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Motivation Therapy in Children with Primary Monosymptomatic Nocturnal Enuresis

Primer Monosemptomatik Enürezis Nokturnalı Çocuklarda Motivasyon Tedavisi

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Abstract

Aim: In the present study, socio-demographic characteristics of routinely followed primary monosymptomatic enuretic cases and the success rate of simple behavioral therapy were evaluated.

Methods: Questionnaires that inquire the characteristics of enuresis were conducted on the children and their families. The children were motivated and called for regular follow-ups. Treatment success was evaluated at the end of the first, the third and the sixth months and the first year. Patients were divided into two groups as successful or unsuccessful results of treatment. Features of unsuccessful group were evaluated.

Results: The total success rate was 40% at the end of the first month, 38% at the end of the third month, 50% at the end of the sixth month and 54% at the end of the first year. Nightly fluid consumption and deep sleeping problems were significantly higher in the group with no treatment success. The number of introverted patients was higher in the unsuccessful group with respect to the other group.

Conclusion: Motivation therapy can be offered as a first-step treatment for children with primary monosymptomatic nocturnal enuresis, who are within the age group between six and eight can be motivated for the treatment and do not have an intense amount of bed-wetting at night.

Keywords: Enuresis nocturna, motivation therapy, primary monosymptomatic

Öz

Giriş: Makelemizde primer monosemptomatik enürezis nedeniyle düzenli olarak takip edilen olguların sosyodemografik özellikleri ve basit davranış tedavisinin başarı oranı değerlendirilmiştir.

Yöntemler: Çocuklara aileler ile birlikte enürezisin özelliklerini sorgulayan anket formları uygulandı. Çocuk motive edilmeye çalışıldı. Birinci, üçüncü, altıncı ay ve birinci yıl sonunda tedavi başarıları değerlendirildi.

Bulgular: Birinci ay sonundaki tam başarı oranı %40, üçüncü ay sonundaki %38, altıncı ay sonundaki %50, birinci yıl sonundaki ise %54 idi. Tedavi başarısının 8,5±2,2 yaş grubunda anlamlı olarak daha yüksek olduğu, tedavi başarısı olmayan grupta gece sıvı tüketiminin ve derin uyku problemlerinin anlamlı olarak daha fazla olduğu görüldü. Başarılı olamayan grupta içine kapanık hasta sayısı diğer gruba oranla daha fazla idi.

Sonuç: Motivasyon tedavisi yaş grubu altı ile sekiz arasında olan ve geceleri ıslatma miktarı yoğun olmayan, tedavi için motive olabilen primer monosemptomatik enürezis noktürnalı çocuklarda birinci basamak tedavi olarak önerilebilir.

Anahtar Sözcükler: Enürezis noktürna, motivasyon tedavisi, primer monosemptomatik

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Introduction

Primary monosymptomatic nocturnal enuresis refers to wetting the bed only at night, without any lower urinary tract symptoms (except for nocturia) and previous bladder dysfunctions, and unaccompanied by daytime symptoms (sudden urges to urinate, urinary incontinence during daytime, frequent urination, chronic constipation and fecal incontinence) (1). Monosymptomatic nocturnal enuresis is a symptom rather than a disease, which seriously affects an important part of the general population. Although the prevalence of enuresis differs among different populations, it occurs by 15% around the age of five and it is spontaneously decreased by 15% each year (2). The etiology of monosymptomatic nocturnal enuresis and the underlying physiological factors are heterogeneous (3). Mainly, it is thought to be multifactorial. Low bladder capacity and excessive detrusor activity at night, absence of vasopressin release during night sleep, not sensing bladder fullness during the sleep and not waking up for urination at night are the generally accepted common views (4). A genetic disorder based on the inability to wake up when bladder is full and a defect in the maturation of the central nervous system (CNS) are in question (5,6). The first approach to treating primary nocturnal enuresis is simple behavioral changes and motivational therapy. Drug treatment and alarm treatment should be preferred in older children who feel greater social pressure and whose self-respect is vulnerable (2). Explaining the disorder to the family and the child and informing them positively influence the success of the treatment. It must be emphasized that this situation is based especially on the late development of the normal inhibitory control mechanism because of the late maturation of the CNS, and each year self-recovery might be possible by average 15% (4). In this article, socio-demographic characteristics of patients regularly followed due to primary monosymptomatic enuresis and the success rate of the simple behavioral therapy were assessed.

