

Depression Index in Fathers of Children with Primary Nocturnal Enuresis: The Invisible Part of Iceberg

Primer Enürezis Nokturnalı Çocukların Babalarında Depresyon İndeksi: Buz Dağının İhmal Edilen Kısmı

^{1,5}Yigit Akin, ¹Osman Kose, ²Hakan Gulmez, ³Cagla Serpil Dogan, ⁴Murat Ucar, ¹Sacit Nuri Gorgel, ¹Yuksel Yilmaz, ⁵Ercan Yeni

¹Department of Urology, Izmir Katip Celebi University, School of Medicine, Izmir, Turkey

²Department of Family Medicine, 56th Health Care Centre, Konya, Turkey

³Department of Paediatric Nephrology, Antalya Teaching and Research Hospital, Antalya, Turkey.

⁴Department of Paediatric Urology, Tepecik Teaching and Research Hospital, Izmir

⁵Department of Urology, Harran University School of Medicine, Sanliurfa, Turkey

Özet

Bu çalışmanın amacı, monoseptomatik primer nokturnal enürezis'li (pNE) çocukların babalarında depresyon düzeylerini değerlendirmektir. Prospektif kaydedilen verilerin retrospektif incelemesini içeren çok merkezli bu çalışma Nisan 2014 ile Ağustos 2016 tarihleri arasında aile hekimi, üroloji ve pediatrik nefroloji polikliniklerinde gerçekleştirildi. pNE'li çocukların babalarında tedavi öncesi ve sonrası depresyon ölçükları değerlendirildi. pNE'li çocuklara ilk önce alarm cihazı ile davranış terapisi uygulandı. Davranış terapisine cevap vermeyen çocuklara desmopressin içeren oral ilaç veya burun spreyi verildi. pNE'li çocukların babalarının hayat kalite skorları (QoL) ve depresyon indekslerini belirlemek için Dünya Sağlık Örgütü QoL formları ve Beck Depresyon envanteri (BDE) kullanıldı. Toplam 47 pNE'li çocuğun [21 (%45) kız, 26 (%55) erkek] ebeveynleri kayıt altına alındı; tedavi öncesi ve tedavinin 6. ayında değerlendirildi. Çocukların yaş ortalaması 7.4±2.5 yıldı. Alarm cihazları ile davranış tedavisi 29 çocukta (%61.7) başarılı oldu. Ayrıca, 18 çocuğa (%38.3) oral/nazal desmopressin verildi. Tüm tedavilere refrakter olan sadece 3 erkek vardı. Babaların yaş ortalaması 29.0±2.2 yıldı. Babaların BDI puanları çocuk tedavisinden önce ve sonra sırasıyla 17.3±9.8 ve 15.7±9.2 idi (p<0.001). Sonuç olarak, pNE'li çocukların babalarında depresyon skorları yüksekti. Tedavi yöntemleri ile pNE'li çocuk babalarında BDE skorları geliştirebileceği sonucuna varıldı.

Anahtar kelimeler: Anksiyete, depresyon, enuresis nokturna, yaşam kalitesi

Abstract

Aim of this study was to evaluate depression level of fathers whose children have monosymptomatic primary nocturnal enuresis (pNE). Present study was a retrospective view of prospective recorded data. The multicentre study was conducted between April 2014 and August 2016, in family medicine, urology, and paediatric nephrology outpatient clinics and fathers of children with pNE were evaluated. We administered behavioural therapy with alarm device, first. Children who did not respond behavioural therapy were given oral/nasal desmopressin. World Health Organization quality of life (QoL) forms and Beck Depression inventory (BDI) were used for determining QoL and depression index of parents, respectively. A total of parents of 47 children including 21 (45%) girls and 26 (55%) boys with pNE were enrolled and evaluated before and at 6th month of the treatment. The mean age of children was 7.4±2.5 years. The behavioural therapy with alarm devices was successful in 29 children (61.7%). Additionally, 18 children (38.3%) received oral/nasal desmopressin. Only 3 boys were refractor to all treatments. Mean age of fathers was 29.0±2.2 years. Fathers' BDI scores before and after children's treatment were 17.3±9.8 and 15.7±9.2, respectively, (p<0.001). As a conclusion, anxiety scores were high in fathers of children with pNE. Treatment modalities could develop BDI scores in fathers who have children with pNE.

