

Postpartum urinary incontinence among women attending four postnatal clinics

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Keywords: Urinary incontinence; postpartum; nocturia; urinary frequency; stress incontinence; urge incontinence

Abstract

Introduction

Urinary incontinence is a distressing problem after childbirth, but its incidence and risk factors among Sri Lankan women has not been reported.

Materials and Methods

A descriptive cross-sectional study was carried out among 234 women attending postpartum clinics at two tertiary care units and two Medical Officer of Health (MOH) areas in the Colombo district using a validated interviewer administered ICIQ-FLUTS long format questionnaire. Data was analysed using SPSS software package version 26.0. Significance was taken as $p < 0.05$.

Results

The prevalence of postpartum urinary incontinence (PPUI) was 5.6% (13 / 234). Nine of them (69.2%) had mixed incontinence while urge incontinence was seen in three (23.1%) and stress incontinence in one (7.7 %). Patients with chronic respiratory symptoms showed a higher prevalence PPUI ($p = 0.028$). However, birth weight of the baby, mode of delivery, episiotomy, maternal age, parity, and obesity did not show an association with higher prevalence of PPUI ($p > 0.05$).

Conclusion

The prevalence of PPUI was 5.6%. (95% CI 3.0% - 9.3%). It was more common in mothers who had chronic respiratory diseases. The mode of delivery had no influence on PPUI in our study.

Introduction

Urinary incontinence (UI) is defined as involuntary loss of urine that is a social or hygienic problem and is objectively demonstrable [1]. UI has been found to be twice as prevalent in women [2]. Continence is maintained by proper

functioning of the urinary sphincter which has external and internal components, the former being made up of pelvic floor muscles innervated by the pudendal nerve.

Postpartum urinary incontinence (PPUI) has a multifactorial aetiology [3]. Pregnancy associated causes include - maternal age > 35 years, UI occurring during pregnancy, multiparity and gestation over 37 weeks. The second group of causes is associated with childbirth. Vaginal deliveries may contribute by damaging the pudendal nerve and pelvic floor muscles [4]. Biomechanical changes occurring during labour can breach fascia and muscles of the pelvic floor [5]. Shifting of bladder and urethra during pregnancy, episiotomy, large babies, difficult deliveries, lengthy pushing phases and instrumentation during delivery have been associated with PPUI [3-6]. Even high body mass index (BMI), chronic respiratory symptoms and constipation are incriminated as associated factors of PPUI [7]. Thus, pregnancy and labour are major causes of urinary incontinence in women [8]. According to published international data prevalence of PPUI at three months after delivery is 33% (95% CI 32–36%) [9].

PPUI may not resolve spontaneously. MacArthur et al. has showed that 76.4% of the women who had PPUI 3 months postpartum remained incontinent 12 years later [10]. Continuing UI results in decreased quality of life during puerperium and later life [6]. However according to a Cochrane review, the impact of PPUI can be reduced by pelvic floor exercises before, during and after pregnancy [11].

Sri Lanka is a South Asian country having good maternal and child health as demonstrated by better than average maternal and infant mortality rates for the region. As there are no prior publications on PPUI in Sri Lanka, the objective of this study was to determine the prevalence and possible associated factors of PPUI at 3 months, among women attending postnatal clinics in primary care and hospital settings.

Methods

A descriptive cross-sectional study was carried out over a period of 3 months at postnatal clinics at two Medical Officer of Health (MOH) areas (at Boralessgamuwa and Maharagama), and two tertiary care units (at Colombo South Teaching Hospital and Sri Jayewardenepura General

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Received: 30-11-2021 Accepted: 24-03-2022

DOI: <http://doi.org/10.4038/sljs.v40i1.8912>



Hospital). The study population comprised of women attending postnatal clinics for follow up and for vaccination of their infants. All were between 8-12 weeks after delivery.

Women less than 18 years of age, with a history of urinary incontinence when nulliparous, who had pelvic surgery in the past, or on medication which would alter urinary continence were excluded from the study. At 95% significance level, assuming 16.6% of prevalence of urinary incontinence and assuming a 10% non-response rate, the final sample size was 234 [12].

UI occurring with manoeuvres causing increased intra-abdominal pressure was considered as stress urinary incontinence. Inability to control the desire to pass urine was considered urge UI and those with symptoms suggestive of both were considered as having mixed UI [13]. UI with an onset within 3 months after delivery was considered PPUI.

