

Enuresis of Children in A Hospital Environment: Epidemiological, Diagnostic and Therapeutic Aspects in The Thies Region

Kouka SCN^{1*}, Sissokho M², Thiam NM², Jalloh M², Diop M³, Faye M³, Diame A¹, Diallo Y¹ and Sylla C²

¹Department of Urology, Faculty of Health Sciences, University Iba Der Thiam of Thies, Senegal.

²Department of urology, Mbour hospital, Senegal.

³Department of Urology, University Cheikh Anta Diop De Dakar, Senegal.

*Corresponding author: Saint Charles Nabab Kokua, Department of Urology, Faculty of Health Sciences, University Iba Der Thiam of Thies, Senegal

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Abstract

Introduction: Enuresis is a functional abnormality of urination. Its management requires a simple but rigorous clinical assessment and treatment adapted to each child.

Objective: To study the epidemiological, clinical, and therapeutic characteristics of enuretic patients consulting in a hospital environment in the Thies region.

Patients and Methods: We conducted a prospective descriptive study from January 1st, 2019, to October 31st, 2019. We included all cases of enuresis in the urology departments of the regional hospital of Thies, the Hospital of Tivaouane and the Diarniadio children's hospital.

Results: We recorded 30 cases of enuresis during the study period. The prevalence of enuresis was 3.71% with a sex ratio of 1.5 in favor of boys. The average age of the children was 9.63 ± 2.4 years. It was primary enuresis in 86.66% and secondary in 13.33%. In 86.66% of cases, enuresis was nocturnal and isolated. Enuretic episodes occurred in 56.66% of cases 2 to 3 times per week. The urological examination was normal in 97% (n=29). The behavioral treatment associated with the medical treatment resulted in a cure rate of 69% after a 6-month follow-up.

Conclusion: Nocturnal enuresis is common in our regions. A cure can be obtained with comprehensive management by a well-trained medical staff.

Keywords: Nocturnal enuresis; child; treatment

Introduction

Enuresis is a functional abnormality of urination [1]. It is defined by the existence of nocturnal and sometimes daytime urination that is involuntary and unconscious, persisting or reappearing after the average age of acquisition of sphincter control, but not resulting from an organic cause [2]. Usually, enuresis is considered from the age of 5 years, when urination control is most often acquired. Enuresis is called Primary Enuresis if the child has never had

a period of continence during sleep for at least six months [3]. The resumption of incontinence during sleep after six months of voiding control is secondary enuresis [4]. The true incidence of enuresis is currently unknown in Senegal [5]. Its management requires a simple but rigorous clinical assessment and treatment adapted to each child. The aim of this work was to determine the epidemiological, clinical and therapeutic characteristics of enuretic patients consulting in a hospital environment.

Patients and Methods

This is a prospective, descriptive study carried out between January 2019 and October 31, 2019, in the Pediatrics department of the Diamniadio children's hospital and the urology departments of Thiès and of Tivaouane hospitals. It concerned all children of both sexes, aged at least 6 years, referred by their parents to the hospital. We included 30 patients presenting with enuresis during this period. The parameters studied were collected from a questionnaire and concerned:

- The identity of the patients (schooling, urban, suburban, rural origin).
- Epidemiological data (hospital frequency, age, sex).
- Enuretic factors (family factor; bladder factor; hormonal factor; sleep factor; constipation factor and psychological factor).
- The characteristics of enuresis: type, periodicity, frequency.
- assessment of the parents' behavior regarding the problem: indifference, abuse, humiliation, understanding.
- Physical finding and work up.
- Therapeutic data (restriction of drinks after 7 p.m., complete urination before sleep, awakening induced with the regularity of daytime urination, medical treatment, either

Desmopressin, Oxybutynin or Clomipramine, voiding calendar).

h) The results of the treatment, the rate of follow-up (1 month, 3 months, 6 months).

i) Data entry and analysis were carried out using Word 2013, Excel 2013, and SPSS 2020.

