

The Prevalence and the Factors Having Influence on Nocturnal Enuresis Among Turkish Children

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Introduction

Monosymptomatic nocturnal enuresis (MNE) is persistent sleepwetting more than twice a month past the age of 5 years, with no acquired or congenital urogenital defect. Primary enuresis is defined as sleepwetting in patients who have never been dry for extended periods. Secondary enuresis is onset of wetting after a continuous dry period of more than 6 months (1,2,3). The prevalence of nocturnal enuresis is reported as 3-30 % in children older than 5 years of age (5-8, 10-14). It has been reported that this percentage decreases with age (3,4,5). There are different studies in our and foreign countries giving different results on the prevalence of MNE (5-8, 10-14). Geographical areas, social properties and type of enuresis investigated have supposed to have role on these different results (12).

It was reported that socioeconomic status and family size had effects on enuresis. Nocturnal enuresis attributed to many causes as maturational lag, and/or developmental delay, abnormal sleep patterns, psychopathology, environmental stress and abnormalities of the normal circadian rhythm of antidiuretic hormone (ADH). However, no aetiological factor has been clearly defined in most enuretic children (1,2,3,4).

Aim of this study was to determine the prevalence and associated factors of enuresis nocturna in Turkish children between 5 and 15 years old.

Material and Methods

This epidemiologic, cross-sectional study was performed among 1008 schoolchildren chosen by stratified and randomised sampling methods with an estimated error of 2,5%. Seventeen schools from center and eleven schools from urbanward randomly selected for the study.

A self-administered questionnaires were distributed in the schools sampled and 969 questionnaires were completed voluntarily by the parents. The questionnaire consisted of three parts. The questions in the first part asked about sex, age, type, severity and frequency enuresis and treatments, the second about the socioeconomic status of the family and the third part was designed to investigate factors supposed to be associated with enuresis as psychological status, convulsions, sleep disorders, snoring, encopresis, history of parasitosis and urinary tract infections.

Children included to the study (n=969) aged 5-15 years (mean age 9,98±3,01 years) comprised 492 (50,8%) boys and 477 (49,2%) girls. The number of the children in each

age group was similar (8,2% were 5, 8% were 6, 9,3% were 7, 9,3% were 8, 9,4% were 9, 11,7% were 10, 9,4% were 11, 9,2% were 12, 10,1% were 13, 8,3% were 14 and 6,9% were 15 years old).

Chi-square test was performed as statistical analysis using SPSS 10,0 program.

Results

Table 1: The characteristics of enuretic children

	n (%)
Prevalence of enuresis	125 (12,9)
Type of enuresis	
Primary	90 (72)
Secondary	35 (28)
Frequency of nocturnal enuresis	
Every night	38 (30,4)
>10	11 (8,8)
10-20	13 (10,4)
5-10	19 (15,2)
<5	44 (35,2)
Frequency of enuresis in night time	
Dry	6 (4,8)
1	95 (76)
2-3	23 (18,4)
5	1 (0,8)
Treatment	
Yes	38 (30,4)
No	87 (69,6)
Type of treatment	
No treatment	86 (68,8)
Conditioning	24 (19,2)
Desmopressine	8 (6,4)
Imipramine	7 (5,6)

The overall prevalence of enuresis nocturna was 12,9% (n=125) and 72% of them were primary. The prevalence of enuresis in boys was %16,9 and in girls was 8,8%. Enuretic children were with a mean age of 8,67±2,66 years (range 5-15 years). The prevalence of nocturnal enuresis according to age declined with the age from 17,6% of 9 years old to 2,4% of 15 years old (10,4 % of enuretics were 5 years old, 15,2% were 6, 10,4% were 7, 15,2% were 8, 11,2% were

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10, 4% were 11, 2,4% were 12, 6,4% were 13, 4,8% were 14-year-olds).

Characteristics of enuretic children were given in Table 1. The factors associated with the enuretic and non-enuretic children were presented in Table 2.

Table 2: Factors effecting on enuresis.

