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Research Article

Prevalence and risk factors of nocturnal enuresis among school age children in rural areas

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ABSTRACT

Background: The word enuresis is derived from a Greek word (*enourein*) that means "to void urine." It can occur either during the day or at night (though some restrict the term to bedwetting that occurs at night). Enuresis can be divided into primary and secondary forms. Aim of current study was to find out the prevalence and underlying its risk factors of nocturnal enuresis in age groups 5 to 12 years in the rural areas of the district.
Methods: The study was done during the year 2011-12 among 1258 school children residing in rural areas of Ahmadabad district of Gujarat state by the help of health personnel staff with the cooperation of the teaching staff and all the parents of the children.
Results: There were 869 males and 389 females. We found the prevalence of nocturnal enuresis in 11.13% of total subjects. Nocturnal enuresis was more common in males than in females, 91/140 in males and 49/140 in female children.
Conclusions: Our findings suggest that nocturnal enuresis is a common problem among school children especially with low income, lower age, family history of enuresis and history of urinary tract infection. Enuresis is a pediatric public health problem and efforts at all levels should be made such as preventive, etiological and curative. The ratio of males to females in this study was 1.86 that is comparable to other data of the same study.

Keywords: Nocturnal enuresis, Prevalence, Socioeconomic factors, Genetic predisposition

INTRODUCTION

Enuresis is involuntary voiding of urine, occurring at least twice a week for 3 months. Nocturnal enuresis can be defined as any intermittent incontinence while a sleep in a child being at least five years old.[1] Nocturnal enuresis (night time wetting) is more common in boys, whereas diurnal enuresis (daytime wetting) is more common in girls.

Nocturnal enuresis is an important developmental problem for school age children and it can cause emotional and family stress and social isolation for the child.[2,3] Enuresis has no clear etiology; it is hypothesized to be related to genetics, sleep arousal dysfunction, maturational delay, stress, poor toilet training, altered smooth-muscle physiology, and occasionally organic causes. Bedwetting can be diagnosed at 5 year-olds and beyond; clinically, it is generally left untreated until the children are 7-8 years old.[4] There are several forms of enuresis. Primary nocturnal enuresis consists of never having established urinary continence at night, while secondary nocturnal enuresis refers to the development of enuresis after a period of established urinary continence.

Mono-symptomatic nocturnal enuresis is defined as bedwetting in the absence of accompanying symptoms of

the lower urinary tract, such as urgency, daytime incontinence and urinary flow anomalies.[5]

METHODS

Total of 1258 school age children of 5 to 12 years in 3 different rural areas were included in our study. Out of these 830 males and 418 were females. The aim of study was to determine the overall prevalence of nocturnal enuresis in different age groups and gender in rural areas of the Ahmedabad district of Gujarat state. Diagnosis of enuresis considered nocturnal voiding twice a week for at least three consecutive months. Research data was obtained from parents of all children. A total of 1258 parents were queried. Parents of all the subjects were asked the following questionnaire, 1. Name 2. Age 3. Family history of nocturnal enuresis 4. Socioeconomic status of the subjects. We excluded the subjects who have been diagnosed as nocturnal enuresis and received the treatment.

RESULTS

The prevalence rate of nocturnal enuresis in our study was 11.13 % (140 children among 1258 school children). Highest no. of enuretics was found in the age group of 5 to 8 years (Figure 1). Out of total no. of enuretics (140), 91 was males and 49 females, shows nocturnal enuresis is more common in male than in female (Figure 2). Lowest no. of enuretics was found in the age group of 11 to 12 years of age. No. of enuretics was maximum in poor socioeconomic class and least in upper middle class. We found positive family history in 780 out of 1258 children (62%).

Table 1: No. of enuretics according to age groups, gender and socioeconomic status of the subjects.