Systematic random sampling was used to select participants and an interviewer- administered questionnaire was used for data collection. The questionnaire was based on the validated International Consultation on Incontinence Questionnaire Female Lower Urinary Tract Symptoms Modules ICIQ-FLUTS long format questionnaire [14]. In addition to the questions given in ICIQ-FLUTS long format, we asked questions to detect the presence of known risk factors for PPUI. Data were analysed using SPSS software version 26.0. Chi square test and Fishers exact test were used for data analysis. Significance was taken as $p < 0.05$.

Results

The total study sample was 234 postpartum women and the mean age was 29.16 years \pm 5.5 SD (range:18 – 46 years). Only five were over 40 years old. The Mean BMI was 27.3 (SD = 5). Majority (67%, N=156) were overweight or obese according to the WHO recommended cut off point of 23 kg/m² [15]. Approximately 46.6% (109/234) were primiparous, 33.3% (78/234) had 2 pregnancies and 20.1% (47/234) had 3 or more pregnancies.

In our study sample of 234 postpartum women, 18 reported that they had transient UI during pregnancy which resolved spontaneously before delivery (7.7%). A minority (N=20, 8.6%) reported that they had UI after the current delivery. Of these, 12 stated that UI developed after delivery while one had UI which began during the current pregnancy and worsened after delivery. The remaining 7 had UI during or before the current pregnancy which persisted but did not worsen after delivery. Therefore, 5.6% (13/234) of the population reported either de novo or worsening UI after delivery of the 13 women who developed PPUI the majority of 9 (69.2%) had mixed UI. Three (23.1%) had urge UI and one (7.7%) had stress UI (Table 1).

Table 1. Frequency of different types of incontinence in our study population

Type of incontinence	Frequency (%)
Mixed urinary incontinence	9 (69.2)
Urge urinary incontinence	3 (23.1)
Stress urinary incontinence	1 (7.7)
Total	13 (100)

Table 2. Mean inconvenience rating (on a scale of 1 - 10) of women with different types of PPUI

Type of UI	Mean Inconvenience rating	Range
Stress UI	8	
Urge UI	5	0 - 9 (SD 4.58)
Mixed UI	4.7	3 - 7.5 (SD 2.13)

Table 3. Frequency of known risk factors for urinary incontinence in our study population

Risk factor	Frequency	Significance
Presence of chronic respiratory diseases	13	P=0.02 (Fischer's exact test)
Age >35 years	34	P=0.698
BMI > 25 (overweight or higher)	156	P=0.315
Multiparity	125	P= 1.000
LSCS	76	P=0.232
Episiotomy done	154	P= 0.228
Birth weight > 3kg	105	P=1.000
Duration of breast feeding >10 weeks	83	P=0.775
Antepartum urinary incontinence	38	P=0.698
Diabetes	25	P=0.371

Table 4. Comparison of prevalence of stress, urge and mixed urinary incontinence in our study compared with similar studies Dolan et al (2004) 16 and Glazener et al. (2006) 3

Study	Type of UI	Prevalence
Dolan et al. ¹⁶	Mixed	55.3%
	Stress UI	36.8%
	Urge UI	7.9%
Glazener et al. ³	Mixed	30%
	Stress	48%
	Urge UI	23%
Our Study	Mixed UI	69.2%
	Urge UI	23.1%
	Stress UI	7.7%

The prevalence of different types of PPUI was as follows: Stress UI – 0.4% (95% CI 0.01% - 2.4%?), Urge UI 1.3% (95% CI 0.3% – 3.7%), Mixed UI – 3.8% (95% CI 1.8%-7.2%).

The ICIQ-FLUTS (long form) questionnaire quantifies the impact of PPUI on quality of life experienced by persons experiencing UI, on a scale of 1 to 10 (10 indicating most

severe impact). Of the 13 women who developed PPUI, those who had mixed UI, reported an average inconvenience score of 4.7 (SD 2.13), ranging from 3-7.5. The 3 women who had urge incontinence reported an average inconvenience score of 5, (SD 4.58) ranging from 0 to 9. The person who had stress incontinence reported a score of 8. (Table 2)

The known risk factors present in this study sample were age >35 years, BMI > 23, multiparity, current delivery by LSCS, episiotomy, birth weight of baby > 3kg, duration of breast feeding >10 weeks, antepartum urinary incontinence, and diabetes. Of these, only the presence of chronic respiratory symptoms showed an association with higher prevalence of PPUI (p=0.028) (Table 3).