Methods

Among patients with primary monosymptomatic nocturnal enuresis who attended the Pediatric Department at Bağcılar Training and Research Hospital between 1 October 2011 and 31 October 2012, 50 patients, who had no organic problems, but normal physical examination findings, urinary ultrasonography and urine examinations and who had not received treatment previously and who accepted to participate motivation therapy, were included in the study together with their families. All patients underwent a detailed physical examination.

Questionnaires investigating age, gender, family history of enuresis, frequency of bedwetting at night, intensity of bedwetting, educational status of the mother, psychological status of the child, sleeping problems, presence of an accompanying symptom, amount of fluid intake, number of times going to toilet per day and the family members' attitude towards bedwetting at night were completed by the participants. During the inquiry of the psychological status, families described their children as introverted, not having a circle of friends and normal. Nutritional habits were examined and consequently daily fluid intake was regulated, excessive fluid intake was restricted as much as possible in the last two hours before going to bed in the evening, and suggestions were made about avoiding caffeine, tea, coffee, coke, carbonated beverages and salty food consumption after dinner and before going to bed, necessarily going to toilet before going to bed, taking the child for urination by waking him/her up two hours after sleeping, avoiding diapers and enabling him/her to reach the toilet easily in the night.

The children were asked to note down their wet and dry nights as a calendar. Moreover, the families were suggested to treat their child positively instead of giving punishments, to make the child keep a urination calendar for the evaluation of the response to the treatment, to reward the child when she/he wakes up to a dry day, and enable him/her to actively participate in cleaning the clothes and bed sheets after bedwetting. A chart, which can be filled out without the help of the families was suggested to the children. Small children were asked to draw a sun for the dry nights and rain or cloud for the wet nights, older children were asked to keep a written record. In monthly follow-ups, the families were trained and asked to be in cooperation with their children and encourage them to overcome the problem. The families and the children were referred to a child development specialist for detailed long sessions after the practices were explained.

Confidence was inspired in the children through positive approach during meetings. Fifteen days after the first session, the patients were invited for a meeting and once per month following.

The success status at the end of the first, third and sixth months and the first year was evaluated during examinations. Compliance with the treatment and the success of the motivation therapy were assessed at the end of 6 months and one year of therapy. A 90-100% decrease in the frequency of nighttime bedwetting was considered full-response (successful), a 50-90% decrease was accepted as partial response and a decrease by less than 50% was considered unsuccessful. Unsuccessful response is defined as bedwetting for more than two nights within two weeks in six months after the treatment.

SPSS 22.0 software was used for statistical analyses. Distribution of the variables was controlled with the

Kolmogorov-Smirnov test. The Mann-Whitney U-test was used for the analysis of the quantitative data. The chi-square test was used in the analysis of the qualitative data and the Fischer Exact test was used when the requirements of the chi-square were not provided. The McNemar test was used in the analysis of the repeated measurements.

Results

The average age of the patients was 9.11±2.4 (range=5-15) years. Characteristics of the subjects are summarized in Table 1. The families and children were observed to be quite successful and diligent about compliance to the treatment. They attended the follow-up visits at the recommended times and participated in the meetings regularly. The treatment took one year. At the end of one year, the therapy was ended; telephone interviews were held again after 6 months with the families from which full responses and partial responses were received. Recurrence was found in three patients. Recurrence rate was found to be 8%. The success rates in follow-ups are given in Table 2.

Table 1. Features of the patients

Age		**Mean ± SD: 9.1±2.4 (Median: 9; min: 5 - max:15)**
		n (%)
Gender	Girl	29 (58.0%)
	Boy	21 (42.0%)
Number of bed-wetting	I	24 48.0%)
	II	26 (52.0%)
Bed-wetting status	Rare	30 (60.0%)
	Intense	20 (40.0%)
Educational status of mother	Primary school	28 (56.0%)
	Secon. school	11 (22.0%)
	High school	11 (22.0%)
Psychology	Normal	28 (56.0%)
	Introverted	22 (44.0%)
Fluid intake	Normal	23 (46.0%)
	High	27 (54.0%)
Sleeping problem	No problem	20 (40.0%)
	Cannot wake up	30 (60.0%)
Family history	None	21 (40.0%)
	Present	29 (60.0%)
Family Attitude	Punitive	11 (22.0%)
	Gets angry	22 (44.0%)
	Tolerant	17 (34.0%)

SD: Standard deviation

A significant relationship was observed between the success of treatments and age. The success rate in the group with the average age of 8.5±2.2 years was significantly higher than that in the older age group (p=0.002). Nighttime bedwetting intensity in the group with low treatment success was significantly high (p=0.002). The number of the introverted subjects in the group with no treatment success was significantly higher (p=0.033). Fluid consumption in the unsuccessful group was significantly higher (p=0.010). Sound sleep problem was obviously higher in the group with no treatment success (p=0.035). No apparent relationship was determined between the success rate and other parameters (Table 3).

