Nocturnal Enuresis Pattern and Risk Factors in the Center for Social and Preventive Medicine (CSPM), Cairo University

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Abstract

Background: Nocturnal enuresis is a common disorder in children. Parents' attitudes toward a child's bed-wetting play an important role in treatment.

Aim and objectives: To identify the risk factors and pattern of nocturnal enuresis in the Child Psychiatry Clinic of the Center of Social and Preventive Medicine.

Methodology: This is a cross-sectional study that included 112 nocturnal enuresis patients aged between 5 to 14 years of both sexes in the Child Psychiatry Clinic at Cairo University Hospital. Social data were collected for the studied children and the parents' attitude towards the problem of nocturnal enuresis. Quantitative data were expressed as mean and median, and qualitative data were expressed as absolute frequencies.

Results: The mean age of the patients was found to be 8.6 ± 2.6. The average number of dry nights per week was 1.8. Medicines were used by only 24% of patients. It was also observed that 47% of patients suffered from punishment. Twenty-five percent complained of constipation. Two-thirds of the patients had a positive family history. Learning problems and attention deficit disorder were present in 14 and 12%, respectively. A statistically significant difference was observed between the severity of the condition, drinking after dinner, parental punishment, and constipation (P = 0.04), (P = 0.002) and (P = 0.018), respectively.

Conclusion: Nocturnal enuresis is a common problem that is affected by many risk factors, especially constipation, parental punishment, and drinking liquids after dinner. It turns out that very few patients have learning problems.

Key words: Nocturnal enuresis, wet nights, risk factors.

Introduction

Nocturnal enuresis can be defined as involuntary passage of urine during sleep beyond the age of 5 years, which is the accepted age for normal voiding habits (1).

It is a common disorder in children with a prevalence rate of 20%. (2). Primary nocturnal enuresis means bed wetting in a child aged ≥ 5 years who has never been dry for extended periods, while secondary nocturnal enuresis is bed wetting after a continuous dry period for 6 to 12 months (3).

In most cases the etiology is not completely understood; most studies found that the risk factors for enuresis are family history and lack of family bonding (4), (5). Enuresis is an important problem for both parents and children (6). This includes sleep disturbance, academic disabilities, and neuromotor delay (7). Abnormal vasopressin levels have been described in some studies (8).

Parental attitudes towards a child's bed wetting play an important role in relation to successful treatment and improvement of negative consequences (9).

Few reports have addressed this problem in Egypt. According to a study done in Banha, Egypt, in 2014, a prevalence rate of 14% was recorded. Enuresis was found to be the most common type of behavior disorder among primary school age children 6-12 years (10).

Another study done in Moufeya Governorate, in 2012, showed a prevalence rate of 11.5% for primary nocturnal enuresis (11).

In the present study we aimed to throw some light on epidemiological and risk factors related to this common problem in one of the major teaching hospitals in Egypt. Parents' concerns as well as the child's attitude toward the problem were also enquired about.

Material and Methods

This is a cross-sectional study that was conducted at Kasralainy Hospital addressing attendants of Child Psychiatry clinic during a three months period (April- June 2019).

The study included 112 nocturnal enuresis patients aged between 5 to 14 years.

We included the children with a confirmed diagnosis of primary nocturnal enuresis with 2 or more wet nights per week. Patients with Urinary Tract Infection or diabetic patients were excluded as well as those children whose caregivers refused to participate.

Out of 112 cases, 100 cases fulfilled these criteria. These patients were divided into 2 subgroups: Severe enuresis with 5 or more events per week (n=74) and mild to moderate (n=24).

A questionnaire was designed to elucidate epidemiological factors as well as educational and socioeconomic level of the family. It also included detailed data about attitude and management offered by the parents and risk factors suggested to affect the severity of the problem. Some questions were addressed to the child concentrating particularly on their attitude toward their own problem.

Statistical analysis

All data were statistically analyzed using SPSS 20.0 for windows. Quantitative data were expressed as the mean ± SD & median (range), and qualitative data were expressed as absolute frequencies (number) and relative frequencies (percentage). All tests were two sided. P-value ≤0.05 was considered statistically significant.

