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Frequency of urinary incontinence with Pelvic organ prolapse and associated factors

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Abstract: Introduction: To determine the frequency of common types of urinary incontinence (UI) in women with pelvic organ prolapse (POP) attending Uro-gynaecology clinics at Aga Khan Hospital Karachi. Methods: A total of 85 women attending the Uro-gynaecology clinics with symptoms of pelvic organ prolapse were included in a cross sectional survey. Results: Out of 85 women presented with pelvic organ prolapse, 61(71.7%) were aged above 50 years and 24(28.4%) below 50 year of age. The frequency of SUI was reported by 46(54.1%) women, 16(18.8%) women presented with UUI and 23(27.1%) with MUI. Large majority of women were postmenopausal(69%), multiparous(71%), and obese with a BMI >25 (69.4%). Thirty nine (46%) women had III grade of POP and 46(54%) had SUI. Grade of POP was significantly associated with UI (SUI). Grade II POP was associated statistically significant with SUI [Adjusted Odd Ratio (AOR) 0.04; 95% CI: 0.004, 0.418; P value: 0.007]. The other factors like age, parity and BMI were not found to be statistically significant in association with UI. Conclusion: Pelvic organ prolapse and urinary and incontinence are significant problems in developing countries. Both of these conditions badly impact quality of life of women. In our study only SUI was found to be significantly associated with increasing grades of POP.

Keywords: Pelvic organ prolapse; stress urinary incontinence; grades of prolapse

1. Introduction

The prevalence of POP and UI in developing countries was estimated as 19.7% and 28.7% respectively[1] while in USA prevalence of POP was 2.9% and urinary incontinence was 15.7%[2]. It is known from various epidemiological studies that women with Pelvic Organ Prolapse (POP) have two to five fold increased risk of urinary incontinence(UI) compared to normal population[3,4]. The prevalence of UI in rural Pakistan was estimated as 11%.and POP as 12.10%. Stress UI was most prevalent (4.7%) compared to Urge incontinence UUI (3.2%) and Mixed UI (2.85%)[5].

In a recent USA study, overall 25.0% (95% CI 23.6, 26.3) of women reported one or more pelvic floor disorders. Urinary incontinence was the most common disorder reported, with a combined prevalence of 17.1% (95% CI 15.8, 18.4)[6].

It has been studied that pelvic organ prolapse weakens the urethrovesical supporting tissues and causes stress urinary incontinence. The study also demonstrated that with increasing grades of prolapse, urethral kinking increases which leads to obstruction and masks the symptoms of stress urinary incontinence[7]. Pelvic organ prolapse is associ-

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ated with stress urinary incontinence and its frequency was found to be higher than other types of UI e.g urge and mixed urinary incontinence[8,9]. The other associated factors with UI and POP were found to be advanced age, parity and obesity[6]. Both the urinary incontinence and POP affect the quality of life of women by restricting social, family, professional, religious and sexual activities[10]. The purpose of this study was to see the frequency of UI among women presented with POP and its associated factors.

2. Methodology

We conducted a cross sectional survey among women aged 22 – 65 years attending the Uro-gynecology clinics at Aga Khan University Hospital with symptoms of pelvic organ prolapse during 2014 – 2015. The assessment of UI and its impact on QoL was assessed using UDI SF-6 and IIQ-SF7 (urogenital distress inventory Incontinence Impact Questionnaire). All Definitions were used in compliance with International Continence Society ICS Standard Terminology[11]. Pelvic organ prolapse was graded according to "Baden walker classification" from grade 0 – 5. Data was computed and analyzed using SPSS version[21]. Association of Pop with UI and its associated factors were analyzed. Forunivariate analyses, a χ 2-test was used and for multivariate analyses we used logistic regression analysis with P-value less than 0.05 taken as statistically significant.

3. Results

The women presented with POP were 113 but 85 (75.2%) were symptomatic for any type of UI with POP having an impact on their quality of life to seek treatment. Table 1 shows demographics including grades of prolapse, types of urinary incontinence and associated factors like parity and mode of delivery. The significant associated factors were multiparity (70.6%) and grade 3 POP(45.9%). SUI (54.1%) was the most common type of UI seen among women with POP. Table 2 showed that Grade II POP had statistically significant association with SUI [Adjusted Odd Ratio (AOR) 0.04; 95% CI: 0.004, 0.418; P value: 0.007]. The other associated factors like age, parity, BMI, mode of delivery were not found to be statistically significant predictors of urinary incontinence.

