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Original Article

A Clinical Study on Risk Factors of Daytime Urinary Frequency among Women Aged 60 Years and Above

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Abstract

Background: Daytime urinary frequency is a commonly encountered complaint in women of all ages and more so in the elderly. The causes and risk factors are many depending on the age of the patient. Frequency includes incontinence of urine, urgency, and overflow.

Aim of the Study: The aim of this study is to assess the associated risk factors for daytime urinary frequency among women aged ≥60 years.

Materials and Methods: The definition of the International Continence Society for daytime urinary frequency was used in the study, and associated risk factors were evaluated by recording medical history and sociodemographic variables. A total of 464 women aged ≥60 years were included in a single stage, prospective study based on outpatient department hospital attendance. Frequencies were tested with Pearson χ^2 test using *P* value significant at 0.05.

Observations and Results: Among 464 patients, the age groups of 60–80 years were included, with a mean age of 67.24 ± 3.40. History of hypertension was present in 116 (255), diabetes mellitus was present in 128 (27.58%), allergy to medication in 158 (34.05%), urinary incompetence in 269 (57.97%), and hormonal therapy in 145 (31.25%), which was statistically significant at $P < 0.05$ (*P* considered as statistically significant at <0.05). 80.17% of women were sexually active, 27.37% had undergone hysterectomy, and 45.25% of women had undergone other gynecological surgeries.

Conclusions: The prominent risk factors of daytime frequency of micturition were diabetes and hypertension. Other risk factors include urinary incontinence, drug allergies, hormone therapy, and body mass index. Factors such as study marriage, menopause, prior gynecological surgery, and sexual activity were not significant risk factors in causing daytime frequency of micturition.

Key words: Incontinence, Neurogenic bladder, Urgency, Urinary frequency

INTRODUCTION

The frequency of urgency urination is not life threatening but has major impact on the quality of life (QOL) of a woman. Its effects on personal hygiene, psychological, social, and sexual well-being are alarming. When patients present urinary symptoms as "bothersome or troublesome," then they can be considered as not only hygienic but also a social problem.[1] As women refuse to talk these complaints, they are also called as silent epidemic.[2] The prevalence of daytime frequency worldwide is so variant that the data cannot be generalized to a given area or population.[3] The reported prevalence rates seem to vary widely not only between communities but also between studies within a single community. Urinary incontinence (UI) is defined by the International Continence Society (ICS) as "the complaint of any involuntary leakage of urine."[3] The prevalence of UI ranges from 10% to 34%.[4] The potential risk factors for UI include increasing age, increasing parity, vaginal deliveries, obesity, surgery, constipation, menopause, surgeries undergone, and chronic respiratory problems.[5] Comorbid conditions such as urinary tract infections (UTIs), skin problems such as rashes, infections, and sores occur due to constantly wet skin. The definition of "increased daytime frequency" presented by the ICS is that the patient complains of having to void too often

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during the day. It is a subjective lower urinary tract symptom (LUTS) as perceived by the patient, caregiver, or partner. Frequency, as used in this study, was adapted from the ICS definition. The present study was conducted in an attempt to find the risk factors in women of Rayalaseema, an important geographical part of Andhra Pradesh.

Aim of the Study

The aim of this study is to assess the associated risk factors for daytime urinary frequency among women aged ≥60 years.

Period of Study

The study duration was from May 2005 to April 2008 (3 years).

Institute of Study

The study was conducted at the Department of Obstetrics and Gynecology (OBG), General Hospital attached to Kurnool Medical College, Kurnool, Andhra Pradesh.

