

# URINARY INCONTINENCE THREE MONTHS AFTER DELIVERY; PREVALENCE AND RISK FACTORS

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**ABSTRACT.....Objective:** The objective of this study was to investigate prevalence of urinary incontinence at 3 months postpartum and to study how continence status during pregnancy and different factors influence urinary incontinence at 3 months postpartum in primiparous women. **Setting:** Pregnant women attending routine antenatal clinic at Ziauddin hospital and Kharader general hospital Karachi were recruited to this study. **Methods:** Urinary incontinence before and during pregnancy was assessed at study enrolment early in the third trimester. Incontinence was re-assessed three months postpartum. Logistic regression analysis was used to assess the role of maternal and obstetric factors in causing postpartum urinary incontinence. **Results:** Urinary incontinence was reported in 15 women (10.6%) out of 141 women, mode of delivery, onset of labor weight of the baby, episiotomy, and the length of the second stage of labor, were not predictive of urinary incontinence after delivery. Adjusted RR for incontinence after spontaneous vaginal delivery compared with elective caesarean section was 2.200(95% CI .6-7.28) among women who were continent during pregnancy. **Conclusions:** Urinary incontinence was prevalent 3 months postpartum. The association between incontinence postpartum mode of delivery, onset of labor, perineal trauma and weight of baby was not statistically significant.

**Key words:** Urinary incontinence, postpartum, primiparity, pakistan.

## Article Citation

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## INTRODUCTION

Childbirth is a major precursor of urinary incontinence, anal incontinence and pelvic organ prolapse, compromising the quality of life for a large number of women of all ages throughout the world<sup>1</sup>.

Urinary incontinence is defined as the involuntary loss of urine that is objectively demonstrable and is a social or hygienic problem. Most cases can be categorized as either stress, urge, or mixed urinary incontinence. Stress incontinence, the loss of urine during physical activity is the most common type and is caused by a loss of anatomical support of the vesicourethral junction, deficiency of the urethral sphincter, or both. Urge incontinence is the loss of urine associated with a strong desire to void and is caused by over activity of smooth muscles in the bladder wall, a condition known as detrusor instability<sup>2</sup>. Common is stress incontinence which affects 86% of incontinent women either alone (50%) or in conjunction with urge incontinence(36%). It has been suggested that the cause of stress incontinence is attributable to loss of urethral mobility and abnormal sphincter function and,

also low urethral closure pressure is the factor most strongly associated with de novo stress urinary incontinence followed by altered vesical neck mobility<sup>3</sup>.

A series of risk factors seems to be involved in urinary incontinence postpartum and later in life, among which there is growing evidence for the impact of delivery mode<sup>4,5,6</sup>.

The study of prevalence and risk factors of urinary and fecal incontinence in women is very important to establish preventive strategies. There are different epidemiological studies showing wide variability in the results, probably related to the lack of uniform methodological criteria to evaluate urinary incontinence (UI). The women in this study consists of primigravidas who were continent before pregnancy, as this is the best available clinical model of a pelvis unexposed to known pregnancy related risk factors, and thereby it is the best population to assess the risk of urinary incontinence associated with pregnancy and delivery. Our objective was first, to investigate the

incidence and prevalence of urinary incontinence 3 months after delivery; second, to study how mode of delivery and other factors may interact with continence status in pregnancy to increase or reduce the risk of urinary incontinence 3 months postpartum<sup>6</sup>.

## METHODOLOGY

Data was taken from primigravidas delivering at Ziauddin hospital and Kharadar general hospital Karachi. Data are based on questionnaires answered during pregnancy and 3 months postpartum. Urinary incontinence before and during pregnancy was assessed at study enrolment early in the third trimester and three months after delivery. Incontinence was re-assessed three months postpartum. The questionnaire elicited information on the mode of delivery, onset of labor whether induced or not, duration of second stage of labor, perineal trauma during delivery and the weight of the baby. It also included questions on urinary incontinence whether stress, urge or mixed, on the frequency of symptom. The questionnaire was derived from the terminology of the International Continence Society (ICS)<sup>7</sup>.

