

Postpartum urinary incontinence of nulliparous women

A prospective cohort study

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Abstract

Postpartum urinary incontinence affects women's quality of life. It is associated with different risk factors during pregnancy and childbirth. We evaluated the persistence of postpartum urinary incontinence and associated risk factors among recently delivered nulliparous women with incontinence during pregnancy. This was a prospective cohort study, which followed up all nulliparous women recruited antenatally from 2012 to 2014 in Al-Ain Hospital, Al-Ain, United Arab Emirates, who developed urinary incontinence for the first time during pregnancy. Three months after giving birth they were interviewed face-to-face, using a structured and pre-tested questionnaire, and divided into 2 groups: those who had urinary incontinence and those without it. Risk factors were compared between the 2 groups. Of the 101 participants interviewed, postpartum urinary incontinence continued in 14 (13.7%) while 87 (86.3%) recovered from it. The comparative analysis did not show any statistically significant difference between the 2 groups for sociodemographic risk factors nor for antenatal risk factors. Childbirth-related risk factors were also not statistically significant. Recovery from incontinence during pregnancy in nulliparous women was over 85% as postpartum urinary incontinence affected only a small proportion at 3 months following delivery. Expectant management is advised instead of invasive interventions in these patients.

Abbreviation: UAE = United Arab Emirates.

Keywords: postpartum, risk factors, urinary incontinence

1. Introduction

Postpartum urinary incontinence is a common problem among women following childbirth. It is mostly stress incontinence with involuntary leakage of urine with increased intraabdominal pressure like coughing, laughing or exercising.^[1] This may be exacerbated by the need to care for the child after delivery. A systematic review has reported its prevalence to be around 33% in the first 3 months.^[1] It affects the quality of life^[2] and is a predictor of future urinary incontinence.^[3]

The persistence of urinary incontinence after delivery in those who develop urinary incontinence during pregnancy is not well studied which highlights the need for follow-up studies on this topic^[4] especially when it is considered as a risk factor for postpartum urinary incontinence.^[5] Antenatal risk factors, as well as childbirth mode and fetal weight, may be related to postpartum urinary incontinence.^[6–8] Persistence of urinary incontinence has been reported to be around 18% at 10 to 14 weeks post-delivery.^[9] The factors predicting the persistence of urinary incontinence after childbirth need to be identified which can be used for counseling, prediction and planning the management.

We aimed to study the risk factors for postpartum urinary incontinence among recently delivered nulliparous women who developed urinary incontinence during their first pregnancy in United Arab Emirates (UAE).

2. Patients and Methods

The Research and Ethics Committee of Al-Ain Medical District in UAE (CRD 82/10, 12/01/2012) gave approval for this study after ensuring that all necessary ethics and consent standards were met. All women with antenatal incontinence gave written informed consent to participate in the follow-up after delivery. Our study was reported according to the criteria of the STROBE checklist.^[10]

This was a prospective cohort study completing the follow-up of all nulliparous women recruited antenatally from 2012 to 2014 in Al-Ain Hospital, Al-Ain, UAE, reported in a previously published paper.^[11] The current study included all consecutive nulliparous women with urinary incontinence for the first time during pregnancy presenting to the hospital for childbirth and who were followed up for 3 months after discharge.

The authors have no conflicts of interest to disclose.

The datasets generated during and/or analyzed during the current study are not publicly available, but are available from the corresponding author on reasonable request.

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The questionnaire design was described in detail previously.^[11] To overcome the language barrier, both English and Arabic questionnaires were prepared. The questionnaires contained separate sections on sociodemographic history, medical history, and the characteristics of pregnancy, childbirth and 3 months postpartum. The questionnaire was piloted and revised accordingly. Special training was given to the interviewers about the questionnaire and the techniques of interviewing. We made sure that its items were simple and easy to answer by testing them in a pilot study on volunteers, which was conducted by our healthcare team. Our publications using this questionnaire demonstrates its usefulness.^[12–14] We did not perform urodynamic studies and depended on the responses of the questionnaire to define the nature of the incontinence. Basic characteristics captured in the questionnaire were age, occupation, education level, and smoking history. Characteristics during pregnancy were urinary tract infection, diabetes, chronic chest problems (cough), chronic constipation, and smoking. Data about pelvic floor muscles exercise and consultation by a physiotherapist during the pregnancy, labor type, duration of labor, and mode of delivery were collected. Post-delivery characteristics included urinary tract infection after the delivery and the child's birth weight.