MATERIALS AND METHODS

A total of 464 women patients attending the outpatient department of OBG, General Hospital attached to Kurnool Medical College, Kurnool, Andhra Pradesh, with complaints of daytime frequency of micturition were included in the present study. The study was to evaluate the prevalence and determine the associated risk factors regarding daytime urinary frequency in women aged ≥60 years. An Institutional Ethical Clearance was obtained, and Ethical Committee approved questionnaire and consent form were used in collecting the data. Inclusion criteria: (1) Women aged ≥60 years were included. (2) Women with daytime frequency of micturition for more than 3 months duration were included. (3) Women who answered "Yes to the question" "Do you consider that you micturate frequently during the day time?" were only included in the study. (4) Women ready to participate in the study and sign the consent form were included in the study. Exclusion criteria: (1) Women aged <60 years were excluded. (2) Women with complaints of daytime frequency of micturition below 3 months were excluded. (3) Women who answered "NO" to the question "Do you consider that you micturate frequently during the day time?" were excluded from the study. (4) Women refusing to answer the questionnaire and sign the consent form were excluded. The questionnaire was formulated to cover five aspects of clinical history: General background, medical history, obstetric and gynecological history, daytime urinary frequency, and other LUTS. In medical history, comorbid diseases such as hypertension, diabetes mellitus, and thyroid metabolic disorders were elicited. Body mass index (BMI) was calculated for all the women. Thorough clinical history was elicited to determine the type of Urinary Incontinence the patient has;such as: (a) stress incontinence: Leakage of urine on sneezing, coughing, exercise, rising from sitting, or lifting; (b) urge incontinence: Urgency and failure to reach a toilet in time; and (c) frequency of urine during the day/at night. (b) History about dribbling of urine after leaving the toilet was elicited; (c) Loss of bladder control and feeling of incomplete bladder emptying before and after micturition was elicited. (d) Pain or burning sensation on passing urine was elicited. (e) Presence of bladder spasms was elicited. (f) History of neurogenic bladder was elicited. (g) A full obstetric history should be taken in these women. (h) A bladder chart [Table 1] was given to these patients for a minimum period of 3 days. (i) The patients were enquired about sexual dysfunction and QOL. (j) Histories of medication contributing to the symptoms were elicited.

(k) The bowel habit was elicited, and in the past, the desire for treatment was elicited. A thorough gynecological examination was done attention being paid to elicit digital assessment of pelvic floor muscle contraction, perform a bimanual/vaginal examination to assess for the presence of prolapse, signs of vaginal atrophy, abdominal, pelvic, and neurological examination was performed. In all the patients initially, a urinary dipstick testing was done to look for blood, glucose, protein, leukocytes, and nitrites. If a woman has symptoms of a UTI and dipstick testing shows leukocytes and nitrites urine for culture and sensitivity was done, meanwhile antibiotics were prescribed waiting for results. If no symptoms of UTI present but the dipstick is positive, antibiotics are not started. Renal function tests are done where may be indicated. Assessment of residual urine was done in women with symptoms suggesting voiding dysfunction, recurrent UTI, using a bladder scan and ultrasound pelvis. Sometimes, catheterization was used. Urinary flow rates in patients with neurological disease were recorded. Urodynamic studies were done wherever required. All the data were analyzed using standard statistical methods.

OBSERVATIONS AND RESULTS

A total of 464 women with complaints of daytime frequency of urination were successfully included in the present study. The patients belonged to the age group of 60–80 years with a mean age of 67.24 ± 3.40 [Table 2]. 66.90% of the women belonged to the age groups of 60–70 years, 22.84% in the age group of 70–75, and the remaining 21.12% belonged to 75–80% of the study [Table 2].

Table 1: The bladder chart used for the study

Date/time am/pm	Amount in mL	How strong was the urge to go? 0, +, ++	Did you experience accidental leakage?	Comments what were you doing?	Time	Amount in mL or cups	Type what kind?

Medical history of women with daytime frequency of micturition showed that history of hypertension was present in 116 (255), diabetes mellitus was present in 128 (27.58%), medication was present in 158 (34.05%), urinary incompetence in 269 (57.97%), and hormonal therapy in 145 (31.25%) patients which was statistically significant with $P < 0.05$ (P considered as statistically significant at <0.05), [Table 3]. Table 3 shows that the women who suffered from diabetes mellitus and hypertension, drug allergy, and UI suffered more with daytime frequency of micturition than women without these. In addition, women undergone hormone therapy was more likely to report urinary frequency than those who had not received, [Table 3].

Among the 464 women in the study, the BMI was within the normal range 20–29 in 311 patients (67.02%) and above 30 in 153 (32.97%) [Table 4].

The relation between parity and the daytime frequency in the women in the study showed that the incidence decreased according to the parity with 33.83% in women with para 5, 29.31% with para 4, 16.59% with para 3, 11.42% with para 2, and 08.83% with para1 [Table 5].

In the study, the gynecological history and findings showed that 80.17% of women were sexually active, 27.37% had undergone hysterectomy, and 45.25% of women had undergone other gynecological surgeries [Table 6].

In the present study, the prevalence of daytime frequency of micturition cannot be demonstrated as statistically significant, among women who had hysterectomy, and other gynecological surgery. Furthermore, marriage and age of menopause did not significantly increase the risk of the frequency of micturition.

