

Enuresis profile in 6-7 year-old children at five elementary schools in Sario district, Manado

Adrian Umboh, Astrid A. Malonda, T.A. Sudjono

Abstract

Background Enuresis is inappropriate urination by a child who has reached an age which bladder control is expected. The etiology is unknown, but some factors influence it.

Objective To identify enuresis profiles in 6-7 year-old children.

Methods It was a descriptive prospective study at five elementary schools in Sario district Manado from May to September 2005. Data were obtained by questionnaires.

Results Out of 63 children with enuresis, 67% aged 6 years, 57% were male, 37% had enuresis more than 4 times a month, 64% had enuresis more than 8 times a day. No one had complaint of urinary tract infection. Most cases (70%) had enuresis since birth, 51% of cases got toilet training at the age of 3-4 years old. None of enuretic children had divorced parents. Nocturnal enuresis occurred in 81% of cases, 54% of cases had 4 family members, 30% of cases had family history of enuresis.

Conclusions Enuresis in 6-7 year old children is most commonly seen in boys. Enuresis mostly happens for more than 4 times in a month with urination more than 8 times a day. There is no complaint of urinary tract infection. Most of the cases have enuresis during nighttime. Toilet training starts by the age 3-4 years old. Most cases had enuresis since birth. They came from a family with 4 family members, and in most situation no family history of enuresis is found. [Paediatr Indones 2007;47:261-264].

Keywords: Enuresis, profile, children, family history

By definition, enuresis is inappropriate urination by a child who has reached an age which bladder control is expected. Enuresis is classified into nocturnal and diurnal enuresis. Nocturnal enuresis (sleep wetting) is enuresis in the night time and happens for at least 2 times per month. Diurnal enuresis is enuresis in the day time. Nocturnal enuresis is more often found in boys whereas diurnal enuresis is more often found in girls. Of all enuretic children, nocturnal enuresis is found in about 80% and diurnal enuresis in 20%.^{1,2} The ability to control the bladder usually begins at the age of 1-5 years old. A child is considered enuretic if enuresis happens at least 2 times a month and the age of the child is older than 5 years old.¹ The maturity of a child to control the bladder depends on: 1). Bladder capacity 2). Bladders external sphincter control 3). Control of micturition center in the brain to stimulate or inhibit micturition at various level of bladder capacity.^{1,3,4}

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From the Department of Child Health, Medical School, Sam Ratulangi University, Manado, Indonesia.

Reprint requests to: Adrian Umboh, MD, Department of Child Health, Medical School, Sam Ratulangi University, Prof R.D. Kandou Central General Hospital, Jl. Raya Tanawangko, Manado 95263, Indonesia. Telp. 62-431-821652; Fax 62-431-859091.

The etiology of enuresis is not exactly known. The delay of neurophysiological maturity related to genetic factor has an important role in the development of enuresis. Other factors are sleeping pattern disturbance, psychopathology, environmental stress, urodynamic disturbance, organic disease of urinary tract, and abnormal secretion of antidiuretic hormone (ADH) circadian rhythm.⁵ Enuresis is more often found in children with low social economic condition, social and psychological obstacle in the developmental period at the early 2-4 years of life, low educational background of the parents, and inadequate toilet training.^{1,2} This study was aimed to identify the enuresis profile in 6-7 years old children at five elementary school in Sario district Manado.

Methods

This was a descriptive prospective study conducted on 6-7 year-old children at five elementary schools in Sario district Manado (SD Katolik 04, SD Katolik 13, SD GMIM 09, SD GMIM 10, dan SD Advent 02). The study was done from May to September 2005. The total students were 535 children (176 children from SD Katolik 04, 160 children from SD Katolik 13, 76 children from SD GMIM, 77 children from SD GMIM, and 46 children from SD Advent 02). Of these 535 children, 250 were selected randomly. The variables observed in this study were age, sex, enuresis frequency in a month, complain of UTI, urinary frequency in a day, time of enuresis, time of starting enuresis, toilet training by age; parent's marital status, family member and family history of enuresis. Data was collected by questioner then it was tabulated (descriptive analysis). Data was presented in tables.

Results

From 63 children with enuresis, 67% were 6 years old, 57% were male, 37% had enuresis more than 4 times a month, 64% had enuresis more than 8 times a day. No one had complaint of urinary tract infection. Most cases (70%) had enuresis since birth, 51% got toilet training at the age of 3-4 years old. None of enuretic children had divorced parents. Nocturnal enuresis occurred in 81% of cases, 54% of cases had 4 family members, 30% of cases had family history of enuresis.

