Original article

Prevalence of postpartum urinary symptoms among patients in Omdurman Maternity Hospital, Khartoum State, Sudan

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Abstract

A cross-sectional descriptive hospital-based study was conducted at Omdurman Maternity Hospital from January to June 2018 to evaluate the prevalence of urinary symptoms in the postpartum period, where 384 women were included. The most common urinary symptoms were frequency 31%, followed by dysuria 29.7%, feeling incomplete emptying 26.3%, hematuria 21.1% and stress incontinence 19.3%. The majority of patients, 69.8% were delivered by vaginal delivery, 14.3% by elective cesarean section, 12% by emergency cesarean section and 3.9% by instrumental delivery (ventouse and forceps). A significant association was illustrated between the mode of delivery and the emerge of postpartum urinary symptoms. Frequency and terminal dribble were more associated with normal vaginal delivery, frequency and feeling of incomplete emptying associated with elective cesarean section, urine retention and burning micturition were found to be associated with emergency cesarean section. Hematuria was found common in women delivered via an instrumental mode of delivery.

Keywords: Prevalence, urinary symptoms, postpartum.

Introduction

Normal vaginal delivery (NVD) can cause damage to various pelvic organs and structures; including the pudendal nerve, the inferior aspects of the levatorani muscle and facial pelvic organ supports and many others. While various causes for such damage have been defined. It is much less clear, however, whether such traumata are clinically relevant, and how important they are in the etiology of pelvic floor morbidity later in life. Furthermore, vaginal delivery may stretch and/or load the pelvic floor tissue beyond the physiological range and leading to irreversible changes in tissue properties, elasticity and tonicity which play an important role in the urethral support and continence mechanism [1].

Nearly one third of women experience some sort of urinary incontinence following their first child birth. Following the first delivery, women who had delivered vaginally have two-fold more risk of developing incontinence compared to those who had delivered via cesarean section. However, this protective trait of cesarean deliveries on urinary incontinence found to be less evident with age and is not present in older women [2].

Till present, postpartum urinary symptoms causes, pathophysiology and their precise etiology remains uncertain; partly because of its probable multifactorial origin along

with the current controversies on whether the etiology of lower urinary tract symptoms during pregnancy is the same as postpartum and whether the mode, methods and conditions of delivery could influence the risk of developing urinary symptoms [3].

Pudendal nerve and pelvic floor damage caused by childbirth leads to progressive changes in these structures, resulting in altered function. In addition, mechanical trauma to the pelvic floor musculatureendo-pelvic fascia and ligaments are well documented consequences of vaginal delivery, prolonged second stage, large babies and instrumental deliveries cause the most damage [4]. In addition , urinary symptoms are strongly correlated to number of childbirths, maternal age and maternal pre-existing urinary tract conditions, vaginal forceps deliveries, vacuum deliveries, cesarean deliveries, tocolysis, induction of labor, maternal renal disease, preeclampsia, eclampsia, epidural anesthesia, bladder catheterization, length of hospital stay, and previous urinary tract infection (UTI) during pregnancy [5]. Chronic medical conditions, such as obesity, smoking, chronic obstructive pulmonary disease, collagen diseases, raised intra-abdominal pressure (Ascites, masses) and constipation may also contribute to the rise in frequency of urinary symptoms following childbirth. With current evidences implying that pregnancy itself increases the prevalence of UTI and urinary tract symptoms (due to the impact of mechanical compression on the pelvic floor, pelvic floor and pelvic organ laxity) and the possible intra operative complications, cesarean section cannot guarantee complete protection against injury to the pelvic floor [6]. Furthermore, the high prevalence of epidural analgesia and cesarean delivery in modern obstetrics resulted in proportional increased risk of postpartum urinary retention.

Symptoms are the subjective indicator of a disease or change in condition as perceived by the patients or caregivers leading the patients to seek help from health care professionals. Symptoms may either be volunteered or described during the patient interview. They are usually qualitative. In general, lower urinary tract symptoms cannot be used to make a definitive diagnosis. Lower urinary tract symptoms can also indicate pathologies other than lower urinary tract dysfunction, such as urinary infection [10].

This study was conducted to determine the prevalence of urinary symptoms in the postpartum period in Omdurman Maternity Hospital from January to June 2018.

