Original Article

Frequency of Overactive Bladder and its Associated Risk Factors among Women of Reproductive Age

Aruna Kumari Hira[1], Urooj Naz[1], Farkhanda Zaib[1], Mishal Shan Siddiqui[1], Aneela Habib[1] and Farhat Jafri[2]

ABSTRACT

Objective: We aimed to assess the prevalence of overactive bladder among women of reproductive age in our set-up. We also sought to establish its association with the commonly recognized risk factors of age, high BMI and multiparty.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the out-patient department of Obstetrics and Gynaecology Unit 1 of Dr. R K Pfau Civil Hospital Karachi from August 2019 to February 2020.

Materials and Methods: Women were included if they experienced any signs/ symptoms of urinary frequency, urgency, or incontinence. To make a diagnosis of overactive bladder, detailed clinical history and examination were followed by blood and urine investigations and a pelvic ultrasound to rule out alternative diagnoses. Chi square test was run to assess the relation between overactive bladder and risk factors such as BMI , parity, and age. A P value of <0.05 was considered significant.

Results: The mean age of 171 women was 30.7±7.8 years and 55.5% of them were multiparous. Overactive bladder was diagnosed in 38.6% presenting with urinary frequency (48.5%), urgency (50.3%), and nocturia (10.5%). We found no significant association between the occurrence of overactive bladder and advancing age, multiparty or high BMI.

Conclusion: Overactive bladder is frequently encountered among women of reproductive age who are experiencing any urinary signs or symptoms. Further risk factors should be explored in our population. It is pertinent to specifically enquire about such symptoms in every parous woman attending a gynaecology clinic so that lifestyles modifications and management could be advised accordingly.

Key Words: Overactive bladder, urinary frequency, urgency, urge incontinence, urogynaecology

Citation of article: Hira AK, Naz U, Zaib F, Siddiqui MS, Habib A, Jafri F. Frequency of Overactive Bladder and its Associated Risk Factors among Women of Reproductive Age. Med Forum 2022;33(4):81-84.

INTRODUCTION

Symptom-free urination and complete control over urinary continence are crucial to one's genitourinary, psychological, social, and sexual health. The International Continence Society (ICS) defines overactive bladder as urinary urgency with or without urge incontinence, which is usually accompanied by symptoms of urinary frequency and nocturia.

These symptoms, however, should occur in the absence of a urinary tract infection or other obvious pathology.[1] The hallmark of this condition is urgency characterized by a sudden, difficult to deter desire to void.[2]

The prevalence of overactive bladder ranges widely across epidemiological studies from as little as 3% to as high as 43%.[3] Among women of reproductive age, the prevalence has been estimated at 12.7%.[4] Despite the high prevalence, the symptoms are often under-reported, and many women continue to suffer silently while adapting their lives according to their inconvenient urination schedules.[5] Although advancing age has historically been listed as a risk factor for overactive bladder,[6] younger women of reproductive age are not entirely free from such bothersome symptoms. The process of childbirth puts them at risk of both overactive bladder and stress incontinence particularly after vaginal delivery.[7]

Overactive bladder adversely affects women's quality of life. The urgent desire to void at socially inconvenient times makes both employment and routine activities difficult. This puts them at undue stress and thus, impacts their mental health. Such women also report worsening of their sexual health and relations.[8]

1. Department of Obstetrics and Gynaecology, CHK DUHS, Karachi.
2. Department of Community Health Sciences, KMDC, Karachi.

Correspondence: Prof. Farhat Jafri, Head of Department Community Health Sciences KMDC, Karachi.
Contact No: 0345-9242539
Email: drfajafri2003@yahoo.com

Received: October, 2021
Accepted: January, 2022
Printed: April, 2022

Recurrent episodes of waking up at night to urinate can also lead to sleep disturbance and chronic fatigue.[9]

In our study, we aim to identify the frequency of overactive bladder among women of reproductive age who present with urinary symptoms in our out-patient department. We also wish to highlight any associations between the symptoms and other risk factors such as parity, age, and BMI. All these factors are hypothesized to weaken the pelvic floor. Increasing age and high parity may even adversely affect the nerves responsible for innervating the bladder and pelvic floor, thus, contributing to the problem.[6,10] We believe estimation of the condition's prevalence and identifying any important risk factors will help us gauge the magnitude of the problem. It will also help in addressing any modifiable risk factors and devising lifestyle modifications and treatment approaches accordingly.

