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Nocturnal enuresis in women and its relation to urinary incontinence



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KEYWORDS

Nocturnal enuresis;
Adult-onset;
Female urinary incontinence

ABBREVIATIONS

NE, nocturnal enuresis;
UI, urinary incontinence;
QoL, quality of life;
OAB, overactive bladder;
BMI, body mass index;
ICIQ-SF, International Consultation on

Abstract Objective: To assess the prevalence of nocturnal enuresis (NE) in Egyptian women, its relation to urinary incontinence (UI), and the impact on their quality of life (QoL).

Subjects and methods: This was a cross-sectional study involving 350 women, using multistage sampling to recruit them. The inclusion criterion was women aged ≥ 18 years who lived in the Ismailia governorate. Four trained nurses interviewed the women at their houses in two areas selected randomly, one rural and one urban. The Arabic validated International Consultation on Incontinence Questionnaire-Short Form was used to assess the symptoms of UI, frequency and severity of urinary leakage, impact on QoL, and the presence of NE. The results were analysed statistically using appropriate methods.

Results: The mean age of the women was 42.46 years. The prevalence of adult-onset NE was 12/350 (3.4%), and this increased significantly with increasing age and history of previous surgery (e.g., hysterectomy) ($P < 0.05$). There was a statistically significant association between NE and UI, as 11 of 12 women with NE had UI; most (seven of the 12) had mixed UI. The mean QoL score of NE, UI alone and normal subjects was 6.8, 4.7 and 0.02, respectively ($P < 0.05$).

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Conclusions: The overall prevalence of adult-onset NE was 3.4% amongst Egyptian women. The presence of NE correlated positively with UI, and UI had a negative impact on the QoL of women, but NE had a greater impact.

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Introduction

The International Children's Continence Society defines nocturnal enuresis (NE) as an intermittent incontinence of urine or bedwetting whilst sleeping, regardless of the presence or absence of concomitant daytime voiding symptoms [1].

The overall prevalence of NE was 20–25% in children aged 4 years and 10% in children aged 7 years, and this prevalence decreased with increasing age [2–6]. An over-active bladder (OAB) adversely influences the quality of life (QoL) amongst both younger and older people. A family history of urinary incontinence (UI) and childhood NE were identified as risk factors for OAB [7].

Adult-onset NE can be associated with various medical problems or underlying urological diseases, but there has been little research on the prevalence of and risk factors for adult NE [8]. The aim of the present study was to assess the prevalence of NE in Egyptian women, the relation between NE and UI, and its impact on QoL.

Subjects and methods

This was a cross-sectional study that included 350 women, recruited by multistage sampling. The inclusion criterion was women aged ≥ 18 years and living in the Ismailia governorate. Four trained nurses interviewed the women at their houses in two areas selected randomly, one rural and one urban. Demographic data were collected, i.e., age, residence, parity, educational level, smoking habit, chronic diseases, and previous surgery.

The Arabic validated International Consultation on Incontinence Questionnaire–Short Form (ICIQ-SF) was used to assess the symptoms of UI, frequency and severity of urinary leakage, impact on QoL and the presence of NE. The nurses also measured the weight and height of the women to calculate their body mass index (BMI). There were no further physical examinations or investigations.

The results were analysed statistically, using descriptive data analysis to present the prevalence of NE, and the arithmetic mean for age, BMI and the QoL score. The chi-squared test and Fisher's exact test were used to compare the categorical data amongst the groups. Anova was used to assess the impact of NE on QoL compared with UI alone and in normal subjects. In all

tests, $P < 0.05$ was considered to indicate statistical significance. All subjects were free to be involved or to withdraw whenever they wanted. The confidentiality was preserved for all data and test results of all the study participants.

Results

In all, 350 women were interviewed (mean age 42.46 years). Most of the women (85, 24.2%) were aged 30–39 years. The mean parity was 2.95 and the mean BMI was 30.8 kg/m². The prevalence of NE was 12 of 350 (3.4%), and the prevalence increased significantly with increasing age and history of previous surgery (e.g., hysterectomy) ($P < 0.05$). There was no statistically significant difference with residence, marital status, parity, menopause, smoking, obesity, and chronic diseases such as diabetes mellitus (Table 1).

There was a statistically significant association between NE and UI, as 11 of 12 women with NE also had UI; seven had mixed UI ($P < 0.05$), two had pure stress UI, two had urge UI, and one had no UI.

The mean (SD) ICIQ-SF score in those with NE and no NE was 12.17 (4.3) and 3.27 (5.2), respectively, the difference being statistically significant ($P < 0.001$; Student's *t*-test). The mean (SD) QoL score in the NE group, in those with UI alone or in normal subjects was 6.8 (3.04), 4.7 (3.40) and 0.02 (0.15), respectively ($P < 0.001$; one-way anova).

Discussion

NE is a common problem amongst children, but the magnitude of this problem in adults has been addressed by only a few reports. Several factors, such as increased urine production, a low bladder capacity or OAB, were thought to be the pathophysiological mechanisms of paediatric NE [9].

In the present study the overall prevalence of adult-onset NE in women was 3.4%. NE with no associated LUTS was reported by 0.28%, whilst the remainder (3.12%) had NE associated with UI. Buckley et al. [10] reported that bedwetting occurred in 4% of women. Yeung et al. [11] reported the prevalence of adult NE in females aged 16–40 years as 2%. Baek et al. [8] assessed women with a similar age range of 16–40 years and found a prevalence of NE of 3%. Helstrom et al. [12] found that 0.6% of studied females aged 17 years had NE.

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