Discussion

The overall prevalence of PPUI in our study was 13/234 (5.6%) (95% CI 3.0% - 9.3%). While the prevalence of PPUI has not been reported previously in Sri Lanka, studies have been done in Western countries with the percentage of PPUI varying widely. A systematic review of several such studies showed that pooled estimates for the prevalence of UI in the 3 month postpartum period ranged from 10.3 % to 37.5 % and had an average of 26.2 % (95% CI 25.3 - 27.8%) [9]. Since this mean includes studies with significant variation, an analysis of a homogeneous subset of the studies was also carried out. In this subset, the mean was higher (33.3%) (95% CI 31.5 - 36.3) [9]. Both means are higher than the percentage of women reporting UI in the postpartum period in our study (5.6%).

While data on PPUI in Sri Lankan women is not available, prevalence of UI in the general population of women has been reported in several studies. According to Pathiraja et al, the prevalence of UI in Sri Lankan women aged 18-90 years was 55.5% [16]. In our study of postpartum women, only 5.6% (13/234) (95% CI 3.0% - 9.3%) had new or worsening UI (PPUI) after delivery. This may be attributable to differences in study population as prevalence of UI increases with age [12]. In young people pelvic floor muscle and sphincter weakness may get compensated and urinary incontinence may not be evident. As the woman gets older, pelvic floor muscles and sphincter becomes weak as part of the ageing process and the incontinence may become apparent.

In another study by Hemachandra et al among 1718 women aged 15-49 the prevalence of stress UI was 9.8% with only 0.3% urge UI [12]. In our study, the percentage for stress UI was 7.7% which is comparable. However, our percentage of urge UI was much higher (23.1%) suggesting that delivery may have had a significant effect on urge UI. Although traditional teaching implies pregnancy and vaginal delivery leads to stress UI, the reported prevalence of stress UI at 3

months postpartum varies widely, ranging from 3.9 to 31.3% [9]. Prevalence of urge UI reported in the same systematic review was lower but ranges from 0.8 to 14.8%. While many studies do not identify “mixed UI” as a separate category the studies which did so, reported that the prevalence of mixed UI in the postpartum period was between 30% and 55.3% [3,17]. The distribution of different types of UI as reported in these studies is given in Table 4.

Our study revealed a significant association between the occurrence of PPUI and presence of respiratory diseases causing a chronic cough (a cough lasting longer than 8 weeks) such as asthma, allergic rhinitis, or postnasal drip (p=0.028) [18]. Association between UI and chronic respiratory symptoms has been made among women in Sri Lanka and in a Turkish study among pregnant women [19,20]. However, neither of these studies involved women in the postpartum period. Our study failed to show a significant association between vaginal delivery and PPUI. Therefore, caesarean section may not have an added advantage over vaginal delivery in preventing PPUI. However, this should be interpreted with caution as our study sample was small, had a low overall prevalence of urinary incontinence and follow up was short.

In conclusion, the prevalence of PPUI in our cohort of Sri Lankan women was 5.6%. Mixed UI was the commonest type of incontinence. Presence of chronic respiratory diseases was the only associated factor for increased occurrence of PPUI. Other known risk factors including vaginal delivery did not appear to be associated with PPUI when assessed within three months of delivery of the baby.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

References

1. Nitti VW. The Prevalence of Urinary Incontinence. *Rev Urol* 2001; 3: S2–S6. PMID: 16985992
2. Goonewardene M, Kumara DMA, Arachchi DR, Vithanage R, Wijeweera R. The rising trend in caesarean section rates: should we and can we reduce it? *Sri Lanka J Obstet Gynaecol* 2012; 34: 11–18. doi:10.4038/sljog.v34i1.4816
3. Glazener C, Herbison G, MacArthur C, Lancashire R, McGee MA, Grant AM, Wilson PD. New postnatal urinary incontinence: obstetric and other risk factors in primiparae. *BJOG Int J Obstet Gynaecol* 2006; 113: 208–217. doi: 10.1111/j.1471-0528.2005.00840.x
4. Sangsawang B, Sangsawang N. Stress urinary incontinence in pregnant women: a review of prevalence, pathophysiology, and treatment. *Int Urogynecology J* 2013; 24: 901–912. doi:10.1007/s00192-013-2061-7