Ethical approval:

The study was approved by the Ethical Committee of the Family Medicine Department, Faculty of Medicine, Cairo University. Informed consent was obtained from all participants after simple and clear explanation of the research objectives and methodology.

Results

The mean age of the patients was 8.6± 2.6. Fifty–three % of the patients were females. All families belonged to social class 4 and 5 (12). Most mothers were illiterate or finished primary schools and 5% only finished secondary school.

Table 1 shows the pattern of urinary incontinence It is apparent that most patients have severe incontinence.
Table 2 shows some of the ways used to keep the child dry at night. Different combinations of these methods were used and most of these conditions were not under medical control. It is also noticed that 47% of patients were submitted to punishment.

Twenty four percent of the patients used medical drugs in the past, mainly Uripan (20%) imipramine (4%), and oxybutynin (1%).

Table 3 shows the incidence of risk factors usually described in relation to nocturnal enuresis. Surprisingly, 68% of patients consumed caffeinated drinks. Nearly half of them had infrequent days of incontinence. Accidental fecal incontinence occurred in 12% of patients. Twenty-Five percent complained of constipation. Two-thirds of patients had a positive family history.

As shown in Table 4, learning problems and attention deficit disorder were present in 14 and12% respectively. Sleep problems were present in 16 patients.

In Table 5, we assessed the attitude and awareness of children with their problem where 96 % considered the condition as a problem. Disturbance of sleep, embarrassment on vacations, getting teased and parent's upset were the most common answers. However only 15% felt bad about themselves.

In Table 6 a statistical evaluation of different risk factors was performed. A statistically significant difference was observed between case severity and drinking after dinner, parent punishment and constipation (P=0.04), (P=0.002) and (P= 0.018) respectively.

Table 1: Basic characteristics of the study group regarding urination control (n=100).

Items	Mean± SD (Range)
1. How old were you when you started urinating in the toilet during the day? (years)	2.5±0.9 (1-6)
2. How many nights each week do you *usually* stay dry? (nights)	1.8±1.8 (0-6)
3. What is the longest you have ever been dry every night in a row? (days)	6.7±11.9 (0-60)

Table 2: Assessing ways used to keep the child dry at night (n=100)

Items	Study group (n=100)	
	No	%
Diaper or "Pull-up"	26	26.0
Drinking little or less after dinner	48	48.0
Alarm Clock wakes at night	27	27.0
Acupuncture/Acupressure	0	0
Trying to remember to keep dry	57	57.0
Enuresis Alarm	4	4.0
Hypnosis	0	0
Keeping "Dry Night" calendar	30	30.0
Parent wakes at night	93	93.0
Punishment for wet nights	47	47.0
Rewards for dry nights	57	57.0

Table 3: Assessing risk factors that may be associated with nocturnal enuresis (n=100)

Items	choice	Study group (n=100)	
		No	% (100.0)
6. Do you sometimes drink caffeinated drinks (soda, tea, coffee) during or after dinner?	Yes	68	68.0
	No	32	32.0
7. When you need to urinate during the day, do you have to go right away?	Yes	57	57.0
	No	43	43.0
8. Do you sometimes urinate in your clothes by accident during the day?	Yes	48	48.0
	No	52	52.0
If "Yes" how many times each week?	1	17	17.0
	2	6	6.0
	3	9	9.0
	4	7	7.0
	7	13	13.0
9. Do you sometimes have a bowel movement (BM, "poop") in your clothes by accident during the day?	Yes	12	12.0
	No	88	88.0
If "Yes" how many times each week?	1	7	7.0
	2	6	6.0
	4	1	1.0
	6	2	2.0
	7	2	2.0
10. Is it hard for you to have a bowel movement most days?	Yes	25	25.0
	No	75	75.0
11. Do you take any medicine to help you have bowel movements most days?	Yes	2	2.0
	No	98	98.0
14. Did either of your parents, or any uncles, aunts or cousins have enuresis as a child?	Yes	67	67
	No	33	33

Table 4: Assessing medical condition that may be associated with nocturnal enuresis (n=100)