The patients who were nulliparous pregnant women with urinary incontinence during pregnancy were divided into 2 groups depending on the postpartum urinary incontinence status at 3 months. The 2 groups were compared using Fisher exact test for categorical data and Mann–Whitney *U* test for continuous data with a significance threshold $P < .05$. Data were analyzed using the Statistical Package for Social Sciences (IBM-SPSS version 26, Chicago, IL).

3. Results

All 101 patients were nulliparous pregnant women with urinary incontinence during pregnancy. Table 1 shows the demography of the patients. Urinary incontinence was persistent in the postpartum period only in 14/101 (13.8%) patients. The majority of the subjects were between the ages of 20 to 30 years old (77.2%), were housewives (53.4%), highly educated (58.4%), and nonsmokers (99%).

Majority of the patients had stress incontinence. 13/14 (93%) of mothers with incontinence after childbirth leaked urine on coughing and other situations with increased intraabdominal pressure.

Table 1

Socio-demographic characteristics of participants in the study of postpartum urinary incontinence among a cohort of nulliparous women with incontinence during pregnancy.

	Characteristics	N = 101	%
Age (yr)	<20	5	4.9
	20–30	78	77.2
	30–40	18	17.8
Occupation	Housewife	54	53.4
	Working	32	31.6
	Other	15	14.8
Level of education	Illiterate	0	0
	Elementary	11	10.8
	High school	31	30.6
	University/Higher education	59	58.4
Smoker	Yes	1	0.9
	No	100	99.1

Table 2

Comparison of the demography of the patients who persisted to have urinary incontinence after 3 months of follow-up and those who did not.

Risk factor	Postpartum urinary incontinence		P value
	Yes (n = 14)	No (n = 87)	
Age	<20	5 (5.7%)	.66
	20–30	66 (75.9%)	
	30–40	16 (18.4%)	
Level of education	Illiterate	0 (0%)	.69
	Elementary	9 (10.3%)	
	High school	28 (32.2%)	
	University/Higher Education	50 (57.5%)	
Occupation	Housewife	46 (52.9%)	1.0
	Working	28 (32.2%)	
	Other	13 (14.9%)	
How often do you leak	About once a week or less often	52 (59.7%)	.54
	Two or 3 times a week	19 (21.8%)	
	About once a day	7 (8%)	
	Several times a day	6 (6.9%)	
	All the time	3 (3.4%)	

Table 2 compares the demography of the continent and incontinent groups. There was no statistical difference between the 2 groups. Table 3 compares the risk factors between the 2 groups. There was no statistical significance between any of the studied risk factors. Mothers with persistent postpartum urinary incontinence had vaginal/normal delivery in 10/14 (71.4%) compared with 62/87 (71.2%) which was not significant, $P = .71$. One of the most striking findings of our study was the insignificant number of patients who received pamphlets for physiotherapy (4%) or had pelvic floor muscles exercise (3%). Other characteristics like smoking history, education level, chronic chest problem, chronic constipation, duration of labor and birth weight at the time of delivery did not have any statistically significant difference.

4. Discussion

Our study has shown that postpartum urinary incontinence affected only a small proportion (13.9%) at 3 months following delivery in the UAE. Despite thoroughly studying potential predictors, we did not find any trend for statistically significant risk factors. This indicates that most nulliparous pregnant women

who develop urinary incontinence during pregnancy recover without any intervention.

There is concern that urinary incontinence may be under-reported in several regions of the world, moreover, incontinence symptoms may be considered normal after childbirth. Thus, our study has demonstrated that there was a high level of recovery from incontinence during pregnancy in nulliparous women. One of the strengths of our study is that we comprehensively evaluated all nulliparous women with incontinence during pregnancy over 2 years in a well-defined population. Thus, it uniquely provides the opportunity to study the natural history of disease in women who were previously continent.

Postpartum urinary incontinence affects around a third of women.^[1] A systematic review showed that only 50% of the included studies had deployed questionnaires.^[1] The reported rates vary depending upon the study design, clinical settings, definition and type of urinary incontinence, and sample size.^[1] With respect to types, urge and stress as well as mixed incontinence are well-known.^[15] The previous systematic review included a mixture of populations in some studies excluding those who delivered by cesarean section.^[1] Our study is one of

Table 3
Comparison of the risk factors for urinary incontinence for the patients who persisted to have urinary incontinence after 3 months of follow-up and those who did not.