Key words: Anxiety, depression, enuresis, quality of life

INTRODUCTION

Primary nocturnal enuresis (pNE) is bed-wetting in children aged ≥ 5 years after organic causes excluded (1). The differential diagnosis should be performed carefully in terms of polyuria and incontinence. Clinical status must be distinguished from daytime incontinence and/or lower urinary tract symptoms (LUTS; 2). Additionally, pNE is divided into two classes as monosymptomatic without LUTS and non-monosymptomatic.

Furthermore, it is known that culture, race, environment, and socio-economic status have an effect on pNE (3). Additionally, pNE affects mothers' quality of life (QoL) (4). Tanriverdi et al. reported also the effects of pNE on parents (5). However, in this study (5) the parents of healthy children were compared with parents of pNE children.

On the other hand, it is very well known truth that depression affects working and thinking life (6). Our community is mostly closed and fathers are often the leader of the family who works and earns money for the

whole family. Enuresis is a chronic condition that affects parents as much as the child. Although, there are published studies evaluating QoL of mothers having pNE children and reported their depression and anxiety levels, fathers seem to be overlooked for these status (7-10). Besides, depression may negatively affect the work force.

In the present study, we focused on depression level and its effects on fathers of children with pNE. According to our knowledge, this is the first study evaluating depression and QoL levels together in fathers of children with monosymptomatic pNE in published literature.

MATERIAL AND METHOD

This is a multicentre study and includes retrospective view of prospective collected data as a part of on going study. All parents were informed about the study and signed consent forms were obtained. Besides, this study was approved by Department of Urology, Harran

University, School of Medicine Institutional Board. Additionally, we used questionnaires including the World Health Organization Quality of Life (WHOQoL-BREF) forms (11) and Beck Depression Inventory (BDI; 12). Parents of pNE children who were admitted family medicine, urology and paediatric nephrology outpatient clinics between April 2014 and August 2016 were evaluated. Exclusion criteria were children younger than 5 years old, secondary nocturnal enuresis, non-monosymptomatic pNE, previous medical treatment for pNE, urinary tract infection, neurogenic bladder, overactive bladder, any neurogenic-muscle diseases, diabetes mellitus, parents who did not want to participate and irregular follow-up.

Experts on pNE performed the diagnosis of monosymptomatic pNE. The diagnosis was based on outpatient physical examinations, history and voiding diary that were supported with laboratory and ultrasonography. As the first step of the study, behavioural therapy was administered using an alarm device. All patients visited the outpatient clinic every month of the treatment. Alarm device was used up-to 16 weeks. If a child slept dry for 14 nights, the behaviour treatment was stopped and considered to be successful. In case of no cure after 16 weeks, children were given oral/nasal desmopressin with fluid restriction as the second line of therapy. Oral melt form of desmopressin was advised to be taken at a dosage of 60 mcg one hour from bedtime. If the dose was not sufficient to provide dryness, dose was increased up to 120 mcg. The desmopressin treatment was continued up to 3-6 months. If there was a response, the treatment was stopped as planned discontinuation to avoid relapse. In the case of no response to desmopressin in 4 weeks, treatment was not continued.

All parents were asked to fill the WHOQoL-BREF and BDI forms before and after the treatment in outpatient clinic during the visits. All forms were recorded to Microsoft Excel sheet and were evaluated. The Statistical Package for the Social Sciences (SPSS) for Mac, version 22.0 (IBM SPSS Inc., Armonk, NYC), was used for statistical analysis. The paired-sample *t*-test was used to compare continuous data. The significant *p* was determined at value of *p*<0.05.

RESULTS

Forty-seven children including 21 (45%) girls and 26 (55%) boys were enrolled into the study. The mean age of children was 7.4±2.5 years old. A total of 29 children (61.7%) were successful treated by using behavioural therapy with alarm device. Additionally, 18 children (38.3%) were received oral/nasal desmopressin. Three boys were refractor to all treatment modalities. These findings were summarized in Table 1.

In this study, fathers of pNE children were investigated before and

Table 1. Demographic data of children

Numbers of boys	23 (29%)
Numbers of girls	18 (37.5%)
Mean age of children (years)	7.4±2.5
Success with behavioural and alarm device	29 (61.7%)
Success with desmopressin	18 (38.3%)
Unsuccessful	3 (6.3%)

at 6th month of the treatment. Mean age of fathers was 29 ± 2.2 years. WHOQoL-BREF's question 1, 2 and physical health, psychological health, social relationships, environmental health domain scores were not significantly changed after the treatment. Fathers' BDI scores before and after children's treatment were 17.3±9.8 and 15.7±9.2, respectively, which were found to be statistically significant different (*p*<0.001; Table 2).

