Frequency of Urinary Incontinence and The Associated Obstetric and Gynaecological Risk Factors

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ABSTRACT

Objective — *To find out the frequency and associated obstetrical and gynaecological risk factors of urinary incontinence in women.*

Study design — *Cross-sectional study.*

Place & Duration of study — *Department of Obstetrics and Gynaecology Liaquat National Hospital Karachi, from August to November 2009.*

Methodology — *Women from various out-patient departments and waiting areas of the hospital were interviewed after taking an informed consent. The questionnaire covered demographic data, physical characteristics, gynaecological and obstetrical risk factors associated with symptoms of urinary incontinence.*

Results — *A total of 510 women (mean age of 35.4 year and parity 2.6) were studied. Out of the total women interviewed 234(45.9%) reported episodes of urinary incontinence. Urinary incontinence was found related to traumatic and operative vaginal births, pelvic organ prolapse, abdominal mass, smoking, obesity, old age and menopause.*

Conclusions — *Urinary incontinence was the common complaint of women attending hospital out- patient clinics and those accompanying the patients. It was under-reported by the women although it affected their daily life. Only small proportion of women sought medical advice.*

Key words — *Urinary symptoms, Risk factors, Quality of life.*

INTRODUCTION:

Urinary incontinence (UI) is defined by the International Continence Society as involuntary loss of urine, which is objectively demonstrable. It is a social and hygienic problem.[1] This urinary symptom is 2.5 - 4 times more common in women than men. It can occur any time after adulthood. It is reported that one out of five women experienced symptoms of this disease. The urinary incontinence can be categorized into 4 main types: stress, urge, overflow and functional incontinence, although most patients present with a mixed picture.[2]

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UI can restrict the social, family, professional and sexual activities of women and lower their quality of life by generating social isolation and emotional stress, often combined with a feeling of inferiority and depression. Along with these physical and social consequences, there is also a financial burden, which is substantial and growing.[3]

The prevalence of UI in elderly vary between 17-55%.[4] Other epidemiologic studies have reported a prevalence of UI in women aged > 60 years between 4.5- 44%, however very few studies assessed exclusively young adult and middle aged women where reported prevalence is 26- 58%. A wide range of risk factors had been identified in studies which can be categorized into constitutional, obstetric, and gynaecological risk factors like ageing and hysterectomy.[5]

Several studies have shown that pelvic floor dysfunction after vaginal delivery increases risk of urinary incontinence compared with abdominal delivery, however it is not clear whether instrumental delivery is an additional risk factor. Likewise multiparity, episiotomy, obesity and advanced age also play role.[5,-7] The gynaecological factors studied include advanced age with BMI > 25 kg/m^2, menstrual disorders, vaginal discharge, utero-vaginal prolapse etc.[7]

The aim of this study was to find out the magnitude of urinary incontinence in women and to identify the potential risk factors which can lead to pelvic floor dysfunction.

METHODOLOGY:

A cross-sectional survey was conducted from August 2009 to October 2009 at Liaquat National Hospital Karachi. Face-to-face interviews were conducted. A pre-designed proforma was used for data collection. An informed consent was taken. The study was approved by Research and Ethical committee of the hospital.

Women aged 16 to 80 year, regardless of marital status, parity, BMI, gynaecological diseases, were included. Women with controlled diabetes mellitus and hypertension as co-morbids were also enrolled. Pregnant and postpartum women and those with other illnesses were excluded.

On the basis of presence or absence of involuntary loss of urine the women were divided into two groups. The potential risk factors analyzed according to these subgroups. In each group, women were divided into two groups; reproductive years from 16- 45 year and non-reproductive age from 46- 80 year. Risk factors which can predict the development of different types of UI in these age subgroups like parity, BMI and smoking, were related to the presence or absence of UI symptom. Similarly certain obstetric risk factors like number of deliveries, mode of deliveries, place of deliveries and weight of born babies were noted.

Numeric variables were measured in mean + SD and categorical variables were presented in frequencies and percentages. Chi square test was used to compare relative frequencies of categorical variables whereas, unpaired t test was used to compare mean + SD in both the groups (with and without UI). All data were entered and analyzed through SPSS version 15. P value < 0.05 was considered as statistically significant.