MATERIALS AND METHODS

This cross-sectional study was conducted in the out-patient clinic of the department of Gynaecology and Obstetrics Unit I of Dr. R. K. Pfau Civil Hospital Karachi. Permission to conduct the study was granted by the College of Physicians and Surgeons, Pakistan (Ref no: CPSP/REU/OBG-2017-183-8405; REU no: 40235). Women were included if they were in the reproductive age group and had an age ranging from 16-45 years. Inclusion criteria included sexually active/ married women irrespective of their parity and the presence of one or more symptoms attributed to overactive bladder. Women suffering from any cardiovascular or neurological disorder and those who reported a prior use of diuretic based on history and medical records were excluded from the study. Women who were currently pregnant were also excluded.

The study lasted for six months from August 2019 to February 2020. The sample size was estimated at 171 by using the WHO sample size calculator. This was calculated by taking the prevalence of overactive bladder at 12.7% with a margin of error of 5%, confidence interval of 95%.[4] Participants were selected via non-probability consecutive sampling and upon acquisition of informed verbal consent, information was recorded in pre-designed proformas by the investigators themselves.

Data was collected regarding the women's age, BMI, parity, and a detailed medical history was also recorded which included their past medical and surgical, family, and personal details. Their menstrual and obstetric histories were also noted. Questions were asked about their urinary complains such as urgency, frequency, and nocturia. Baseline investigations such as complete blood profile, urine detailed report and urine culture and sensitivity were sent. Ultrasound pelvis was also performed, and the results of all investigations were noted. A diagnosis of overactive bladder was made if the women suffered from any of the urinary symptoms either alone or in combination, and a urinary tract infection and other obvious pathologies were excluded via blood and urine investigations and pelvic ultrasound.

Data was entered in SPSS version 22 and analyzed. Mean and standard deviation was calculated for numerical data such as age weight, BMI, and parity. Frequency and percentages were reported for categorical variables such as urinary symptoms. Comparisons between symptoms and risk factors were drawn via the Chi square test. P-value of ≤ 0.05 were considered statistically significant.

RESULTS

Our study analysed 171 women who presented with symptoms of frequency, urgency and nocturia either alone or in any combination. The avareage age of the participants was 30.7 ± 7.8 years. The mean BMI was 24.18± 3.86 kg/m^2. Out of 171, 55.7% (n=95) were multiparous while the remaining 44.4% (n=76) were primiparous.

The complaint of urinary frequency was found in 48.5% of the participants (n=83) while 50.3% (n=86) reported urgency and 10.5% (n=18) reported the presence of nocturia. In our sample of reproductive aged women, the frequency of overactive bladder, thus, came out to be 38.6.% (n=66). Table 1 shows the association of risk factors with overactive bladder. We could not reveal any significant associations between the frequency of overactive bladder and high BMI, multiparity, or increasing age.

Table No.1: Association of risk factors with overactive bladder

Risk Factors	Overactive Bladder		p-value
	Yes n(%)	No n(%)	
Age (in years)			
35-45	26 (40.6)	38 (59.4)	0.673
<35	40 (37.3)	67 (62.6)	
BMI (kg/m2)			
≥ 25	33 (46.5)	38 (53.5)	0.074
<25	33 (33)	67 (67)	
Parity			
Multiparous	40 (42.1)	55 (57.9)	0.292
Primiparous	26 (34.2)	50 (65.8)	

DISCUSSION

Our study revealed a relatively high frequency of overactive bladder (48.53%) in women presenting with urinary symptoms. A net prevalence of 12.8% was reported among women in Europe and Canada [11]. Variable frequencies have been reported at 16.9%, 26.8%, and 2.69% in the United States, Korea, and Spain, respectively. [12-14] However, in our set-up, these numbers are expected to be under-represented because

many women find urinary symptoms embarrassing to discuss with their physicians [15].

