body to produce lower volume of more concentrated urine at night.

Some children with enuresis appeared to have stable levels of AVP during the both day and night time which

produce larger amounts of dilute urine at night, thus the high- increased volume of urine output during sleep in enuretic children can exceed their bladder capacity and thus cause involuntary discharge of urine at night.

This can expound the basis of enuresis but does not explain why children with reduced ADH secretion do not wake up to void in response to a full bladder. Measurement of urinary osmolality in first morning urine specimens from enuretics and non-enuretic children demonstrated that children under age 4 years have significantly lower osmolality between enuretics and non-enuretics children. This immaturity in nighttime urine concentrating does not to be due to renal concentrating ability, which reaches adult levels by 18 months of age, or does it appears to be due to serum AVP levels, which reach adult levels by 12 months of age. It suggests alternatively that it may be due to immaturity in the circadian rhythmicity of AVP. Observation by Knudsen & Co workers (1991) that 25% of enuretics who initially lacked AVP rhythmically ultimately developed a circadian rhythm of AVP support the concept that the circadian rhythm of AVP may be delayed developmentally and improve with time. Interestingly, after developing an increase in nocturnal AVP secretions, these patients were improved but were not cured of the enuresis.

PSYCHOLOGICAL FACTORS

The disease enuresis is of psychological origin or not is still debatable. Psychological factors play an important role on nocturnal enuresis and functional urinary incontinence. The co morbidity of enuresis/urinary incontinence and clinical mental disorders as well as sub clinical psychological symptoms is reviewed. In epidemiological as well as clinical studies 20-40% of all children with secondary nocturnal enuresis and voiding postponement carry the highest risk for a mental disorder and those with urge incontinence and primary monosymptomatic nocturnal enuresis the lowest. Internalizing disorders (such as depressive and anxiety disorders) are less common than externalizing ones (such as ADHD). In addition subclinical emotional and behavioral symptoms are common. These will often recede upon attaining dryness and self-esteem can increase. General screening for psychological symptoms and disturbance is recommended.

Traditionally NE was perceived to be secondary to defective toilet training or problems in behavior and social skills. There are empirical evidences for increased behavior problems in children with NE. Interestingly studies conducted on younger children so not report any increase in behavioral problems in contrast to studies conducted on older children with complex wetting disorders which report higher frequency of psychological problems.⁶⁰ These points towards wetting being the primary problem leading to behavioral problems rather than NE being secondary to psychological factors. It is now believed that psychological factors are unlikely

cause of primary NE. Most enuretic children are well adjusted and belong to loving family (Alan, 1995).

The onset of secondary enuresis may be brought about by an emotional or psychological disturbance for example divorce, death in the family, illness, emotional or psychological trauma, family conflicts, rivalry of sibling, shifting of home (due to sense of insecurity), frequent physical abuse of child, even neonates have shown the effect of stress. E.g. needle pricks.

GENETIC CAUSES

A significant percentage of children with enuresis have a first degree biological relative who has had Nocturnal enuresis. If both the parents give the history of enuresis the chances of inheritance is almost 70%. Concordance is higher for monozygotic twins as compared to dizygotic twins. The strong familial predisposition of PNE has prompted many studies for a putative gene defect underlying these somatic abnormalities. Using linkage analysis in families with a high prevalence of PNE, many different candidate genes have been described. Some of these genes have been specifically labelled as ENUR-1 (on chromosome 13q), ENUR-2 (on chromosome no 12q) and ENUR-3 (on chromosome no 22q).

Their exact roles in pathophysiology remain to be determined. Response to desmopresin also appears to have a genetic predisposition. Hogg and Husman, et al, (1993) noted that whereas an overall response rate to DDAVP could be achieved in 75% of patients, the response by patients with a positive history of enuresis was 91%.

Genetic causes and phenotypical manifestations of handedness and PNE have been studied, but always separately. The closest study found containing both, though not necessarily in concert, revealed that enuresis is present in 19-36% of Tourette syndrome patients, and that 30-35% of Tourette syndrome patients was left-handed (Comings & Comings, 1987). The candidate gene or genes responsible for enuresis have been likely identified, specifically assigned to chromosomes 13q, probably 12q (Eiberg, 1995a; Arnell, et al, 1997), and possibly 8q (von Gontard, et al, 1997; Hollmann, et al, 1998). The genetic locus of mutation resulting in an allele for handedness is believed to have arisen as a characteristic of *Homo sapiens* development about 200,000 years ago. This could have been the result of the development of an opposable thumb, but may have been a result of the ability to create speech by lateralizing brain communication centers (Corballis, 1997). Archaeology has shown 5000-year-old cave paintings, use of paleolithic tools and Cro-Magnon man studies also display the 90% right hand tendencies of humans (Bello, 1986, Corballis, 1997).