Risk factor	Postpartum urinary incontinence		P value
	Yes (n = 14)	No (n = 87)	
Urinary tract infection during pregnancy			
Yes	5 (35.7%)	43 (49.4%)	.25
No	9 (42.3%)	44 (50.5%)	
Chronic cough during pregnancy			
Yes	4 (28.6%)	26 (29.9%)	.59
No	10 (71.4%)	61 (70.1%)	
Chronic constipation during pregnancy			
Yes	6 (42.9%)	31 (35.6%)	.40
No	8 (57.1%)	56 (64.4%)	
Diabetes during pregnancy			
Yes	2 (14.3%)	18 (20.7%)	.44
No	12 (85.7%)	69 (79.3%)	
Smoking			
Yes	0 (0%)	1 (1.1%)	.86
No	14 (100%)	86 (98.9%)	
Type of labor onset			
Spontaneous labor	9 (81.8%)	52 (73.2%)	.42
Induced labor	2 (18.2%)	19 (26.8%)	
Mode of delivery			
Normal delivery	10 (71.4%)	62 (71.3%)	.71
Vacuum	0 (0%)	3 (3.4%)	
Elective cesarean section	1 (7.1%)	11 (12.6%)	
Cesarean section	3 (21.4%)	11 (12.6%)	
Were given pelvic floor exercise leaflet			
Yes	1 (7.1%)	3 (3.4%)	.45
No	13 (92.9%)	84 (96.6%)	
Pelvic floor muscle exercises after delivery			
Yes	0 (0%)	3 (3.4%)	.63
No	14 (100%)	84 (96.6%)	
Urinary tract infection after delivery			
Yes	2 (14.3%)	5 (5.7%)	.24
No	12 (85.7%)	82 (94.3%)	
Duration of second stage			
<1 h	10 (90.9%)	67 (97.1%)	.15
1–2 h	0 (0%)	2 (2.9%)	
2–3 h	1 (9.1%)	0 (0%)	
Birthweight			
<4 kg	13 (92.9%)	86 (98.9%)	.25
≥4 kg	1 (7.1%)	1 (1.1%)	

*Numbers may not add to the total number because of missing data. Percentages are calculated from available data.
P value calculated using 2-sided exact test; significant at < .05 level.

the few that give data on the persistence of urinary incontinence after childbirth, regardless of the mode of delivery, in a cohort of women who had no symptoms in the pre-pregnancy period. A previous study on this topic, which was published 25 years ago, did not use questionnaires.^[9] This is important because embarrassment, social stigma or lack of awareness can affect treatment-seeking behavior.^[16] Reported risk factors of urinary incontinence after childbirth include high body mass index before pregnancy, urinary incontinence during pregnancy, normal delivery, abortion history, higher newborn weight and longer duration in the second stage of labor.^[5–7] Factors like higher gestational age at birth, constipation, smoking and race are also possibly associated with postpartum urinary incontinence but none was significant in our study.

5. Limitations of the study

Our study has certain limitations. First, our sample size is small which may cause negative results due to lack of power. Nevertheless, we think that a relationship between the factors studied and incontinence is unlikely because the p values were high and there was not any trend for significance. Second, our follow-up was short (3 months). Despite that 86% of the patients recovered strongly supporting the recommendation of conservative management in this condition. It is possible that the recovery will be higher if the patients were followed up for more time. Third, we have studied patients in only 1 hospital which may affect the generalizability of our findings. Fourth, we used a questionnaire, which is not a clinical examination, to collect the data. Questionnaires are limited by recall bias or the patients may feel shy, underreporting or ignoring their symptoms as minor complaints. Finally, we have to acknowledge that our study was done approximately a decade ago. Despite that, we think that would not have affected the outcome of our study. We think that these findings are worth reporting because they address a current problem affecting the quality of life of women after childbirth.

6. Conclusions

Recovery from incontinence during pregnancy in nulliparous women was over 85% as postpartum urinary incontinence affected only a small proportion at 3 months following delivery. Expectant management is advised instead of invasive interventions in these patients.

Author contributions

Conceptualization: Hassan Elbiss.

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Methodology: Hassan Elbiss.

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