We attempted to find any association between overactive bladder and three major risk factors including age, parity, and BMI. However, we failed to demonstrate any significant association of overactive bladder with either of the three variables. This presents a striking contrast to several published works. The mean age of our sample was 30.7±7.8 years and age above 35 years was not associated with increased prevalence of overactive bladder. The average age of women with overactive bladder was comparable to another study by Kim et al. who reported a mean age of 26.4±4.8 years. [4] A meta-analysis also demonstrated an association between increasing age and overactive bladder.[10] Our study, however, failed to demonstrate the same results. Although age-related changes in bladder and pelvic floor tissues along with changes in the nervous control of urination contribute to the high prevalence of overactive bladder in elderly women [5], these mechanisms might not be responsible for causing overactive bladder in reproductive age women. Advancing age brings with it an additional risk of osteoporosis and thus, fractures which may occur on falling while immediately rushing to void. [16] However, the protective effects of oestrogen in the reproductive age group might mitigate the risk.

Several factors lead to the development of urinary symptoms after childbirth. They may take the form of stress incontinence, urgency or urge incontinence. Weakening of the pelvic floor, damage to bladder nerves, displacement of urinary organs from their pre-pregnant location and traumatic/ operative vaginal delivery all may be implicated either alone or in combination. [17] The number of deliveries and its role in development of overactive bladder, however, is not well defined. A meta-analysis failed to demonstrate any significant association between parity and development of overactive bladder. [10] Our results also attest to the same observation. Slightly more than half of the women in our study were multiparous while the rest were primiparous in our study.

With the improvement in living standards and an increasing trend of adoption of an unhealthy lifestyle, there is an increase in the prevalence of obesity in our population. Female gender and marriage, both are independently associated with a high BMI in our population.[18] While elevated BMI increases the risk of several medical conditions such as metabolic syndrome, cardiovascular diseases, diabetes mellitus, polycystic ovarian syndrome etc, it is also known to increase the frequency and symptom severity of urogynaecological issues. These include pelvic organ prolapse, urgency, and interference with continence. [19] High BMI leads to increased intra-abdominal and intra-vesical pressures which may chronically stretch the pudendal nerves and lead to nerve injury. This contributes to pelvic floor dysfunction. [19] Additionally, diabetes, a frequent comorbidity seen with obesity, can also contribute to autonomic neuropathy and ultimately, the onset of overactive bladder. [20] However, we failed to identify any significant association between BMI and overactive bladder frequency.

In the light of our findings, we believe that overactive bladder can also be seen in a substantial number of women who are of young age, primiparous, and have a low/ normal BMI. This necessitates further research to investigate the risk factors for overactive bladder in our population so the women at risk could be identified in time. We also believe that given the high prevalence of the condition and the tendency to go unnoticed, questions about urinary issues should be asked during history taking of patients irrespective of the primary complaint. This will surely give us a chance to identify and help all women who are suffering in silence and improve their quality of life.

CONCLUSION

Overactive bladder is frequently encountered among women of reproductive age who are experiencing any urinary signs or symptoms. Further risk factors should be explored in our population. It is pertinent to specifically enquire about such symptoms in every parous woman attending a gynaecology clinic so that lifestyles modifications and management could be advised accordingly.