DISCUSSION

Inhere, depression level and its effects on fathers of pNE children were investigated. High depression indexes and lower QoL levels were observed in fathers of children with monosymptomatic pNE.

It is very well-known that pNE can improve over time, however 7% of pNE can persist in children after aging 7 years (13). Additionally, pNE may continue after 18 years of age (14). Most of the parents can tolerate pNE well at the beginning because of good response to treatment modalities (15). Glazener and Evans revealed that medication or therapies could cure over 70% of pNE in a systematic review (16). Unfortunately, relapse rate of treated pNE is also high (17). We found the similar rate of treatment response and relapse rate, and these were parallel to the literature (18). Of course, the BDI indexes were healed in parents of treated pNE children. Although all treatment modalities and treatment modifications were tried, 3 boys were refractory to all treatment modalities. Besides, these boys had normal laboratory and radiological examinations. Parents of these patients were unhappy and also informed for possibility to recover by the time. These findings suggest that there is need for further studies on medical treatment of resistant pNE.

The pNE affects the parents as much as children, notably mothers of these children, due to cleaning problem at the morning after a wet night, which causes emotional distress. Thus, all these can terminate euphoria at the early hours of day. Egemen et al. concluded a decreased QoL in mothers of children with pNE (4). Meydan et al. also showed similar findings (7). Additionally, Goldbeck reported chronic paediatric conditions

Table 2. Quality of life scores of fathers before and after their children treatment for primary nocturnal enuresis

Parameters	Before treatment	After treatment	<i>p</i> value	
WHOQoL-BREF	Q1	2.4±0.9	2.5±1	0.5
	Q2	3.1±1	3.1±1.1	0.9
	Physical health	505.7±94.9	510.1±90.6	0.6
	Psychological health	458.3±89.8	465.9±93.7	0.7
	Social relationships	230.2±68.6	233.5±70.5	0.9
	Environmental health	565.1±115	579.7±131.4	0.5
BDI	17.3±9.8	15.7±9.2	<0.001*	

Abbreviations: BDI: Beck depression Inventory, WHOQoL-BREF: World Health Organization Quality of Life, Brief Form.

*Statistical significant *p* value

-Paired *t*-test was used.

had strong negative affect on QoL of mothers and fathers (19). This may be related with customs and traditions in child rearing and care in Turkish community. Under these conditions, mostly mothers care for the child and fathers are usually at work. In the present study, therefore, it was focused on the fathers and found that treatment provided improvement in their QoL without a statistical significance. Large numbers of participants may provide statistical significance.

On the other hand, treatment of pNE can take a long time. Thus, pNE can become a chronic disease. Van Oers et al. reported a significant higher depression scores in fathers of children with chronic disease (20). Conversely, Tanrıverdi et al. reported insignificantly higher BDI scores in parents of children with pNE (5). Findings of this study were in agreement with Van Oers et al (20) but not with Tanrıverdi et al. (5). Significant development in BDI in fathers of pNE children was observed in this study. We strongly think that fathers of these children are usually away from home and childcare. However, pNE can affect them. The improvement of BDI scores can be proof of this condition. However, improvement of BDI could not provide a significant change in QoL scores. In the light of all these findings, clinicians should consider the invisible part of iceberg as possible depression levels fathers of children with pNE in the course of pNE treatment.

Ferrera et al. reported that the best treatment was to inform parents in childcare (21). Findings of this study have also some similarities with this report. Planned and applied treatments might not be effective without fathers. Therefore, the statistical significant values of depression parameters could be the proof of this.

There are some limitations in this study. First, there were limited numbers of participants. Second, characteristics of fathers of pNE children were not evaluated. Lastly, mothers were not included in the study. However, it was focused on depression levels and QoL scores of fathers for children with pNE. Limited parameters may be the subject of another future study.

Finally, this study indicated that being away from home and childcare, chronic diseases can cause depression on father. Clinicians should inform both mothers and fathers in the course of treatments. The depression of fathers should not be the invisible part of iceberg.

As a conclusion, the pNE has a good response to treatment modalities in children. However, it can continue at a very low rate in advancing age and can become a chronic disease. Anyhow, pNE affects fathers and can cause depression. Clinicians should consider this condition and inform both parents. Further studies are needed on this issue.