ORGANIC CAUSES

An organic cause to nocturnal enuresis may be elicitable in only 2-3% of the patients. Another 5-10% has played symptomatic enuresis, which requires specific therapy.

The important causes of enuresis are as follows.

- Diabetes Mellitus
- Diabetes Insipidus
- Tuberculosis
- Other chronic illness
- Worm infestation
- Anatomic defects of genitourinary system
- Congenital deformities of genitourinary system.

UNDUE SUFFERINGS OF ENURESIS

A. STRESS BETWEEN PARENTS AND CHILDREN

Family relationships, compounded by the effects of ADHD and under a cloud of shame and guilt, will undoubtedly suffer and not be as rewarding as they could be.

B. EMOTIONAL PROBLEM

Feeling of fear, ostracism, worthlessness being different from others (again compounded by ADHD). They worry and experience anxiety & depression.

C. COGNITIVE MISCONCEPTIONS

Nobody likes waking up in urine soaked sheets, however often this problem is treated as a form of defiance and is met with counterproductive scolding, punishment and attempts to embarrass. These approaches are completely unsuccessful in the treatment of bedwetting. Moreover, they are harmful since they cause pain, embarrassment and the further loss of self-esteem, shame and guilt in children and teenagers who are already suffering and have no conscious control over their enuretic behavior.

D. OPTING OUT OF SOCIAL ACTIVITIES

Avoidance of overnight stays, many bed-wetters will not stay in hotels or visit relatives overnight (without elaborate procedures to hide the problem). School age children's are often unable to go on field trips or stay over with friends.

E. HYPER KINETIC ACTIVITY

Enuretic children may rev themselves up to keep participating in play, school or other activities and it can be a GATEWAY TO HYPER KINETIC ACTIVITY.

F. PRACTICAL PROBLEM

Inconvenience and real costs incurred by excess Laundry and new bedding. This is great shame, as in many cases enuresis can be effectively treated, using safe, tried and tested measures that have helped millions worldwide learn to become dry at night. Bed wetting (in whole population) has often been seen to pass down through families in a very similar pattern to ADHD, and also has a higher incidence in males, against like ADHD. In explicable, the most widely used criteria for ADHD

diagnosis, does not include "sleep disorders" as a part of the symptomatology, despite the fact that (as many parents and adults know) it is very rare to find somebody with ADHD who has normal sleep patterns.

TREATMENT MODALITIES

- **Behavioral Modification:** Motivational therapy is a form of behavior modification promoting positive reinforcement using praise and reward. The child is encouraged to assume responsibility and take an active role in the treatment program.
- **Conditioning therapy-** Use an enuretic alarm system. This regimen is the most commonly recommended form of therapy as described in the medical literature. It has a success rate of 65% to 75% and relatively low rates of relapse. The enuresis alarm is a system using a signal alarm that is triggered by contact of urine. Its premise is to teach the child to awaken to the sensation of a full bladder.
- **Bladder-Retention Training:** Bladder-retention training is based on the presumption that the child has a decreased functional bladder capacity. To establish a baseline, it is helpful to estimate normal bladder capacity for each age group using the formula: Bladder capacity (in ounces) = Age (in years) + 2. Retention training involves conscious attempts at "bladder stretching" by voluntarily prolonging the intervals between voiding. This technique also involves keeping a daily log of voided volumes, forcing fluids during the day, and stream interruption.
- **Pharmacologic Therapy:** A number of medications have been used to treat nocturnal enuresis Imipramine (Tofranil) and desmopressin acetate (DDAVP) has proven successful. Some credence has also been given to oxybutynin (Ditropan).
- **Anti-Cholinergic-** Medications, specifically oxybutynin (Ditropan), have the properties of a musculorelaxant (thereby reducing uninhibited bladder contractions) as well as producing local anesthetic effects on the bladder.
- **Psychotherapy:** Psychotherapy has been used as a treatment for enuresis without convincing evidence of its effectiveness. Werry reiterates that the majority of primary enuretics do not suffer from underlying psychoneurosis. Because prolonged psychoanalysis is generally an inefficient and unnecessary approach for children with PNE, it should be limited to children with obvious psychopathology.

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