Age groups	Sex	No.	Enuretics (No.)	Nonenuretics (No.)	Socioeconomic status of parents
Between 5 to 6 years	M	180	28	152	+ (118) ++ (86) +++ (78)
	F	102	20	92	
Between 7 to 8 years	M	214	27	187	+ (146) ++ (91) +++ (73)
	F	96	13	83	
Between 9 to 10 years	M	268	19	249	+ (162) ++ (128) +++ (79)
	F	101	10	91	
Between 11 to 12 years	M	207	17	190	+ (141) ++ (98) +++ (58)
	F	90	06	84	
Total		1258	140 (11.13 %)	1128	+ 567, ++ 403, +++ 288

+poor, ++lower middle, +++ upper middle

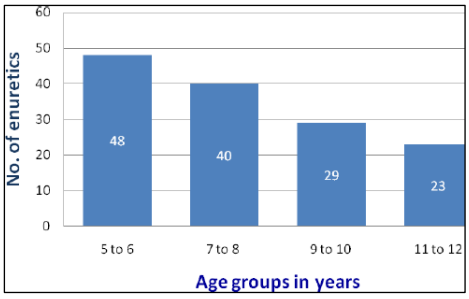

Figure 1: Showing total No. of enuretics in different age groups.

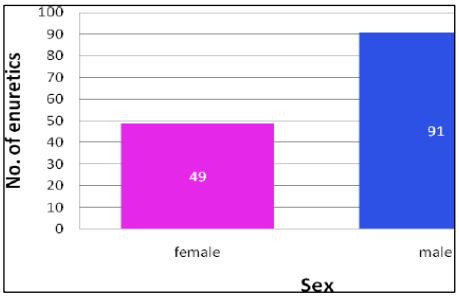

Figure 2: Showing total No. of enuretics in males and females.

DISCUSSION

The prevalence of enuresis varies widely in various countries. These differences between countries may arise from factors such as cultural, racial, environmental, and socio-economic conditions.

The community based study was done on school age children between 5 to 12 years of age in rural areas of Ahmedabad district to detect the prevalence rate and its relation to hereditary predisposition and male to female ratio of nocturnal enuresis. The prevalence rate of nocturnal enuresis was 11.13% and this was similar to reported by others.[6,7] Some studies have reported the higher rate of nocturnal enuresis than our study.[8-11] The result of our study was found less than previous study.[12] It is noticeable that the prevalence of nocturnal enuresis has been reported 9.2% for Korean children.[13] This difference might be due to sociocultural variations between the countries and regions.

The prevalence of nocturnal enuresis was higher in males in this study which was similar to the study done by others.[6,7,14]

As found in other studies, number of enuretics decreased as the age increased.[3,7,15] As nocturnal enuresis is mostly expected to improve spontaneously, its decrease with age is thought to be mostly due to spontaneous improvement.[16] Because of delayed detection of nocturnal enuresis remains untreated in most of the cases until the children are 7-8 years old.[4] Most of the studies of nocturnal enuresis had found out only the risk factors but not the multifactorial etiology of it.[17] Nocturnal enuresis is more common in boys than girls (60:40%, respectively).[18]

Besides other factors, role of heredity was found to be important in etiology of nocturnal enuresis. The prevalence of nocturnal enuresis was found higher with low parental education and low socioeconomic status.[2,8,19]

Our study shows that the prevalence rate of nocturnal enuresis was higher with low socioeconomic status which was similar to study done by others previously.[6,19]

CONCLUSION

Nocturnal enuresis in the common disorder in children in all the classes of the family and hereditary is an important etiological factor. So it must be treated, as it is a disease that can result in some socio-psychological problems and low school performance. We conclude that nocturnal enuresis was more common in males in the age groups of 5 to 8 years and it was also found higher in family with low socio-economic status.

For this purpose, health educators and primary health care staff must be educated for eliciting a detailed history not to miss diagnosis of nocturnal enuresis. Explaining detrimental effects of nocturnal enuresis and presenting true information about the medications are important for convincing the parents for treatment.

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Ethical approval: The study was approved by the institutional ethics committee

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