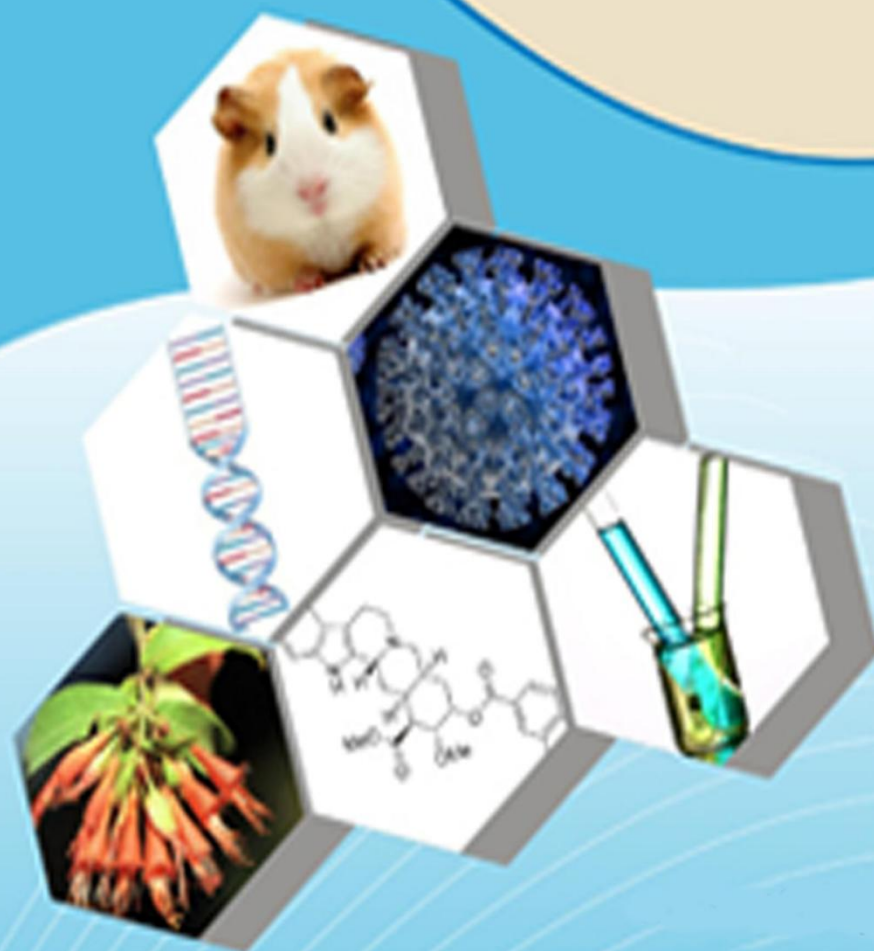




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A CLINICAL STUDY TO ASSESS THE EFFICACY OF PLANTAGO MAJOR IN THE MANAGEMENT OF NOCTURNAL ENURESIS IN PAEDIATRIC AGE GROUP: A REVIEW OF LITERATURE

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ABSTRACT

Nocturnal enuresis (NE), commonly known as bedwetting, is a frequent pediatric condition characterized by involuntary urination during sleep beyond the age of expected bladder control. It has a multifactorial etiology involving genetic, developmental, hormonal, and psychological factors. The urinary system plays a key role in maintaining homeostasis, and disturbances in its function contribute to enuresis. Homoeopathy offers a holistic, individualized approach, with *Plantago major* being one of the commonly indicated remedies. This review compiles literature on anatomy, physiology, epidemiology, pathogenesis, & homoeopathic management of NE, highlighting the scope for further research.

INTRODUCTION

Nocturnal enuresis is defined as involuntary urination during sleep in children beyond the age at which bladder control is expected. It affects approximately one in four children and is more common in boys, often showing familial aggregation (10). The condition has significant psychological and social impact on children and caregivers.

ANATOMY AND PHYSIOLOGY

Anatomy

The urinary system comprises kidneys, ureters, urinary bladder, and urethra, functioning in excretion and maintenance of fluid and electrolyte balance (11).

Embryology

The urinary system develops from intermediate mesoderm through three stages:

- Pronephros
- Mesonephros
- Metanephros (permanent kidney) (11,12)

PHYSIOLOGY OF MICTURITION

Micturition is a reflex process controlled by spinal cord and higher centers. Bladder filling triggers stretch receptors leading to urination (21,22,24).

Micturition is a reflex process involving:

- Stretch receptors in bladder
- Spinal cord reflex arcs
- Higher cortical centers (21,24)



Bladder filling (300–400 mL) initiates the reflex leading to urination (21,22).

DEFINITION

AND CLASSIFICATION

Definition

Enuresis is involuntary urination beyond the age of normal bladder control (26).

Classification

- Primary enuresis (persistent)
- Secondary enuresis (regressive) (27)

EPIDEMIOLOGY

Global prevalence ranges from 1.4%–28%, with higher incidence in boys and strong familial association (3,29,30).