ACKNOWLEDGMENT

The authors declare no conflicts of interest.

REFERENCES

1. Jain S, Bhatt GC. Advances in the management of primary monosymptomatic nocturnal enuresis in children. *Paediatr Int Child Health* 2016; 36:7-14.
2. Nevéus T, von Gontard A, Hoebeke P, et al. The standardization of terminology of lower urinary tract function in children and adolescents: report from the Standardisation Committee of the International Children's Continence Society. *J Urol* 2006;176:314-24.
3. Gür E, Turhan P, Can G, et al. Enuresis: prevalence, risk factors and urinary pathology among school children in Istanbul, Turkey. *Pediatr Int* 2004; 46:58-63.
4. Egemen A, Akil I, Canda E, Ozyurt BC, Eser E. An evaluation of quality of life of mothers of children with enuresis nocturna. *Pediatr Nephrol* 2008; 23:93-8.
5. Tanrıverdi MH, Palancı Y, Yılmaz A, Penbegül N, Bez Y, Dağgüllü M. Effects

- of enuresis nocturna on parents of affected children: case-control study. *Pediatr Int* 2014;56:254-7.
6. Haslam C, Brown S, Atkinson S, Haslam R. Patients' experiences of medication for anxiety and depression: effects on working life. *Fam Pract* 2004; 21:204-12.
7. Meydan EA, Civilibal M, Elevli M, Duru NS, Civilibal N. The quality of life of mothers of children with monosymptomatic enuresis nocturna. *Int Urol Nephrol* 2012;44:655-9.
8. Kilicoglu AG, Mutlu C, Bahali MK, et al. Impact of enuresis nocturna on health-related quality of life in children and their mothers. *J Pediatr Urol* 2014;10:1261-6.
9. Durmaz O, Kemer S, Mutluer T, Butun E. Psychiatric dimensions in mothers of children with primary nocturnal enuresis: A controlled study. *J Pediatr Urol* 2017; 13:62.e1-62.e6.
10. Naitoh Y, Kawauchi A, Soh J, Kamoi K, Miki T. Health related quality of life for monosymptomatic enuretic children and their mothers. *J Urol* 2012;188:1910-4.
11. WHOQOL Group The World Health Organization Quality of Life Assessment (WHOQOL): development and general psychometric properties. *Soc Sci Med* 1998;46:1569-85.
12. Beck AT, Epstein N, Brown G, Steer RA. An inventory for measuring clinical anxiety: psychometric properties. *J Consult Clin Psychol* 1988;56:893-7.
13. Läckgren G, Hjälmås K, van Gool J, et al. Nocturnal enuresis: a suggestion for a European treatment strategy. *Acta Paediatr* 1999;88:679-90.
14. Hofmeester I, Brinker AE, Steffens MG, et al. Reference values for frequency volume chart and uroflowmetry parameters in adolescent and adult enuresis patients. *NeuroUrol Urodyn* 2017;36:463-8.
15. Dehoorne JL, Raes AM, van Laecke E, Hoebeke P, Vande Walle JG. Desmopressin toxicity due to prolonged half-life in 18 patients with nocturnal enuresis. *J Urol* 2006;176:754-7.
16. Glazener CM, Evans JH. Desmopressin for nocturnal enuresis in children. *Cochrane Database Syst Rev* 2002;(3):CD002112.
17. Hjalmas K, Arnold T, Bower W, et al. Nocturnal enuresis: an international evidence based management strategy. *J Urol* 2004;171:2545-61.
18. Sharifiaghdas F, Sharifiaghdas S, Taheri M. Primary monosymptomatic nocturnal enuresis: Monotherapy vs combination therapy. *Urology* 2016;93:170-4.
19. Goldbeck L. The impact of newly diagnosed chronic paediatric conditions on parental quality of life. *Qual Life Res* 2006;15:1121-31.
20. van Oers HA, Haverman L, Limperg PF, van Dijk-Lokkart EM, Maurice-Stam H, Grootenhuis MA. Anxiety and depression in mothers and fathers of a chronically ill child. *Matern Child Health J* 2014;18:1993-2002.
21. Ferrara P, Di Giuseppe M, Fabrizio GC, et al. Enuresis and punishment: The adverse effects on child development and on treatment. *Urol Int* 2016;97:410-5.