RESULTS:

In this study 510 women who attended the hospital for various reasons were interviewed. UI symptoms were noted in 45.9% (n=234) women with the mean age 35.4 ± 12.4 year. The UI had significant relationship with reproductive age group as compared to older age group (69.7% vs. 30.3%; p<0.001). Significantly high prevalence of UI was noted among women with BMI <25 kg/m^2 (57.7% vs. 42.3%, p=0.004) [table I].

The UI was more in women with higher parity. The women with co-morbid were 18.4%, out of which the hypertension was found in 15.5% and diabetes mellitus in 2.9%. The UI in hypertensive and diabetic women was greater as compared to their normal counterparts (hypertension: 19.7% vs.12%; p=0.017 and diabetes mellitus: 4.7% vs. 1.4%; p=0.03). Smokers were 4.5% (n=23) and UI was significantly higher in smokers (9% vs. 0.7%; p<0.001).

We observed UI in 63.6% (p<0.001) women who delivered an average weight baby vaginally. No significant association noted with operative and instrumental deliveries. Married women had more symptoms of UI as compared to unmarried (94% vs. 6%; p<0.001). Gynaecological risk factors associated with UI symptoms are given in table II.

Urinary symptoms were noted in 25.5% women in gynaecology clinic and marked as acute presentation. There were 19.7% of women with past history of episodes of urinary incontinence and grouped as chronic cases. About 32.1% women had no obstetric or gynaecological problem at the time of interview but they answered the questionnaire with urinary symptoms of incontinence, off and on, at different occasions. They were attending general clinics, while 27.8% were normal, but had positive history of UI when enquired specifically for episodes of urine loss. (table II).

Out of total women 234 had different types of urinary incontinence of which 112 (47.86%) had mixed pattern of UI. Sixty-five (28%) women had urge incontinence due to detrusor instability or overactive bladder, 49 (21%) cases had stress UI. Two patients (1%) developed UI after hysterectomy and six (2%) patients had true incontinence after obstetrical fistula, which was successfully repaired.

DISCUSSION

Urinary incontinence is frequently observed health problem among women. A wide variation is observed with age sub groups in woman. According to our data UI in postmenopausal age women was 27.8%

Table I: Study Characteristics and Comparison between Women With and Without Urinary Incontinence

Variables	Total (n = 510)	With UI (n = 234)	Without UI (n = 276)	P – value
Age* (year)	35.4 ± 12.4	39.6 ± 13.2	32.0 ± 10.6	<0.001
Age Groups 16 - 45 year >45 – 80 year	 405 (79.4%) 105 (20.6%)	 163 (69.7%) 71 (30.3%)	 242 (87.7%) 34 (12.3%)	 <0.001
Weight* (Kg)	61.4 ± 11.3	63.4 ± 11.6	59.6 ± 10.8	<0.001
Height* (m)	1.6 ± 0.08	1.6 ± 0.08	1.6 ± 0.07	0.447
BMI* (Kg/m^2)	24.3 ± 4.7	25.1 ± 4.6	23.6 ± 4.7	<0.001
BMI Groups < 25 (Kg/m^2) > 25 (Kg/m^2)	 328 (64.3%) 182 (35.7%)	 135 (57.7%) 99 (42.3%)	 193 (69.9%) 83 (30.1%)	 0.004
Parity*	2.6 ± 2.5	3.3 ± 2.6	2.0 ± 2.1	<0.001
Parity Groups Nulliparous Primipara Multipara Grand Multipara	 135 (26.5%) 68 (13.3%) 207 (40.6%) 100 (19.6%)	 37 (15.8%) 24 (10.2%) 112 (47.9%) 61 (26.1%)	 98 (35.5%) 44 (15.9%) 95 (34.4%) 39 (14.2%)	 <0.001 0.060 0.002 0.001

UI=Urinary Incontinence, *presented as mean + SD

which is comparable with study conducted by Ushiromyama T where it was 26.3%.[1] The overall prevalence of UI reported in another study was 27.5%, which increased to 38.5% in age group of >40 year.[5] These observations are comparable to our study findings.