Table 1. Characteristics of 63 children with enuresis

Profiles	N	%
Age		
6 years old	42	67
7 years old	21	33
Sex		
Boys	36	57
Girls	27	43
Frequency/month		
2x/month	11	18
3x/month	13	21
4x/month	16	25
>4x/month	23	37
Complain of UTI		
Yes	0	0
No	63	100
Frequency of urination/day		
<5x/day	0	0
5-8x/day	23	37
>8x/day	40	64
Time of enuresis		
Night time	51	81
Day time	1	2
Night and day time	11	17
Time of starting enuresis		
1-6 months ago	8	13
7-12 months ago	2	3
1-2 years ago	9	14
Birth to recent time	44	70
Toilet training by age		
1-2 years old	23	37
3-4 years old	32	51
4-5 years old	7	11
Never	1	2
Parents' marital status		
Divorce	0	0
Not divorce	63	100
Family member		
3 person	5	8
4 person	34	54
5 person	22	35
6 person	2	3
>6 person	0	0
Family history of enuresis		
Father	8	13
Mother	9	14
Father & mother	2	3
None	44	70

Discussion

Enuresis is derived from Greek word "enourein", which mean to discharge water. Enuresis is inappropriate urination by a child who has reached an age which bladder control is expected, at least 2 times a month without the presence of organic disorder.^{1,6}

This study found that 63 (25%) from 250 subjects had enuresis. The distribution of children with enuresis

was similar to that found by a study conducted in Brastagi.⁶ Surveys in Europe and North America showed that 15-20% were 5 years old children, 7% were 10 years old children, and 1-2% were 15 years old children. The prevalence of enuresis will decrease along with age.^{1,6}

Our series shows that boys (57%) outnumbered girls; this is similar to the study in Pantai Cermin, North Sumatra (1995) which showed that 53 (52.5%) of children with enuresis were boys and 48 (47.5%) were girls.⁶ Indeed, most studies indicate that enuresis is more frequent in boys than in girls with the ratio 2:1. Delayed bladder emptying in boys is considered as a cause.^{6,7}

This study found 23 (37%) children had enuresis more than 4 times a month, 16 (25%) had enuresis 4 times a month, 13 (21%) had enuresis 3 times a month, and 11 (18%) had enuresis 2 times a month. This result was in accordance which that found by other studies.^{1,8}

All cases with enuresis had no complain of UTI. Previous study found that 45% girls with bacteriuria developed enuresis while only 17% girls without bacteriuria had enuresis.¹ This study showed that 40 (64%) children urinated more than 8 times a day, 23 (24%) children 5-8 times a day, no children urinated less than 5 times a day. From the references, 75% enuretic children had low bladder capacity, that might be caused by inadequate toilet training and genetic predisposition.^{1,9}

This study found 51 (81%) children had enuresis at night time, 11 (18%) children at night and daytime, 1 (2%) child at day time. This result was similar to that of the study conducted in Australia where approximately 100,000 children aged 5-15 years old had enuresis. It was also in accordance with reference which said that the incidence of nocturnal enuresis is about 80% while diurnal enuresis 20%. About 10% of children with nocturnal enuresis often experience diurnal enuresis.^{4,6,10}

It was found that 41 (70%) children had enuresis since birth, 9 (14%) children had enuresis since 1-2 years, 8 (13%) children had enuresis since 1-6 months, and 2 (3%) children had enuresis since 7-12 months. This results was in accordance with the reference which said that 80% children had primary enuresis and 20% had secondary enuresis.¹

The result of this study showed that 32 (21%)

children had toilet training at the age of 3-4 years old, 23 (37%) children at the age of 1-2 years old, 7 (11.1%) children at the age of 4-5 years old, 1 (2%) child never had toilet training. The literature pointed that delayed toilet training could have a role in the development of enuresis.^{1,11}

None of enuretic children had divorced parents. In this study, 34 (54%) children had 4 family members, 22 (35%) children had 5 family members, 5 (8%) children had 3 family members, 2 (3%) children had 6 family members, and no children had more than 6 family members. Psychosocial factors such as parental divorce, and large family member could trigger stress which ultimately could cause enuresis.^{1,11} Genetic factor could have a role in development of enuresis.^{1,12} In this study, it was found that 30% of cases had family history of enuresis.

In conclusion, our series shows that about one fourth of 6-7 year old students are enuretic; more than half of them are boys. Most enuretic children have more than 4 times a month with urination more than 8 times a day. Complaint of urinary tract infection or family history is not found in any of the enuretic children.

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