	Enuretics (%)	Non – enuretics (%)	p<
Sleep pattern			0,01
Light	7 (5,6)	91 (10,8)	
Normal	71 (56,8)	658 (78)	
Deep	47 (37,6)	95 (11,3)	
Awaiing to void			0,01
Yes	45 (36)	177 (21)	
No	80 (64)	667 (79)	
Parasites			0,01
Yes	31 (24,8)	79 (9,4)	
No	94 (75,2)	765 (90,6)	
Snoring History			0,01
Yes	38 (30,4)	153 (18,1)	
No	87 (69,6)	691 (81,9)	
Family history			0,01
Yes	65 (52)	36 (4,3)	
No	60 (48)	808 (95,7)	
Urinary infections			0,01
Yes	11 (17,2)	32 (5,9)	
No	53 (82,8)	513 (94,1)	

Mother's ($p=0,05$) and father's ($p<0,001$) education levels were significant in enuresis. The prevalence of enuresis nocturna increased as the educational level of the parents decreased. Working of the mothers, not fathers, was found to be a significant factor effecting enuresis ($p= 0,03$). No effect of death or divorce of the parents was found on enuresis ($p=0,09$). School success ($p=0,69$), history of having accident ($p=0,06$) and convulsion ($p=0,42$) had also no influence on enuresis. Authoritarian of one or both of the parents, jealousy of the siblings and high number of persons living in the same room and waking the child at night were the factors having effects on enuresis ($p<0,001$).

Discussion

Enuresis is an important health problem in pediatric population throughout the world. The prevalence of enuresis nocturna ranges widely in various countries. The prevalence of enuresis nocturna was 4% France (19), 4,3% in

China (9), 5,5-15,4% in Taiwan (15,16), 6% in Netherlands (10), 9,2% in Korea (11), 9,6% in Italy (12), 12,9% in Africa (13), 15 in Saudi Arabia (8), 18,9% in Australia (18) and 56,4% in Jamaica (20). The prevalence studies performed in Turkey showed a prevalence as 13,7% in Manisa, 11,5% in Isparta. In our study, the prevalence of enuresis nocturna in Aydin was as 12,9%. The differences between these countries may depend on factors as general socioeconomic, cultural conditions, their way of lives, different age groups and different criteria accepted for each study. We carefully took pains to distribute the questionnaires across all sociocultural groups of Aydin and also selected similar number and sex of children for each age group.

The prevalence of enuresis nocturna also may change by sex in different populations. Male/female ratio in Manisa and Saudi Arabia were 1,5/1 and 1/1,18 respectively (5,8). In our study it was as 1,9/1. the prevalence of enuresis nocturna declines by the increase in age in most of the studies, it is reported as 1-2% at the age of 15, however this ratio was higher as 4,5% in our study. We supposed the distribution of the questionnaires across all socioeconomic and cultural groups of Aydin might have the effect on the higher percentage found in enuresis.

Positive family history of enuresis was found to be the most significant factor associated with enuresis in different investigations. The ratio of reported enuresis nocturna history among both or one of the parents was about 60% and found higher (76,5%) in another Turkish study. The ratio increased as 77,3% as both parents had the history of enuresis and decreased to 44% as only one of the parents had. In this study positive family history was found to have a positive influence on enuresis (Table 2).

Parents' education levels also found to have effect on enuresis (7). We found higher percentage of enuresis as the education level of parents decreased. The way of toilet training of the parents with high education level might be better.

As in the literature, we also found that low socioeconomic status and large family were significant factors affecting enuresis (5, 7, 9, 12, 13, 14). Heavy sleepers were found to have higher percentage of enuresis nocturna. This result caused us to think that sleep disorders also have influence on enuresis. Despite many reports of treatments of enuresis, parents who worried about enuresis were more likely to treat it themselves than use medical intervention. Only 10-15% of the enuretics consulted a physician and had medications in different countries (5,7,11). In the literature some families as Australian prefer restriction of drinking but some as USA prefer to wake their children up. In this study 19,2% of the enuretic children had such conditioning therapy and only 12% of these children had medical treatment.

As a result, the prevalence of enuresis in Turkish children in our region was 12,9% and it was higher in boys. Being heavy sleepers, having parasites, snoring, low socioeconomic status, stress factors and the positive family history of enuresis had found to be the significant accompanying

factors in nocturnal enuretic children. A high percentage (68,8%) of the enuretic children in this study didn't consult a physician and had no medical treatment.

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