High BMI has an impact on pelvic floor. It is reported that obesity produce adverse effects on the incontinence symptoms.[7,8] In our study the UI symptom was present mostly in women who had normal BMI. Our study identified multiparity as an independent risk factor for the development of UI episodes after vaginal delivery. Similar findings are reported in another study with the increase prevalence of UI with rise in number of vaginal deliveries from 30% to 50%.[3]

Around 15.8% of nulliparous women had UI without pelvic floor involvement. Many other factors play role like infection, chronic constipation, BMI etc.[4] However the pelvic floor dysfunction aggravates at the age of menopause. It is reported that vaginal delivery and menopause before 50 year significantly increase the risk of UI. A prevalence of 38.86% noted in the same study.[9] The effect of ageing and hormonal deprivation at menopause cannot be separated because the rate of incontinence in postmenopausal women was reported less than premenopausal women or no difference noticed, but subjective improvement in incontinent patients noted after hormonal therapy.[7]

Our study failed to find out any difference made by mode of delivery whether spontaneous or instrumental vaginal delivery. Perineometric measurements of pelvic floor muscle pressure study showed significant decrease in pelvic floor muscle strength in all vaginal and caesarean deliveries groups as compared to nulliparous women in control group. Similarly UI was also high in these women as compared to control group of nullipara.[10] Our study confirmed the same observations. Interstitial cystitis is an under diagnosed condition of bladder and can be misdiagnosed as overactive bladder.[11]

We noted that 27.8% women who had urinary incontinence were postmenopausal, which is nearly similar to studies on prevalence of UI in Japanese and Turkish women.[1,4] The advanced maternal age was studied as risk factor for stress incontinence by Hijaz in a review article.[12] Evidence support that child birth as a trauma, contributes in the development of stress UI later in life.

Table II: Frequency of UI with Obstetric and Gynaecological Risk Factors

Variables	Total n = 510 (%)	With UI n = 234 (%)	Without UI n = 276 (%)	P – value
Obstetric Risk Factors:				
Mode of Delivery				
None	135 (26.5%)	37 (15.8%)	98 (35.5%)	<0.001
SVD	277 (54.3%)	149 (63.6%)	128 (46.4%)	<0.001
Instrumental	26 (5.1%)	13 (5.6%)	13 (4.7%)	0.657
LSCS	72 (14.1%)	35 (15%)	37 (13.4%)	0.610
Place of Delivery	n = 375	n = 197	n = 178	
Home	75 (20%)	43 (21.8%)	32 (18%)	0.352
Clinic	68 (18.1%)	35 (17.8%)	33 (18.5%)	0.846
Hospital	232 (61.9%)	119 (60.4%)	113 (63.5%)	0.540
Marital Status				
Single	84 (16.5%)	14 (6%)	70 (25.4%)	<0.001
Married	426 (83.5%)	220 (94%)	206 (74.6%)	
Weight of Baby	n = 426	n = 220	n = 206	
No Baby	51 (12%)	23 (10.5%)	28 (13.6%)	0.906
Normal Small	337 (79.1%)	176 (80%)	161 (78.2%)	0.640
Large	19 (4.5%)	10 (4.5%)	9 (4.4%)	0.547
	19 (4.5%)	11 (5%)	8 (3.9%)	0.284
Gynaecological Risk Factors:				
Post- Menopausal	96 (18.8%)	65 (27.8%)	31 (11.2%)	<0.001
Vaginal Discharge	69 (13.5%)	50 (21.4%)	19 (6.9%)	<0.001
Mass in Abdomen	51 (10.0%)	31 (13.2%)	20 (7.2%)	0.024
Vaginal itching / wetness or dampness	125 (24.5%)	81 (34.6%)	44 (15.9%)	<0.001
Prolapse	62 (12.2%)	46 (19.7%)	16 (5.8%)	<0.001
Mode of Presentation				
Acute	73 (14.3%)	48 (20.5%)	25 (9.1%)	<0.001
Chronic	87 (17.1%)	46 (19.7%)	41 (14.9%)	0.151
Normal	168 (32.9%)	65 (27.8%)	103 (37.3%)	0.022
Others	182 (35.7%)	75 (32.1%)	107 (38.8%)	0.115

Hysterectomy has been suggested as a risk factor for UI especially stress UI.[5] We identified 13.4% of women with UI who had past history of pelvic surgery. Urinary incontinence is not a frequently associated symptom in women with pelvic organ prolapse.