4. Discussion

The aim of our study was to see the frequency of urinary incontinence and association of different factors among women with POP. Our study showed that 85 out of 113 (75.2%) had different types of UI associated with POP. In a study of prevalence of symptomatic pelvic organ prolapse in association with over active bladder (OAB), it was found that 40% of patients with OAB had an associated symptoms of prolapse POP[4].

The association between POP and SUI has been explained based on the holistic view of the pelvic floor anatomy and the comprehensive"integral theory" of Petros and Ulmsten[12]. The degree of pelvic organ prolapse is not related to urinary incontinence and in our study the most frequent type of urinary incontinence was SUI(54%), found to be statistically associated with grade 2 of POP($P < 0.007$). These results are similar to a study by Bai et al where 53.3% of women had SUI associated with grade 2 of POP[7].

Pelvic organ prolapse and stress urinary incontinence also share a common risk factors of age, parity and mode of delivery[13]. Both of these conditions result from pelvic floor muscles weakness and denervation injury but in our study age, parity, mode of delivery and obesity were not found to be significantly with any type of UI and POP[14].

It has been observed that bladder ages at 70 years and women present with SUI and UUI, however they may not have POP[15]. As the age progresses hormonal changes occur which weakens pelvic floor support and lead to increase in prevalence of these conditions[16]. The prevalence of UI and POP was found to be 36% after 60 years of age but in our study age was not found to be a significant factor in association with Pop and UI[17].

Characteristics	n	(%)
Age (year) Mean(S.D) 8.7		55.4 ±
≤ 50	24	(28.4)
51-60	33	(38.8)
> 60	28	(32.9)
Obesity (BMI)		
≤ 25	26	(30.6)
> 25	59	(69.4)
Parity Status		
Nulliparous	8	(9.4)
1-5	60	(70.6)
> 5	17	(20.0)
Menopausal Status		
No	26	(30.6)
Yes	59	(69.4)
Mode of Delivery		
SVD	56	(65.9)
Instrumental	11	(12.9)
LSCS	18	(21.2)
Grade of POP		
II	34	(40.0)
III	39	(45.9)
IV	12	(14.1)
Types of urinary incontinence		
SUI	46	(54.1)
UUI	23	(27.1)
MUI	16	(18.8)

Table 1. The characteristics of variables among patients with POP and UI (n = 85).

ASSOC FACTORS	URINE INCONTINENCE		Crude OR (95%CI)	Adjusted OR (95%CI)	P value
	SUI n(%)	MUI n(%)			
Age					
≤ 50	14(73.3)	5(26.3)	1.78(0.358,8.898)	4.12(0.567,29.983)	0.162
51 to 60	17(68.0)	8(32.0)	2.35(0.526,10.520)	2.54(0.491,13.169)	0.266
>60	15(83.3)	3(16.7)	1	1	
BMI					
≤ 25	15(75.0)	5(25.0)	1.07(0.313,3.619)	0.962(0.237,3.905)	0.956
> 25	31(73.8)	11(26.2)	1	1	
Mode of delivery					
SVD	31(77.5)	9(22.5)	0.73(0.183,2.875)	0.752(0.139,4.158)	0.744
Instrumental	5(62.5)	3(37.5)	1.50(0.238,9.465)	0.887(0.079,9.991)	0.923
LSCS	10(71.4)	4(28.6)	1	1	
Grades of POP					
II	26(89.7)	3(10.3)	0.06(0.007,0.460)	0.040(0.004,0.418)	0.007
III	18(66.7)	9(33.3)	0.25(0.0381,1.633)	0.206(0.025,1.710)	0.144
IV	2(33.3)	4(66.7)	1	1	

Table 2. Binary logistic regression between POP and UI and its associated factors.

It has been observed that vaginal birth significantly reduces the pelvic floor strength due to neural and structural damage which is not seen with caesarean delivery[18]. Our study reported that mode of delivery is not significantly associated with common types of UI with POP (P value 0.744) but in an American study it was found that the three vaginal deliveries had twice the risk of SUI and three fold increased risk of developingPOP[19]. While European study showed two fold (8%) increase risk of SUI and 3% risk of UUI with vaginal delivery[20]. Hilde *et al* found that women delivered by cesarean section had similar frequency of SUI as women delivered by SVD i.e (71.4%) and (77.5%) respectively.

5. Conclusion

Pelvic organ prolapse and urinary incontinence are significant problems in developing countries. Both of these conditions badly impact quality of life of women. In our study only SUI was found to be significantly associated with increasing grades of POP. There is a need of large group study to see relationship of pelvic organ prolapse with urinary incontinence at community level.

Conflict of Interest

No financial or non-financial conflict of interest.

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