Items	choice	Study group (n=100)	
		No	%
12. Do you have any other medical or health problems?	Yes	87	87.0
	No	13	13.0
If the answer is yes,			
• Learning problems		13	13.0
• Attention Deficit Hyperactivity Disorder (ADHD)		12	12.0
• Diabetes		1	1.0
• Constipation		5	5.0
• Kidney/bladder problems		0	0
• Bladder infections		0	0
• Allergies: to what?		13	13.0
• Sleep problems		16	16.0
• Seizures		4	4.0
13. Do you take any other medicines?	Yes	10	10.0
	No	90	90.0
If "Yes," what medicine?			
L- thyroxine		4	4.0
Drugs for hepatomegaly		2	2.0
Metronidazol		2	2.0
Aripeprix for autism		1	1.0
Depakin for seizures		1	1.0

Table 5: Assessing awareness of children with nocturnal enuresis toward this problem (n=100)

Items	choice	Study group (n=100)	
		No	%
Is enuresis a problem for you?	Yes	96	96.0
	No	4	4.0
If the answer is yes,			
Why it is a problem for you:			
• Can't do sleep-overs		77	77.0
• Embarrassing on vacations		70	70.0
• Have to wash my sheets/pajamas a lot		6	6.0
• Getting teased		74	74.0
• Parents are upset		73	73.0
• Don't like wearing diapers		18	18.0
• Can't get a new bed		28	28.0
• Don't feel good about myself		15	15.0

Table 6: Comparing between level of severity and different factors (n=124).

Characteristics	Mild (n=26)	Moderate and severe(n=74)	P value
	No	No	
Gender			
Male	11	36	0.57
Female	15	38	
Diaper or "Pull-up" use			
No	22	52	0.15
Yes	4	22	
Drinking little or less after dinner			
No	18	34	**0.04***
Yes	8	46	
Trying to remember to keep dry			
No	10	33	0.58
Yes	16	41	
Punishment for wet nights			
No	18	25	**0.002****
Yes	8	49	
Drink caffeinated drinks			
No	17	51	0.74
Yes	9	23	
Urinate in your clothes by accident during the day			0.81
No	13	35	
Yes	3	39	
Sometimes have a bowel movement (BM, "poop")			
No	2	10	0.43
Yes	24	64	
Hard for you to have a bowel movement			
No	11	14	**0.018***
Yes	15	60	

*Statistical significance P≤ 0.05

Discussion

Demographic data obtained showed an age range between 3 and 14 years with no statistical significance regarding sex but with female predominance, although male predominance is described in most research (4), (13).

Out of 100 children who completed this study after application of our exclusion criteria, 74% had severe incontinence. This was shown in other studies (13,14). We also noticed that the level of the mother's knowledge, attitude, and practice towards the problem was unsatisfactory. This can be shown by the ways used to keep the child dry at night. Analysis of the results of our questionnaire showed for example: pull ups were used at night by only 26% of cases; nearly 50% of cases were not aware of the importance of preventing drinking after dinner; enuresis alarm was used by only 4%. This may be due to the relatively high cost of this device. Also punishment for wet nights was performed for nearly 60%. The effect of punishment, especially physical punishment on the severity of enuresis and sometimes failure of treatment has been documented in several studies (9). It is common in low socioeconomic families as in our study.

The problem severity was affected by many risks. It was noticed that factors like patients' gender, family history of enuresis, presence of constipation and obstructive sleep apnea could affect the problem as well as the socioeconomic factors, knowledge and attitude of parents, that were proved to be of significant effect also in other studies (13), (14).

In our study most of these factors were shown to be of value as regards severity of the problem. However, drinking after dinner, punishment for wet nights and associated constipation proved to be of statistical significance.

We tried to assess the awareness of children and their attitude towards the problem. With some difficulty, mostly due to some sort of embarrassment, we concluded that the problem deeply affected the great majority of them. Thus, nearly a quarter of them presented with problems like failure to do sleepovers, embarrassment on vacation and getting teased. Upset of parents and fear of punishment were also relevant. Fifteen percent of parents stated that they don't feel good about themselves.

We recommend that a health educational program should be developed for caregivers of children with enuresis to update their knowledge and skills about this common problem. Mass media, posters and individual counseling can help in this field. Maternal and child health centers (MHC) should participate in early counseling and directions to mothers regarding toilet training and basics of management.

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