Results

Out of a total of 808 children consulted, 30 children presented with enuresis during the study period, i.e. a prevalence of 3.71%. The average age of the children at the time of diagnosis was 9.63 +/-2.414 years with a range of 5 to 16 years. The most represented age group was 7 to 8 years old accounting for 33,33% of cases (n = 10). The sex ratio was 1.5 in favor of boys (60%). All children referred for enuresis were pupils. The majority of children lived in urban areas (66.7%) while 23.3% lived in rural areas. There was no history of diabetes, sickle cell disease or asthma. The family history of enuresis was reported in 9 patients (30%), including 10% (n=3) among siblings and 20% (n=6) among parents (Tables 1&2). No socio-family factor or other urinary symptoms was found. Enuresis was primary in 26 children (86.7%), secondary in 4 children (13.3%). The weekly frequency was 2 to 3 enuretic episodes in 17 children (56.7%), 1 episode in 3 patients (10%), 4 to 5 episodes in 4 patients (13,3%) and 7 episodes in 6 patients (20%). The enuretic episode generally occurred once per night in 13 children (43,3%), twice per night in 15 children (50%) and three times per night in 2 children (6,7%) (Figure 1).

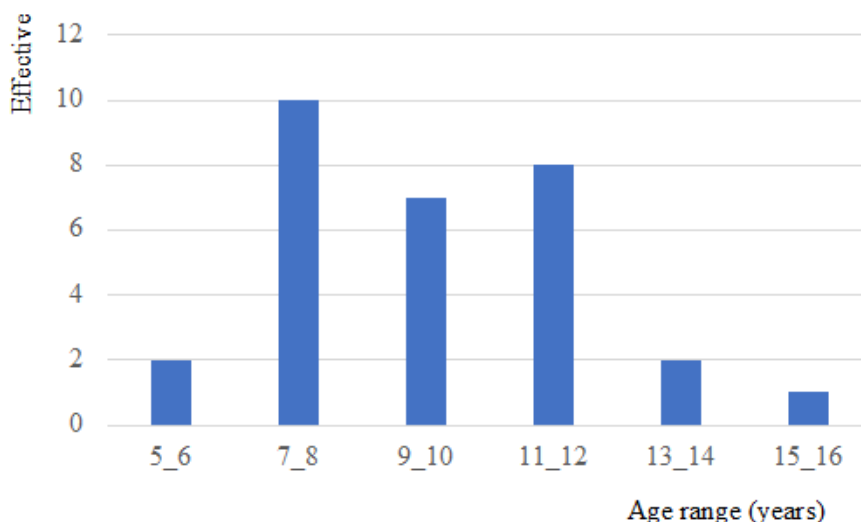


Figure 1: Distribution of the patients according to the age range.

Table 1: General characteristics.

Characteristics	Effective	Percentage (%)
Number of case enuresis	30	
Prevalence = 3,71		
Means age =9,63 +/-2,414 years (age range (5 à 16 years)		
Sex ratio (H/F) = 1,5		

Scolarisation rate	30	100
Provenance Urban area	20	66.6
Suburban area	3	10
Rural area	7	23.4

Table 2: Distribution of the patients according to risk factors and characteristics of enuresis.

Variables	Effective	Percentage (%)
Family factor		
History of enuresis in siblings	3	10
History of enuresis in parents	6	20
Sleep factor		
Deep Sleep	26	86,7
Light sleep	4	13,3
Nightmares		00
Type of enuresis		
Primary	26	86,7
Secondary	4	13,3
Rhythm		
Night	26	86,7
Mixed	4	13,3
Weekly frequency (intensity)		
1 time per week	3	10
2-3 times per week	17	56,7
4-5 times per week	4	13,3
Every day (7 days a week)	6	20
Number of enuretic episodes per night		
1 episode of nocturnal enuresis	13	43,3
2 episodes of nocturnal enuresis	15	50
3 episodes of nocturnal enuresis	2	2,7

Parents reported a notion of deep sleep in 86%, light sleep in 14%. No child reported nightmares during the sleep phase. The parents in our series had a passive attitude regarding the enuresis in 36.7% of cases (Table 3). On the other hand, 63.3% of parents humiliated or punished their children. However, only 6.7% of parents reassured their children about enuresis, and 30% understood the situation and accepted the symptoms as being a pathology that requires treatment (Figure 2). The urological examination found 1 case of phimosis and was normal in 29 children. Urine culture was

carried out in 70% of cases and was normal in all cases. Fasting blood sugar levels were only performed in 3 patients, i.e. 10%, and were negative. All our patients received behavioral treatment for 1 month. Medical treatment was prescribed in 45% of cases: 35% of enuretic children were on Oxybutynin, 7% of patients were on Desmopressin, 3% on Clomipramine. Behavioral treatment alone resulted in a 50% cure rate (Figure 3). Relapses at medical treatment interruption or before the end of the treatment period were reported in 8% of cases.