We observed in young women with multiparity, the mixed incontinence in 48% women. These symptoms of incontinence were after the last birth or after some pelvic surgery. Similarly we observed urge incontinence and stress incontinence in young and middle age women. This is different from what has been reported in American Indian women from South Dakota tribe where the overall frequency was low.[13] A study from Pakistan on lower urinary tract symptoms reported stress UI in 30 % on urodynamic investigation combined with history and clinical examination.[14]

CONCLUSIONS

This study identifies the higher rate of urinary incontinence in young and middle age women. Vaginal delivery is identified as most important risk factor for pelvic floor dysfunction. The menopause

and ageing process are identified as risk factors in association with other aggravating factors like pelvic organ descent and weight gain. Nulliparous women have relatively less risk but after menopause they have same risk of development of urinary incontinence. Most common type of UI was mixed incontinence. Although episodes of UI affects womens' quality of life adversely to some extent but very few seek medical advise.

REFERENCES:

1. Ushiroyama T, Ikeda A, Ueki M. Prevalence, incidence and awareness in the treatment of menopausal urinary incontinence. Maturitas 1999;33:127-32.

2. Vinker S, Kaplan B, Nakar S, Samuels G, Shapira G, Kitai E. Urinary incontinence in women: Prevalence, characteristics and effects on quality of life. A primary care clinic study. IMA J 2001;3:663-6.

3. Dellu MC, Zacaro PMD, Schmit ABC. Prevalence of urinary symptoms and associated obstetric factors in adult women. Rev Bras Fisioter 2008;12:482-7.

4. Kocaöz S, Bilgili N, Eroglu K. Prevalence and risk factors of urinary incontinence in Turkish Nursing Homes: A cross-sectional study. Pak J Med Sci 2009;25:18-25.

5. Peryrat L, Haillot O, Bruyere F, Boutin JM, Bertrand P, Lanson Y. Prevalence and risk factors of urinary incontinence in young and middle aged women. Br J Urol Int 2002;89:61-6.

6. Arya LA, Jackson ND, Myers DL, Verma A. Risk of new onset urinary incontinence after forceps and vaccum delivery in primiparous women. Am J Obstet Gynecol 2001;185:1318-24.

7. Bump RC, Norton PA. Epidemiology and natural history of pelvic floor dysfunction. Obstet Gynecol Clin North Am 1998;25:723-46

8. Mommesn S, Foldspang A. Body mass index and adult female urinary incontinence. World J Urol 1994;12:319-22.

9. Sakondhavat C, Choosuwan C, Kaewrudee S, Soontrapa S, Louanka K. Prevalence and risk factors of urinary incontinece in Khon Kaen menopausal women. J Med Assoc Thai 2007;90:2553-8.

10. Koc O, Duran B, Ozdemirci S, Bakar Y, Ozengin N. Is cesarean section a real panacea to prevent pelvic organ disorders? Int Urogynecol J 2011;22:1135- 41.

11. Misdiagnosis of Ketones in the urine.[Internet} Available from http://www.rightdiagnosis.com-/symptoms/ketones_inthe_urine/misdiagnosis. Accessed on 02 01, 2012.

12. Hijaz A, Sadeghi Z, Byrne L, Hou JC, Daneshgari F. Advanced maternal age as a risk factor for stress urinary incontinence: a review of the literature. Int Urogynecol J 2012;23:395-401.

13 . Fiegen MM, Benson DK. The prevalence of urinary incontinence in American Indian women from a South Dakota tribe. Int Urogynecol J 2012;23:473-9.

14. Hameed N, Ali MA, Azim W. Urodynamic findings in female patients reporting with lower urinary tract symptoms. J Ayub Med Coll Abbotabad 2009;21:8-10.