Author's Contribution:

Concept & Design of Study:	Aruna Kumari Hira
Drafting:	Urooj Naz, Farkhanda Zaib
Data Analysis:	Mishal Shan Siddiqui, Aneela Habib
Revisiting Critically:	Aruna Kumari Hira, Urooj Naz
Final Approval of version:	Farhat Jafri

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Overactive Bladder [Internet]. ICS. 2018 [cited 6 January 2022]. Available from: https://www.ics.org/committees/standardisation/terminologydiscussions/overactivebladder
2. Palmer MH, Willis-Gray MG. CE: overactive bladder in women. AJN Am J Nursing 2017;117 (4):34-41.
3. Milsom I, Stewart W, Thuroff J. The prevalence of overactive bladder. Am J Manag Care 2000;6(11 Suppl):S565-73.
4. Kim Y, Seo J, Yoon H. The effect of overactive bladder syndrome on the sexual quality of life in

Korean young and middle aged women. Int J Impotence Res 2004;17(2):158-163.
5. Saleem A. In women with urinary incontinence how necessary is cystometry? JPMA 2010;60(356).
6. Suskind A. The Aging Overactive Bladder: a Review of Aging-Related Changes from the Brain to the Bladder. Current Bladder Dysfunction Reports 2017;12(1):42-47.
7. Palma T, Raimondi M, Souto S, Fozzatti C, Palma P, Riccetto C. Prospective study of prevalence of overactive bladder symptoms and child-bearing in women of reproductive age. J Obstet Gynaecol Res 2013;39(8):1324-1329.
8. Coyne K, Margolis M, Jumadilova Z, Bavendam T, Mueller E, Rogers R. Original research—outcomes assessment: Overactive Bladder and Women's Sexual Health: What is the Impact? J Sexual Med 2007;4(3):656-666.
9. Ge T, Vetter J, Lai H. Sleep Disturbance and Fatigue Are Associated With More Severe Urinary Incontinence and Overactive Bladder Symptoms. Urol 2017;109:67-73.
10. Zhu J, Hu X, Dong X, Li L. Associations between risk factors and overactive bladder: a meta-analysis. Female Pelvic Med Reconstructive Surg 2019;25(3):238.
11. Irwin DE, Milsom I, Hunskaar S, Reilly K, Kopp Z, Herschorn S, et al. Population-based survey of urinary incontinence, overactive bladder, and other lower urinary tract symptoms in five countries: results of the EPIC study. Eur Urol 2006;50(6): 1306-15.
12. Stewart W, Van Rooyen J, Cundiff G, Abrams P, Herzog A, Corey R, et al. Prevalence and burden of overactive bladder in the United States. World J Urol 2003;20(6):327-36.
13. Yoo ES, Kim BS, Kim DY, Oh SJ, Kim JC. The impact of overactive bladder on health-related quality of life, sexual life and psychological health in Korea. Int Neurourol J 2011;15(3):143.
14. JL RC, Rebollo P, Arumi D. Prevalence of urinary incontinence and hyperactive bladder in the Spanish population: results of the EPICC study. Actas Urologicas Espanolas 2009;33(2):159-66.
15. Shaw C, Tansey R, Jackson C, Hyde C, Allan R. Barriers to help seeking in people with urinary symptoms. Family Practice 2001;18(1):48-52.
16. Szabo SM, Gooch KL, Walker DR, Johnston KM, Wagg AS. The association between overactive bladder and falls and fractures: a systematic review. Advances Therapy 2018;35(11):1831-41.
17. Handa VL, Pierce CB, Muñoz A, Blomquist JL. Longitudinal changes in overactive bladder and stress incontinence among parous women. Neurourology Urodynamics 2015;34(4):356-61.
18. Asif M, Aslam M, Altaf S, Atif S, Majid A. Prevalence and sociodemographic factors of overweight and obesity among Pakistani adults. J Obesity Metabolic Syndrome 2020;29(1):58.
19. Al-Shaiji TF, Radomski SB. Relationship between body mass index and overactive bladder in women and correlations with urodynamic evaluation. Int Neurourol J 2012;16(3):126.
20. Lawrence JM, Lukacz ES, Liu IL, Nager CW, Luber KM. Pelvic floor disorders, diabetes, and obesity in women: findings from the Kaiser Permanente Continence Associated Risk Epidemiology Study. Diabetes Care 2007;30(10): 2536-3541.