Table 3: Distribution of the patients according to type of treatment and evolution.

Type of treatment	Cure rate	Improvement rate	Failure rate
Behavioral treatment alone	34%	33%	33%
Behavioral treatment + Desmopressin	50%	50%	0%
Behavioral treatment + oxybutine	67%	16%	17%
Behavioral treatment + antidépresseur tricyclique	53%	29%	18%

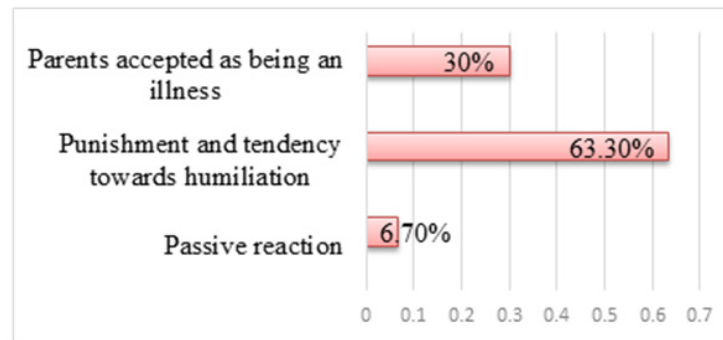


Figure 2: Distribution of the patients according to the parents' reaction.

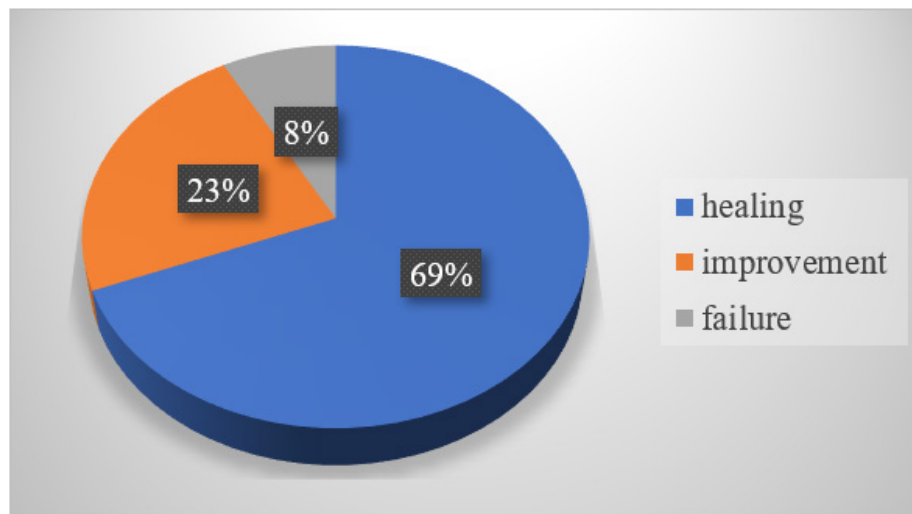


Figure 3: Distribution of the patients according to evolution of treatment.

Discussion

Epidemiology

In our study, the prevalence of enuresis is estimated at 3.71%. Huang [6] in China, noted a prevalence of 3.99%. Senegal found a prevalence of 1.44%. This prevalence is relatively low compared to the data reported in the literature with rates varying from 12.95% in Burkina Faso by Ouédraogo [7], 5.4% in France. Hjalmas [8] reported an estimated prevalence of 8%. This difference in prevalence could be explained by the variability of the study populations. In addition, the real incidence of enuresis remains unknown. The average age of our patients was 9.63 years. This average age is close to 8 years reported. However, Sylla reported a higher average age of 15 years. This difference could be explained by the fact that their study focused on adolescent enuresis. In our series, we noted a higher frequency in boys (60%). This agrees with the study where the frequency of enuresis was higher in boys (9.09%) than in girls (8.03%). On the other hand, Sylla noted a higher frequency among girls with a sex ratio (M/F) of 0.85. There was no medical history found in the children in our study. Some authors like Sylla reported

a medical history in their study with great variability. The notion of a family factor in enuresis exists in 30 to 60% of cases. In our study it was estimated at 30% and concerned parents in 20% of cases or siblings in a proportion of 10% of our patients. This family factor was frequently reported in literature varying from 32.35% for Sylla and 10.3 % for Chan.