- Global prevalence: 1.4–28% (3)
- India: 7.61–16.3% (3)
- More common in boys
- Strong familial predisposition (29)

Risk factors include:

- Family stress
- Poor socioeconomic status
- Behavioral issues (30)

ETIOLOGY

Primary causes include delayed CNS maturation and genetic factors (35). Secondary causes include stress, UTI, and neurological conditions (10,38,39,40).

Primary Enuresis

- Delayed CNS maturation (35)
- Improper toilet training
- Genetic factors

- Reduced bladder capacity

Secondary Enuresis

- Psychological stress (10)
- Urinary tract infections (39)
- Renal pathology (40)
- Neurological disorders (38)

Other contributing factors:

- Constipation (41)
- Hormonal imbalance (ADH deficiency)

PATHOGENESIS

Mechanisms include reduced ADH secretion, bladder instability, delayed CNS maturation, and impaired arousal (31,32).

Key mechanisms include:

- Reduced nocturnal ADH → nocturnal polyuria (31)
- Bladder instability
- Delayed neurological maturation
- Genetic factors (ENUR1 gene)
- Impaired arousal from sleep (32)

CLINICAL EVALUATION

Includes history, examination, and investigations such as glucose and renal function tests (28).

Evaluation includes:

- Detailed history
- Physical examination
- Investigations:
 - Blood glucose
 - Renal function tests
 - Thyroid function (28)



HOMOEOPATHIC PERSPECTIVE

Homoeopathy treats based on individual constitution and miasmatic background rather than disease alone.

Homoeopathy considers:

- Individual constitution
- Miasmatic background
- Mental and physical symptoms

Treatment is individualized rather than disease-based.

ROLE OF PLANTAGO MAJOR

Plantago major is used in homoeopathy for urinary complaints and neuralgia, supported by materia medica and pharmacopoeia references (4,5,6,7,8).

Plantago major is traditionally used in:

- Wound healing (4)
- Neuralgic pain (5)
- Urinary complaints including enuresis (6,7)

It is documented in:

- Materia Medica
- Repertory
- Homoeopathic Pharmacopoeia

Phytochemical studies indicate active constituents influencing the nervous system (8). However, controlled clinical evidence is limited (2).

DISCUSSION

Nocturnal enuresis is a multifactorial condition with physiological, genetic, and psychological influences. Conventional treatments focus on symptomatic relief, while homoeopathy aims at holistic

correction. *Plantago major* shows potential but requires further clinical validation.

CONCLUSION

Nocturnal enuresis is a multifactorial condition requiring holistic management. *Plantago major* shows promise but requires further clinical validation. Nocturnal enuresis significantly affects pediatric quality of life. A comprehensive understanding of its etiology and pathogenesis is essential for effective management. Homoeopathy, particularly *Plantago major*, offers a promising approach; however, further evidence-based studies are required.

REFERENCES

1. Kliegman RM, St Geme JW. Nelson Textbook of Pediatrics. 21st ed. Elsevier.
2. Cochrane Database Syst Rev. Homoeopathy for childhood enuresis.
3. Caldwell PHY, et al. Bedwetting and toileting problems in children. Lancet.
4. Evans WC. Trease and Evans Pharmacognosy. Elsevier.
5. Boericke W. Pocket Manual of Homoeopathic Materia Medica. B Jain.
6. Allen HC. Keynotes and Characteristics of Materia Medica.
7. Govt of India. Homoeopathic Pharmacopoeia of India.
8. Harborne JB. Phytochemical Methods.
9. Austin PF, et al. Dysfunctional Voiding Scoring System. J Urol.
10. Ghai OP, Paul VK, Bagga A. Ghai Essential Pediatrics.



11. Guyton AC, Hall JE. Textbook of Medical Physiology.
12. Moore KL, Persaud TVN. The Developing Human.
13. Sadler TW. Langman's Medical Embryology.
14. Gray H. Gray's Anatomy.
15. Junqueira LC. Basic Histology.
16. Snell RS. Clinical Anatomy.
17. Standring S. Gray's Anatomy.
18. Datta AK. Essentials of Human Anatomy.
19. Ganong WF. Review of Medical Physiology.
20. Chaurasia BD. Human Anatomy.
21. Guyton & Hall. Physiology of kidney.
22. Vander AJ. Renal Physiology.
23. Ganong WF. Micturition reflex.
24. Guyton AC. CNS control.
25. Adams RD. Principles of Neurology.
26. DSM-5. Enuresis definition.
27. ICD-10 classification.
28. Nelson Textbook of Pediatrics.
29. Butler RJ. Clin Psychol Rev.
30. Indian J Pediatr.
31. Norgaard JP. Br J Urol.
32. Nevéus T. Acta Paediatr.
33. Hjalmas K.
34. ICCS guidelines.
35. Bloom DA.
36. Rutter M.
37. WHO guidelines.
38. Pediatric Neurology journals.
39. Indian J Urol.
40. Harrison's Principles of Internal Medicine.
41. Pediatric Gastroenterology texts.
42. Journal of Urology.