Materials and methods

A cross-sectional descriptive hospital-based study was conducted at Omdurman Maternity Hospital in Khartoum State, Sudan, from January to June 2018 to evaluate the prevalence of urinary symptoms

in the postpartum period. The study included 384 women. Upon their acceptance and consent approval, the population of this study included all women who attended the hospital in the first six weeks postpartum with clinical remarks that directly or indirectly appeal for urinary tract involvement. With the approach of simple random sampling, the study has a sample size of 384 women with study variables illustrated as demographic variables, adverse effects variables and satisfaction variables. Interviewer-based questionnaires were used as a collection tool, following approved consent and clear explanation of the purpose of the study to all patients. Participants were identified through serial numbers. Statistical Package for the Social Sciences (SPSS) ® version 22 was used for data entry and statistical analysis. Means of heart rate and blood pressure at different intervals were calculated and compared using a t-test between the two groups of the study. $P < 0.05$ is considered statistically significant (Confidence Interval: CI 95%). Ethical clearance was obtained from the ethical and research committee of the Sudanese Medical Specialization Board. All patients included within the study have agreed to participate after being counseled about the research and the preservation of providence of standard medical and health care in case of refusal to participate in the study.

Results and discussion

This study showed that the most common urinary symptoms were frequency 31%, followed by dysuria 29.7% (Table 1). Likewise, most of the participants, 29.2% aged between 20-30 years (Fig 1). A previous study showed that the mean age of the included primiparous women was relatively high, with 32.7 years reflecting the development in their society that the age among academic primiparous women increases [1]. Age is significantly found to affect the prevalence of frequency and urgency, the likelihood increased most for the oldest women. Aging had been found to bring about weakening of the levatorani and coccygeus muscles comprising the pelvic floor, also reducing bladder capacity, favoring a tendency toward urge incontinence [11]. This agreed with the results that stress urinary incontinence (SUI) and urgency urinary incontinence (UUI) increase with maternal age, and with high parity [12].

The majority of the participants in this study were housewives, 83.3% while 7.8% were workers. Regarding the educational level; 36.5% had secondary school level, but occupation and educational level were found to have no effect on the prevalence of postpartum urinary symptoms.

Majority of the participants, 69.8% were found delivered by vaginal delivery, 14.3% by elective cesarean section, 12% by emergency cesarean section and 3.9% by

instrumental delivery (ventouse and forceps). Significant association found between mode of delivery and urinary symptoms, where frequency and terminal dribble associated with NVD than others modes, frequency and feeling of incomplete emptying associated with elective cesarean section, urine retention and dysuria associated with emergency cesarean section and hematuria found common in women delivered by instrumental mode of delivery (Table 2).

Table 1. Urinary symptoms according to the participants answers

Symptoms	Yes		No	
	No.	%	No.	%
Stress incontinence	74	19.3	310	80.7
Urgency	45	11.7	339	88.3
Frequency	119	31.0	265	69.0
Dysuria	114	29.7	270	70.3
Nocturia	39	10.2	345	89.8
Haematuria	81	21.1	303	78.9
Urine retention	39	10.2	345	89.8
Poor stream	24	6.3	360	93.8
Hesitancy	27	7.0	357	93.0
Intermittent stream	59	15.4	325	84.6
Straining	41	10.7	343	89.3
Terminal dribble	45	11.7	339	88.3
Feeling of incomplete empting	101	26.3	283	73.7