Diagnosis

The diagnosis of enuresis is essentially clinical and is based on questioning the patient and/or parents and physical examination. Patient age, enuresis periodicity and frequency must be specified; quality of sleep and psychosocial impact of patients must be assessed, and a voiding calendar must be completed.

Type of enuresis

In our study, primary enuresis was common accounting for 87% of patients, compared to 13% of secondary enuresis. This corroborates the majority of authors who report a predominance of primary type enuresis varying from 77% for Sylla 78.9% for Ouédraogo. In our series, 56.7% of children had 2 to 3 episodes

of enuresis per week, 20% had 7 episodes of enuresis per week (enuresis every day of the week) and 13% of patients had 4 and 5 episodes of enuresis per week. For Lachguer K [9], depending on the intensity, enuresis was severe (at least 3 episodes per week) in 88.8% of patients while in the series by Sylla enuresis was moderate in 42% of patients and with average intensity in 58% of cases.

Parental reaction

The parents in our series were passive in 36.7% of cases. On the other hand, 63.3% of parents punished their enuretic children. Sylla C found 76% punishment. In Burkina Faso, Ouédraogo found 27% of enuretic children were punished by their parents.

Physical examination

Examination of the urogenital tract was normal in 97% of children. For Lachguer K also, the physical examination was normal in 95.4% of cases of enuresis.

Workup

Urine culture and blood glucose level were normal in all cases. In the literature, urinary infection has been reported in between 3% and 16% of cases. In the work of Sylla as well as that of Lachguer blood sugar was normal in 100% of cases. These results confirm that the diagnosis of enuresis does not require additional examination as in the first instance. Imaging was not systematically performed. Maintaining a 48-hour voiding calendar is the recommended way to confirm or correct the diagnosis.

Treatment

Parents and their children sometimes need psychological support to reassure them that enuresis is a symptom that tends to disappear spontaneously with age. Management requires good information and therapeutic education (hygienic and dietary measures and keeping a voiding calendar). In our series, all our patients benefited from behavioral treatment. In enuresis associated with nocturnal polyuria and refractory to hygienic and dietary measures alone, the desmopressin is the treatment of choice [10]. In our study 7% of patients were on desmopressin, 35% on Oxybutynin and 3% on Antidepressant treatment. According to some authors, in children suspected of having low nocturnal bladder capacity, oxybutynin can be prescribed as secondline monotherapy when specific treatments have failed [11]. In our study, 69% of our patients were cured, 23% achieved improvement and treatment failure was noted in 8% of cases.

Behavioral treatment alone resulted in a 34% cure rate, 33% improvement rate and 33% failure rate. In our study 50% of our patients treated by desmopressin responded well to the treatment in combination with the behavioral treatment. For Glazene [12], desmopressin can rapidly decrease the number of wet nights. And [13] reported that up to 70% of patients have dry nights after treatment and 50% of the "successful" patients had relapse after stopping the medication and 50% of them had an improvement. Some authors have recommended, in the treatment of enuresis with polyuria, a reduction in salt consumption or combining desmopressin in the evening and diuretics in the morning [14,15]. Other specialists may opt for individualized combination therapies

including components such as the enuresis alarm, desmopressin, anticholinergics, or antidepressants. Also, alternatives to imipramine such as atomoxetine or reboxetine have been shown to have antienuretic effects [16-18]. Also, for severely therapy-resistant enuresis, may opt for peripheral electrical stimulation or botulinum toxin injections into the detrusor and reported that moxibustion, injection acupuncture and laser acupuncture were effective treatments for childhood nocturnal enuresis. However, the effects of acupuncture compared to desmopressin remain inconclusive.

Conclusion

Nocturnal enuresis is common in our regions. Behavioral treatment associated with taking desmopressin can give good results.

Declaration of interests

The authors declare that they have no conflict interest for this article.

Ethical approval

None sought.

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