5. Ashton-Miller JA, Delancey JOL. On the biomechanics of vaginal birth and common sequelae. *Annu Rev Biomed Eng* 2009; 11: 163–176.
doi:10.1146/annurev-bioeng-061008-124823
6. Fultz NH, Herzog AR. Self-reported social and emotional impact of urinary incontinence. *J Am Geriatr Soc* 2001; 49: 892–899.
doi: 10.1046/j.1532-5415.2001.49179.x
7. Leroy L da S, Lúcio A, Lopes MHB de M. Risk factors for postpartum urinary incontinence. *Rev Esc Enferm USP* 2016; 50: 200–207.
doi:10.1590/S0080-623420160000200004
8. Burgio KL, Zyczynski H, Locher JL, Richter HE, Redden DT, Wright KC. Urinary Incontinence in the 12-Month Postpartum Period. *Obstet Gynecol Surv* 2013; 68: 629–630.
doi:10.1016/j.obstetgynecol.2003.09.013
9. Thom DH, Rortveit G. Prevalence of postpartum urinary incontinence: a systematic review. *Acta Obstet Gynecol Scand* 2010; 89: 1511–1522.
doi: 10.3109/00016349.2010.526188
10. MacArthur C, Wilson D, Herbison P, Lancashire RJ, Hagen S, Toozs-Hobson P, Dean N, Glazener C. Urinary incontinence persisting after childbirth: extent, delivery history, and effects in a 12-year longitudinal cohort study. *BJOG Int J Obstet Gynaecol* 2016; 123: 1022–1029.
doi: 10.1111/1471-0528.13395
11. Boyle R, Hay-Smith EJC, Cody JD, Mørkved S. Pelvic floor muscle training for prevention and treatment of urinary and fecal incontinence in antenatal and postnatal women: a short version Cochrane review. *Neurourol Urodyn* 2014; 33: 269–276.
doi: 10.1002/14651858.CD007471.pub2
12. Hemachandra NN, Rajapaksa LC, Manderson L. A “usual occurrence:” Stress incontinence among reproductive aged women in Sri Lanka. *Soc Sci Med* 2009; 69: 1395–1401.
doi: 10.1016/j.socscimed.2009.08.019
13. Vasavada SP, Urinary Incontinence Clinical Presentation. Medscape Reference. [Internet] 12 July 2021. [Cited 24 March 2022] Available from:
<https://emedicine.medscape.com/article/452289-clinical#>
14. Female Lower Urinary Tract Symptoms Long Form Module ICIQ-FLUTS-long-form.pdf [internet]. International Consultation on Incontinence Questionnaire 08/04; [cited 18 July, 2020]. Available from:
<http://www.adha.org/https://iciq.net/iciq-fluts-lf>
15. WHO Expert Consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *Lancet*. 2004 Jan 10;363(9403):157-63.
doi: 10.1016/S0140-6736(03)15268-3. Erratum in: *Lancet*. 2004 Mar 13;363(9412):902. PMID: 14726171.
16. Pathiraja R, Prathapan S, Goonawardena S. Urinary Incontinence of Women in a Nationwide Study in Sri Lanka: Prevalence and Risk Factors. *Urol J* 2017; 14: 3075–3080. doi:
<https://doi.org/10.22037/uj.v14i3.3747>
17. Dolan LM, Walsh D, Hamilton S, Marshall K, Thompson K, Ashe RG. A study of quality of life in primigravidae with urinary incontinence. *Int Urogynecol J Pelvic Floor Dysfunct* 2004; 15: 160–164. doi: 10.1007/s00192-004-1128-x
18. Morice AH, Millqvist E, Bieksiene K, et al. ERS guidelines on the diagnosis and treatment of chronic cough in adults and children. *European Respiratory Journal*; 55. Epub ahead of print 1 January 2020. doi: 10.1183/13993003.01136-2019.
19. Perera J, Kirthinanda DS, Wijeratne S, Wickramarachchi TK. Descriptive cross sectional study on prevalence, perceptions, predisposing factors and health seeking behaviour of women with stress urinary incontinence. *BMC Womens Health* 2014; 14: 78. doi: <https://doi.org/10.1186/1472-6874-14-78>
20. Erbil N, Tas N, Uysal M, Kesgin A, Kilicarslan N, Gokkaya U. Urinary incontinence among pregnant Turkish women. *Pak J Med Sci* 2011; 27: 586–590.