# *Assessment Of The Efficacy Of Desmopressin In The Treatment Of Primary Monosymptomatic Nocturnal Enuresis In Egyptian Children*

*Thesis*

**Submitted For The Partial Fulfillment Of**
**The Master Degree In Pediatrics**

*By*

***Marian Khairy Hakim***
(M.B., B.Ch.)
*Ain Shams University*
(٢٠٠٧)

*Under The Supervision Of*

**Professor Doctor:** ***Farida El-Baz Mohammed***
Professor of Pediatrics
*Faculty of Medicine*
*Ain Shams University*

**Doctor:** ***Sally Soliman Zahra***
Lecturer of Pediatrics
*Faculty of Medicine*
*Ain Shams University*

**FACULTY OF MEDICINE**
**AIN SHAMS UNIVERSITY**
**CAIRO, EGYPT**

**٢٠١٣**

# List Of Contents

# List Of Abbreviations

| | |
|---|---|
| ADH | Antidiuretic hormone. |
| ADHD | Attention deficit hyperactivity disorder. |
| AVP | Arginine vasopressin. |
| CA | Chronological age. |
| DDAVP | ١-deamino ٨ D-arginine vasopressin. |
| DSM | Diagnostic and statistical manual of mental disorders. |
| FDA | Food and drug administration. |
| ICD | International classification of diseases. |
| IQ | Intelligence quotient. |
| IVP | Intravenous pyelography. |
| MA | Mental age. |
| MCC | Maximum cystometric capacity. |
| NE | Nocturnal enuresis. |
| NSAID | Non steroidal anti inflammatory drugs. |
| PANDAS | Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections. |
| PMNE | Primary monosymptomatic nocturnal enuresis. |
| SIADH | Syndrome of inappropriate antidiuretic hormone secretion. |
| VCUG | Voiding cystourethrogram. |

# List Of Figures

# List Of Figures (cont.)

# List Of Tables

# List Of Tables (cont.)

# INTRODUCTION

Nocturnal enuresis has been described in early medical texts dating back in antiquity to the Ebers papyrus, with multiple causes and remedies across the centuries. Daytime urinary incontinence, strangely enough, did not attract much attention ***(Belman et al,*** ***)***.

Enuresis and other elimination disorders were initially perceived as volitional acts occurring as a function of character defect, thus treatment tended to be highly punitive. Although a cultural residue of this early perspective remains (i.e. children are still frequently punished for urinary accidents). Toward the middle of this century, this idea was superseded by a psychological perspective. This position lifted the emphasis on volition and personal responsibility and instead emphasized variables such as aberrant family dynamics and toilet training practices and their potentially maladaptive influence on subsequent psychic development ***(Watson & Gresham,*** ***)***.

However, over the last two decades, physicians have developed a better understanding of the different subtypes of patients that constitute the heterogenous population of children with enuresis, and this has been associated with an increasing awareness of the need for a more active treatment attitude ***(Hogg,*** ***)***.

Failure to obtain urinary continence during the day and/or night is one of the most common disorders of childhood. Although only a minority of incontinent children have an underlying pathologic condition associated with morbidity, "wetting" is still one of the most feared events among children especially when school age is reached. Nevertheless, members of the medical community have been reluctant to treat children with these conditions actively, often referring to the lack of morbidity, and to the misconception that the symptoms are most often mild and short lived ***(Hogg, ٢٠٠٦)***.

The improved knowledge about various subtypes of wetting has resulted in such children being carefully differentiated with respect to both their evaluation and treatment ***(Hogg, ٢٠٠٦)***.

# AIM OF THE WORK

The aim of this study was the assessment of the efficacy of desmopressin in the treatment of primary monosymptomatic nocturnal enuresis in Egyptian children.

# CHAPTER ONE
# NOCTURNAL ENURESIS

All children start life being incontinent of urine both by day and night and, as neurological maturation occurs, voluntary control of the bladder is gained first by day then by night. Very few never gain control of the bladder unless there is obvious neurological disease, including gross mental handicap. In most cases, nocturnal enuresis in children should be seen not as disease but as a variation of the normal rate of neurological maturation ***(Robson, . )***.

Enuresis comes from the Greek- Enourein – to void urine. It is a part of elimination disorders, which include also encopresis ***(Kanitkar & Dua, )***.

Nocturnal enuresis (NE), commonly called bed-wetting, is the most common childhood urologic complaint ***(Paredes, )*** and one of the most common pediatric health issues ***(Robson, )***.

## Definitions:

Over the years, various terms have been used to describe wetting problems. This practice has created confusion and impeded standardization of diagnosis.