Table 2: The age incidence of the study group (*n*=464)

Age groups	Number (%)
60–65	234 (50.53)
65–70	153 (16.37)
70–75	047 (22.84)
75–80	030 (21.12)

Table 3: The incidence of medical histories in the study (*n*=464)

Medical history	*n* (%)	*P*
Hypertension		
Yes	116–25	0.018
No	348–75	
Diabetes mellitus		
Yes	128–27.58	0.019
No	336–72.41	
Drug allergy		
Yes	158–34.05	0.021
No	306–65.94	
UI		
Yes	269–57.97	0.028
No	195–42.02	
Hormonal therapy		
Yes	145–31.25	0.018
No	319–- 68.75	

UI: Urinary incontinence

DISCUSSION

The present study was a tertiary hospital-based prospective study in which daytime urinary frequency and its risk factors were analysed using cross-sectional population sampling in a single-stage random sampling over a period of 3 years. The study was among the women aged ≥60 years belonging to all the strata of the society. Although the symptom is the same urinary in all women, the underlying causes are so many that to direct the investigations judiciously is difficult for the treating gynecologist. Daytime frequency of micturition is only a subjective symptom, the severity of which fluctuates. Both of these factors make the study difficult to pinpoint the risk factors. However, according to the definition of ICS, it is better to investigate the risk factors and their impact on frequency by taking into consideration the sociodemographic, medical, and gynecological factors on the prevalence of urinary frequency in postmenopausal women aged ≥60 years. In Taiwanese women, the prevalence was noted as 18.8% and age was a risk factor of urinary frequency.[6] A study by Bungay *et al*.[7] concluded that the prevalence of frequency did not significantly increase with age. In the present study, 66.90% of the women belonged to the age groups of 60–70 years, 22.84% in the age group of 70–75, and the remaining 21.12% belonged to 75–80 years. In a Taiwanese study, the prevalence of frequency of micturition among the age groups of 20–59 did not reveal age as a risk factor. [8] In the same study, the authors found diabetes mellitus and hypertension as risk factors for the frequency of micturition. [8] In the present study also, these two diseases are found to be risk factors for daytime frequency of micturition, as the P value for the data was 0.019 and 0.018, respectively

Table 4: The relation of BMI with incidence of daytime frequency of micturition (*n*=464)

BMI	*n* (%)
<20	089 (19.18)
20–24	113 (24.35)
25–29	109 (23.49)
30–34	096 (20.68)
35–39	057 (12.28)

BMI: Body mass index

Table 5: The relation of parity with frequency of micturition (*n*=464)

Parity	Number (%)
1	041 (08.83)
2	053 (11.42)
3	077 (16.59)
4	136 (29.31)
5	157 (33.83)

Table 6: The gynecological history in the study (*n*=464)

Observation	Number (%)
Married	443 (95.47)
Sexually active	372 (80.17)
Menopause	464 (100)
Hysterectomy	127 (27.37)
Other than hysterectomy	210 (45.25)

(*P* significant at <0.05), [Table 2]. In addition, in this study, UI, drug allergies, hormone therapy, and BMI were also associated with the prevalence of frequency in women aged ≥60 years. These last 4 factors were not recognized as risk factors in the study by Hsieh *et al*.[8] among their subjects aged 20–59 years. Nocturia and frequency in patients aged ≥60 years, age, diabetes mellitus, hypertension, drug allergy, and UI were found as risk factors by Hsieh *et al*.[9] In the present study, marriage, menopause, prior gynecological surgery, and sexual activity were not significant risk factors in causing daytime frequency of micturition. Bungay *et al*. noted that there was no specific increase in the prevalence of frequency among women in their peri-menopausal or postmenopausal years. [7] In the present study, the incidence of daytime frequency of micturition increased with the increase in the parity unlike the Taiwanese study by Abrams *et al*.,[10] where the prevalence of daytime frequency was shown to decrease as parity increases and when it is <6. Daytime frequency of micturition affects the QOL even though it is only a symptom and subjective perception by the patient. It also depends on the attitude of the patient, perception of the degree of inconvenience knowledge, and culture of the individual suffering from it. Treatment of this symptom depends on the workup to diagnose the correct cause of the disease and comorbid conditions underlying it.

CONCLUSIONS

The prominent risk factors of daytime frequency of micturition were diabetes and hypertension. Other risk factors include UI, drug allergies, hormone therapy, and BMI. Factors such as study marriage, menopause, prior gynecological surgery, and sexual activity were not significant risk factors in causing daytime frequency of micturition.

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