Discussion

Monosymptomatic nocturnal enuresis is more of a symptom rather than a disease and is seen commonly. In studies conducted, its incidence was found to be 11.5-16.01% (7,8). Enuresis negatively affects the child and the family. This creates serious stress in the family and causes loss of self confidence in the child (9). Therefore, it is a situation which must be treated immediately. Primary nocturnal enuresis treatment begins with educating the family and the child. The first-step treatment is the simple behavioral change and support treatment (2). The family must be informed that the incidence decreases by 15% per year after the age of five years (2,4,10). It may take a long time until the treatment succeeds. Success of the treatment is assessed as 14 consecutive dry nights within a 16-week period. A decrease of less than 50% in the frequency of bedwetting was considered no response, between 50-90%-partial response and that of above 90% was evaluated as full response (1). The key to the motivation therapy is to encourage the child, provide emotional support, eliminate the feeling of guilt and give responsibility to the child during the treatment (11). In this treatment, a possible problem is stated about the compliance with the treatment, because the family is also within and a part of the treatment (10). A successful behavioral treatment requires supportive parents, a motivated child and a 6-month treatment period on average. Our patients complied with the treatment. Being organized and compliant during this long treatment depended on the sufficient motivation in the children and allocation of sufficient time for the family and the child in the sessions. A close communication was held with the patients, and the sessions were held by a child development specialist. In a study by Pennesi et al. (12) it has been reported that 60% of 185 children with primary enuresis reported full response and 11% reported partial response

Table 2. Success rates of treatment

Treatment	Succesful n (%)	Partially Succesful n (%)	Unsuccesful n (%)	Recurrent n (%)
End of first month	20 (40%)	4 (8%)	26 (52%)	
End of third month	19 (38%)	5 (10%)	26 (52%)	
End of sixth month	25 (50%)	5 (10%)	20 (40%)	
End of first year	27 (54%)	4 (8%)	19 (38%)	3 (8%)

Table 3. Factors influencing success

		Treatment success-none	Treatment success-present	p
Age		Mean ± SD: 10.7 ± 2.3 (Median: 10; min: 8 - max: 15)	Mean ± SD: 8.5 ± 2.2 (Median:8; SD: 2.2; min: 5 - max: 14)	
		n (%)	n (%)	0.002
Gender	Girl	5 (38.5%)	24 (64.9%)	0.097
	Boy	8 (61.5%)	13 (35.1%)	
Number of bed-wetting	I	6 (46.2%)	18 (48.6%)	0.877
	II	7 (53.8%)	19 (51.4%)	
Bed-wetting status	Rare	3 (23.1%)	27 (73.0%)	0.002
	Intense	10 (76.9%)	10 (27.0%)	
Educational status of mother	Primary school	9 (69.2%)	19 (51.4%)	0.334
	Secon school	3 (23.1%)	8 (21.6%)	
	High School	1 (7.7%)	10 (27.0%)	
Psychology	Normal	4 (30.8%)	24 (64.9%)	0.033
	Introverted	9 (69.2%)	13 (35.1%)	
Fluid intake	Normal	2 (15.4%)	21 (56.8%)	0.010
	High	11 (84.6%)	16 (43.2%)	
Sleeping problem	No problem	2 (15.4%)	18 (48.6%)	0.035
	Cannot wake up	11 (84.6%)	19 (51.4%)	
Accompanying symptom	None	2 (15.4%)	17 (45.9%)	0.051
	Present	11 (84.6%)	20 (54.1%)	
Family history	None	4 (30.8%)	17 (45.9%)	0.34
	Present	9 (69.2%)	20 (54.1%)	
Family attitude	Punitive	5 (38.5%)	6 (16.2%)	0.234
	Gets angry	5 (38.5%)	17 (45.9%)	
	Tolerant	3 (23.1%)	14 (37.8%)	

Mann-Whitney U-test/chi-square test (Fischer test)
SD: Standard deviation

to motivational and behavioral treatment, in 29%, the treatment failed. In our study, we observed a full success rate of 50%, partial response rate of 10% at the end of the 6th month and a full success rate of 54% at the end of the first year. The results of our study were found to be similar to the previously reported results. The demographic characteristics of the children and its effect on the success of the treatment were evaluated during the assessment of the treatment success in our study. It was observed that the unsuccessful group had intense urinary incontinence at night. Under normal conditions, nocturnal antidiuretic hormone (ADH) release is higher than the daytime and,

therefore, causes less urination at night. Ritting et al. (13) indicated in their comparative research that diurnal rhythm was changed at an indiscernible level, nocturnal urinary excretion was increased and urine osmolality was decreased in enuretics. Bladder distention can influence the nocturnal release of ADH and an increase occurs in its release. Besides, absence of the night-day cyclic rhythm is connected to the delay in the development period of the child rather than being a pathophysiological disorder (13,14). In some enuretic children, insensitivity, which resulted from the renal tubules, was asserted against the ADH without any disorder in the ADH release rhythm (15). It was observed that our patients with severe urinary incontinence did not respond to the treatment despite fluid restriction.

