

IS THERE AN EFFECT OF THE DELIVERY METHOD IN DEVELOPING FEMALE URINARY INCONTINENCE AND LOWER URINARY TRACT SYMPTOMS (LUTS)? A QUESTIONNAIRE - BASED SURVEY.

Hypothesis / aims of study

Urinary incontinence and Lower Urinary Tract Symptoms (LUTS) are common disorders among women during pregnancy and occasionally remain postpartum. The postpartum appearance of these symptoms is believed to be influenced by the mode of delivery (1). However, there is a controversy in the scientific community and it is not well documented whether delivery with cesarean section has a protective role for the physiological function of the female lower urinary tract in comparison with vaginal delivery (2). The aim of this study was to record the prevalence and severity of LUTS and/or incontinence in parous women and investigate associations between the delivery method as well as other demographic and obstetric factors and the presence/severity of urinary incontinence/ LUTS.

Study design, materials and methods

In this questionnaire-based survey, data was obtained anonymously from randomly selected women (N=226) aged 20 - 45 years using an online and a printed version of the same study tool. Ninety - eight women responded randomly to the online version and 128 completed the printed version during their visit to their gynecologist either in a public teaching hospital or in a private office. Following ethical approval by the Hospital Board, Informed consent was sought by all who completed the printed version, while those who completed the online version were considered as automatic consenters.

The study tool comprised three standardized self-reported questionnaires, and was distributed from December 2016 until March 2017. The introductory part included questions on demographic and obstetric characteristics as long as medical history with possible risk factors thought to be associated with female LUTS /incontinence. The International Prostate Symptom Score (IPSS) was used to assess women's subjective perception regarding voiding (incomplete emptying, intermittency, weak stream, straining) and storage (frequency, urgency, nocturia) symptoms, based on its previous use in large epidemiological studies (3). The Urogenital Distress Inventory Short Form (UDI-6) - the third part of Pelvic Floor Disability Index (PFDI-20) - was selected to estimate Incontinence. Both IPSS and UDI-6 are officially translated in the national language and were used as so.

Overall, descriptive statistical analysis was performed for all study data per group. Continuous variables were summarized with the use of descriptive statistical measures [mean value, standard deviation (SD), first quartile (Q1), third quartile (Q3), median, min, max]. In order to examine the differences in distribution values of continuous and categorical variables between the groups of the study and at the results of IPSS and UDI-6 questionnaire, Wilcoxon test for independent samples and chi-square test was used, respectively.

All statistical tests were two - sided and were performed at a 0.05 significance level. The p - values were reported, even for non - significant results, rounded to 3 decimals. Analysis was performed with SAS® ver 9.3.

Results

The study population was divided into three subgroups according to the mode of delivery: 76 (45.23%) underwent spontaneous vaginal delivery, 67 (39.88%) underwent elective cesarean section and 25 (14.88%) have experienced both modes of delivery. There was also a sub-population who reported cesarean section performed for obstructed labor which was excluded. Other exclusion factors such as neurological and urinary disorders, cancer history, current pregnancy and nulliparity led to an overall 58 women being excluded from the study.

Thus, results were analyzed from a total of 168 women. Women were further categorized into four groups according to the number (0, 1, 2, 3 +) of their previous deliveries, with 44.04% (n=74) of them reporting 2 deliveries, and into five equally divided groups based on their age, ranging from 20 to 45 years; the most prevalent age group was 31 - 35 (26.9%). Concerning the time period since their last delivery, a 1 to 5 years time gap was observed for 42.3% of the population. The mean BMI of the sample was 25.3. IPSS scores were divided into mild symptoms (1 - 7) and moderate/severe symptoms (8-20+). UDI-6 scores were also dichotomized with a threshold of 30% impairment.

Univariate analysis showed that there is no significant difference between the major groups of vaginal-only and cesarean-only delivery with regard to the scores of IPSS and UDI-6 questionnaires. However, in the three group univariate analysis, a significant difference was observed between the groups concerning the UDI-6 score. More specifically, 32.0% of women with both types of deliveries were in the group of ">30% impaired", whereas in women with vaginal-only and cesarean-only deliveries the proportions were 17.1% and 10.4%, respectively (P=0.047). Table 1 correlates IPSS and UDI-6 results with mode of delivery.

Table 1

		VD	CS	BM	P-value
IPSS	Mild symptoms	59(77.6%)	53(79.1%)	22(88%)	0.527
	Moderate to severe symptoms	17(22.4%)	14(20.9%)	3(12%)	
UDI-6	≤ 30%	63(82.9%)	60(89.6%)	17(68%)	0.047
	> 30%	13(17.1%)	7(10.4%)	8(32%)	

VD=Vaginal Delivery, CS=Cesarean Section, BM=Both Modes

In further analysis by item:

UDI-6: women who underwent cesarean section only were found to have significantly lower frequency in losing small amounts of urine (13.4%, UDI-6 question 4) as opposed to women who underwent vaginal delivery (34.2%) and both modes of delivery (28%) (P=0.015). There were no differences between the study groups regarding the presence of stress (VD 31.6% vs CS 26.9% vs BM 36%, p=0.665) or urgency incontinence (VD 28.9% vs CS 23.9% vs BM 36%, p=0.499) in the UDI-6.

IPSS: the most frequent symptom presented in all groups was micturition frequency (70.7% of women with vaginal delivery, 65.7% with cesarean delivery and 68% of women with both modes - P=0.664).

Correlation between LUTS/ urinary incontinence and BMI/ age did not reach statistical significance.

Interpretation of results

In this study the type of delivery was not a predictive factor for developing LUTS. However, differences were detected in incontinence-related items, with higher UDI-6 scores noted in women who had undergone both delivery methods compared to those with vaginal-only or cesarean-only deliveries. In addition, women undergoing cesarean-only delivery reported less frequently loss of small amounts of urine compared to the other two groups, independent of etiology (stress or urgency incontinence).

Results need to be interpreted with caution, as the study was not prospectively designed with statistical calculation of an appropriate size sample.

Concluding message

In this cohort of younger parous women, cesarean section was found to decrease the risk of losing small amounts of urine, but not specifically stress or urgency incontinence, compared to vaginal delivery. Interestingly, women who had delivered with both cesarean and vaginal modes appeared to be at risk for developing higher scores in the incontinence study tool. No predictive factor was found in association with LUTS. Larger, prospectively designed studies are required.

References

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Disclosures

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