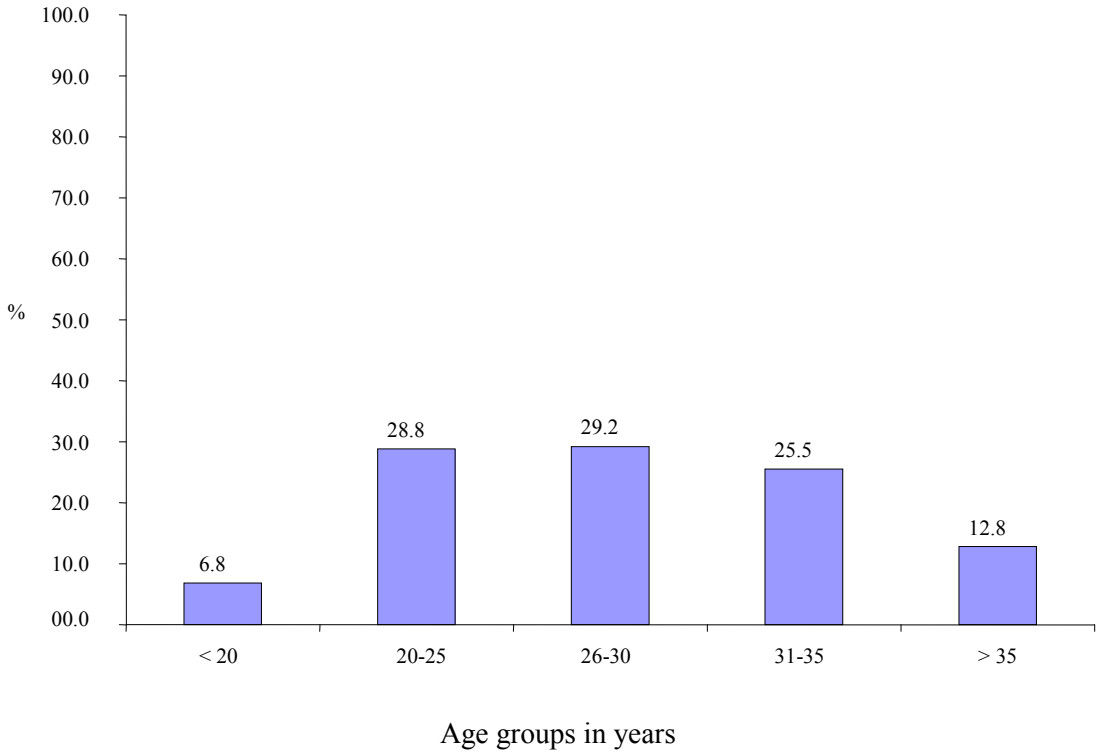


Figure 1. Distribution of the participants according to their ages

It has been found that instrumental and vaginal delivery has been implicated as a major risk factor for postpartum urinary symptoms as it is thought that trauma to the pelvic floor either from nerve damage or weakening of the supportive structures leads to SUI [13]. In this study, even in women who underwent cesarean section postpartum, urinary symptoms were found in women who underwent emergency cesarean section and to a lesser extent in the elective cesarean section group, most of them did not undergo the second stage of labor so that the majority of damage to the pelvic floor occurs as the fetal head rests and is pushed against the pelvic floor. This small proportion of women who have urinary symptoms despite not entering the second stage of labor suggests that damage occurs earlier in labor or that pregnancy itself leads to these symptoms. This may explain why caesarean section has not always been shown to be protective against reducing risk of postpartum urinary symptoms [14]. This agreed with previous results that spontaneous vaginal delivery or vacuum extraction increases the risk of developing SUI [1,15]. Moreover, it has found that operative vaginal delivery greatly affects the prevalence of SUI and UUI [16]. Previously it has found that frequency, urgency, urge and stress urinary incontinence increased in vaginal and instrumental vaginal deliveries [17]; in addition, urgency and UUI were found significantly more prevalent in those delivered vaginally [18]. Likewise, a significant correlation between dysuria, frequency and operative vaginal deliveries was found [19] .

Table 2. Urinary symptoms in relation to the delivery mode among the participants

Symptoms	**Mode of delivery**				
	VD	**EL/CS**	**EM/CS**	**Instrumental**	***P* value**
Stress incontinence	9	1	4	5	0.041
Urgency	11	2	0	0	0.019
Frequency	53	12	0	0	0.011
Dysuria	34	15	29	0	0.018
Nocturia	10	1	0	0	0.023
Haematuria	9	0	0	10	0.019
Urine retention	12	0	17	0	0.034
Poor stream	5	2	0	0	0.039
Hesitancy	4	0	0	0	0.044
Intermittent stream	13	1	0	0	0.022
Straining	22	2	0	0	0.016
Terminal dribble	36	3	0	0	0.017
Feeling of incomplete empting	50	16	0	0	0.021
Total	268	55	46	15	

VD: vaginal delivery; EL/CS: elective cesarean section; EM/CS: emergency cesarean section

In conclusion, significant associations were found between mode of delivery and urinary symptoms, where frequency and terminal dribble associated with NVD than others modes, frequency and feeling of incomplete empting associated with elective cesarean section, urine retention and dysuria associated with emergency cesarean section and hematuria found common in women delivered by instrumental mode of delivery. High parity, increased birth weight, postdate deliveries, instrumental deliveries and presence of episiotomy and other complications (tears, PPH and infected episiotomy) were found to increase the risk of developing postpartum urinary symptoms.

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