Although it has been suggested that sound sleep could be a factor in children, recent studies have showed that there was no difference between them and the normal children, Norgaard et al. (14) have reported in their study that children with nocturnal enuresis did not sleep more soundly than their peers, and that urinary incontinence did not occur during sound sleep or during transition from one stage of the sleep to another, but occurred randomly at any stage of the sleep during the night. It has been reported that these children responded to wake up calls less than normal children, however, they could wake up after wetting the bed and there was a developmental delay in perception of bladder fullness and inhibition of bladder contractions (16). While sleeping pattern has been shown to be normal in recent studies, no answer could be given so far for why enuretics could not wake up and micturate when their bladders were full like normal children (17). In the literature, although the sleep pattern has been reported to be normal, it was observed in our study that children, who could not wake up, did not respond to treatment.

Response to treatment was better in the younger age group, especially below the age of eight. Although age was not a deterministic factor, there have been studies indicating that compliance to treatment in younger age group was better and the success rate was higher (12). We can explain this situation in our study with the higher compliance to treatment in the younger age group.

No treatment response was observed in introverted children. Behavioral problems are not commonly seen in primary nocturnal enuresis (2). Inferiority complex, feeling of embarrassment, nervousness, impatience, detachment from society, timidity and discouragement are frequently encountered in children with nocturnal enuresis (2). Anxiety associated with enuresis in the parents affects the children as well. Behavioral problems are not the causes of primary monosymptomatic nocturnal enuresis, but problems experienced due to enuresis lead children to become introverted and cause failure in the treatment. The prevalence of enuresis is higher in families with low sociocultural levels in Turkey (7,8,18). The sociocultural level in people in this study was low; as seen, only 22% of the mothers were high school graduates and the educational level of the others was low. It was observed that the educational level of the mother did not have an effect on the treatment success of enuresis. Monosymptomatic nocturnal enuresis is encountered 1.5-2 times more frequently in boys than in girls (19) and as many as 8% of the boys and 4% of girls continue to have bedwetting events at 12 years of age, however, only1-3% still wet their beds by the time they reach adolescence (4,20). Nocturnal enuresis was observed more frequently in girls in our study. It was concluded that gender did not have a different effect on the treatment success.

Family attitudes about the enuretic problem vary. Most of the time, it causes worry and anxiety which leads to various social and psychological problems. Behaviors that reach the limit of expressing anger, threatening and punishing are observed (2,21). Quite many anger and punishment approaches were observed in the families of our patients. It was observed that the reactions of the family had a negative effect on the treatment success.

Behavioral and motivational therapy has lower recurrence rates even though it requires longer treatment durations compared to pharmacological treatment. A recurrence rate of 5% (more than two nights within two weeks) after motivational therapy has been reported (22). In our study, recurrence occurred in 8% of patients at the end of one year and this is a quite low rate when compared to the medical treatments (2,4,10).

Conclusion

Motivation therapy can be suggested as a first-step treatment for children age of between six and eight years with primary monosymptomatic nocturnal enuresis, who do not have an intense amount of nighttime bed-wetting and who can be motivated for the treatment. Interest and emergent feeling of confidence as well as the compliance of the family and the child are important for treatment success. The success rate in our study complies with the literature in the beginning and in long-term observation, and the recurrence rate was found to be low.

Ethics

Ethics Committee Approval: Bağcılar Training and Research Hospital 2011. Informed Consent: Informed consent was obtained from all patients.

Peer-review: External and Internal peer-reviwed.

Authorship Contributions

Concept: Meltem Erol. Design: Meltem Erol, Ünsal Özkuvancı. Data Collection or Processing: Meltem Erol,

Sezen Aksu. Analysis or Interpretation: Meltem Erol, Özgül Yiğit, Özlem Bostan Gayret. Literature Search: Meltem Erol, Özlem Bostan Gayret. Writing: Meltem Erol, Ünsal Özkuvancı, Dilara Fucucuoğlu.

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