*The International Children's Continence Society* defined nocturnal enuresis as the involuntary loss of urine that occurs

only at night. It is normal voiding that happens at an inappropriate and socially unacceptable time and place ***(Van Gool et al,*** ***)***.

*Another definition is:* involuntary urination while asleep after the age at which bladder control usually occurs ***(Paredes,*** ***)***.

*American Psychiatric Association's Diagnostic & Statistical Manual Of Mental Disorders-IV (DSM-IV),* , defined NE as repeated urination into bed or clothes, occurring twice per week for at least three consecutive months in a child of at least ٥ years of age and not due to either a drug side effect or a medical condition. Even if the case does not meet these criteria, the DSM-IV definition allows psychiatrists to diagnose nocturnal enuresis if the wetting causes the patient clinically significant distress ***(Mellon and McGrath,*** ***)***.

On the other hand nocturnal enuresis is defined in the *International classification of diseases (ICD )* as: at least one wet night per month for ٣ consecutive months ***(WHO,*** ***)***.

*Some researchers consider bed-wetting as a clinical problem if*: the child regularly wets the bed after turning seven years old ***(Evans and Radunovich,*** ***)***.

*D'Alessandro refines the previous definition to:* bed-wetting more than twice a month after six years old for girls and seven years old for boys ***(Thiedke,*** ***)***.

**Classification:** ***(Thiedke, ~ )***

***A) According to previous periods of dryness:***

- *Primary NE (PNE):* bed-wetting in a child who has never been dry.
  *Also PNE can be defined as:* persistent bed-wetting in the absence of any urologic, medical or neurological anomaly in a child beyond the age when over ٧٥٪ of children are normally dry.

- *Seco*ndary NE: bed-wetting in a child who has had at least six months of nighttime dryness.

***B) According to presence of other symptoms:***

- *Monosymptomatic or uncomplicated NE*: normal voiding occurring at night in bed in the absence of other symptoms referable to the urogenital or gastrointestinal tract.
- *Polysymptomatic or complicated NE:* bed-wetting associated with daytime symptoms such as urgency, frequency, chronic constipation, or encopresis.

**Epidemiology:**

٧٥٪-٨٥٪ of bed-wetters have PNE and ١٥٪-٢٥٪ have secondary NE ***(Wan and Greenfield, ١٩٩٧)***.

### *A) Variations according to gender:*

- NE occurs three times more often in boys than in girls.

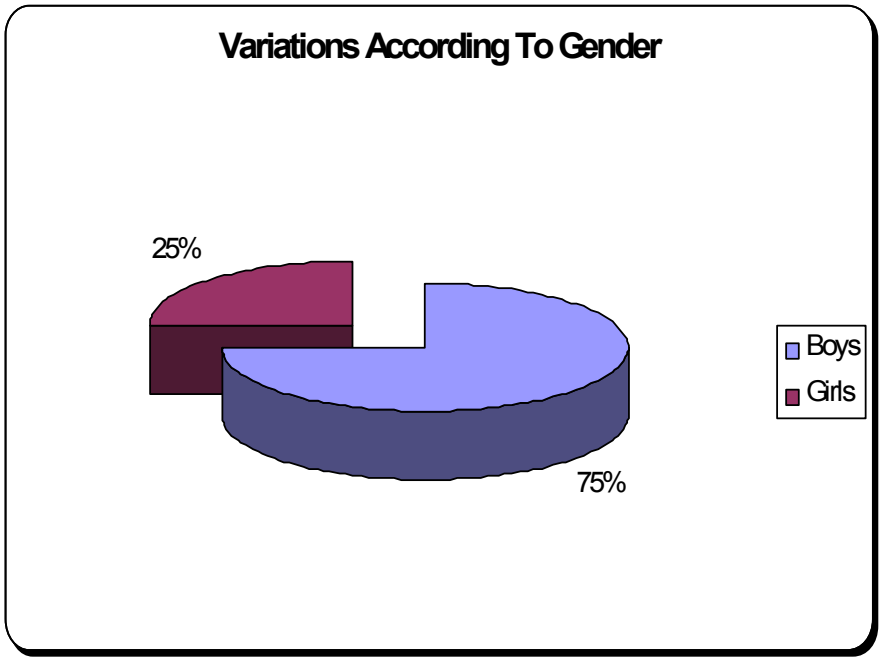


**Figure (١):** Variations of NE prevalence according to gender ***(Thiedke,  )***.

- Most girls can stay dry at night by age six and most boys stay dry by age seven.
- Males of all ages are more likely to wet the bed than females and girls tend to be a little ahead of boys in terms of achieving control.
- Moreover, in some children, the problem can persist, with around ٠,٨٪ of girls and ١,٦٪ of boys aged ١٥-١٦ years wetting at least once every ٣ months ***(Thiedke,  )***.