The women were asked about current leakage. Incontinence was reported as occurring when coughing/laughing/sneezing, when running/jumping or if they had leakage accompanied by a strong urge to void. Frequency (never, one to four times per month, one to six times per week, once a day and more than once a day) and amount (droplets and larger volumes) were registered (never, less than once per week, 1–6 times a week, once a day, more than once a day) of involuntary loss of urine. Women confirming loss of urine in association with coughing, laughing, sneezing, running or jumping were defined as having a stress incontinence component. Women with urgency accompanying loss of urine were defined as having an urge incontinence component. Women who had symptoms of both components are referred to as having mixed urinary incontinence. Logistic regression analysis was used to assess the role of

maternal and obstetric factors in causing postpartum urinary incontinence.

Main outcome measures of Urinary incontinence 3 months postpartum was presented as proportions, odds ratios and relative risks (RRs) with 95% CI. P values less than 0.05 were considered statistically significant.

## RESULTS

A total of 141 primigravid women were included in this study. All women were continent before pregnancy. Mean age was 28 years (range 18–40 years), and mean BMI was 24.5 kg/m<sup>2</sup> (range 14–54 kg/m<sup>2</sup>).

Urinary incontinence was detected in 15(10.8 %) of women after delivery. Among them 62 had normal vaginal delivery, 19 had instrumental deliveries while 60 women had caesarean section. Induction of labor was done in 46% of patients, perineal trauma was reported in 57.4% of patients either in the form of episiotomy or injury involving anal sphincter. The duration of labor was under one hour in 52.5%, more than one hour in 18% of women.

The urinary characteristics of study population is shown in Table-I showing the type of incontinence stress, urge or mixed, frequency and amount of urinary incontinence three month after delivery. The table also shows dyspareunia and other sexual dysfunction among these women. Stress incontinence was the most common type of incontinence among women 3 months postpartum (n =8; 53.3%). Only 6.6% of woman had urinary leakage more than one per day and only one woman leaked larger amounts of urine.

No significant difference was detected in the mode of delivery whether women delivered by caesarean section or had vaginal delivery, in the onset of labour whether induced or not, perineal trauma and the baby's birth weight among women who were continent during

pregnancy and three months after delivery.

## DISCUSSION

This is a prospective study of 140 women highlighting the magnitude of the problem of urinary incontinence three months after delivery in primiparous women who were continent during pregnancy.

Incidence of urinary incontinence postpartum among primiparous women who were continent both before and during pregnancy varies from 5 to 21%<sup>6, 8 9</sup>. The frequency of urinary incontinence is low in our study as compared to the studies done in other countries, also only a fraction of the women reported frequent leakage of urine or leaking larger amounts.

A series of risk factors seems to be involved in urinary incontinence postpartum and later in life, among which there is growing evidence for the impact of delivery mode<sup>4,5,10</sup>. Onset of labour, perineal trauma and fetal weight.

The impact of delivery mode on the development of urinary incontinence has been much debated. It is uncertain whether women who deliver by cesarean section have an increased risk of urinary incontinence as compared with nulliparous women and whether women who deliver vaginally have an even higher risk.

Guri Rortveit<sup>11</sup> in EPINCONT study which involves a large number of women showed prevalence of 15.9 percent in the Cesarean-section group and 21.0 percent in the vaginal-delivery group. It has been said that the risk of urinary incontinence is higher among women who have had cesarean sections than among nulliparous women and is even higher among women who have had vaginal deliveries.

A prospective cohort study by Van Brumman<sup>12</sup> showed stress incontinence more prevalent in a group delivered vaginally than by caesarean section.

McKinnie V<sup>13</sup> in a study involving multicentre studied the prevalence of urinary and fecal incontinence after vaginal delivery and caesarean section and found an increase risk of developing UI following pregnancy but no difference in the development of urinary incontinence among vaginal and caesarean section group concluding that Cesarean section does not decrease the risk of urinary or fecal incontinence compared to pregnancy with a vaginal delivery.

A study done by Charlotte Chaliha<sup>16</sup> also showed, that elective caesarean section may protect against the development of urinary incontinence, but the risk of faecal incontinence and other urinary symptoms including urge incontinence may not be reduced.

Episiotomy was introduced in part to protect the pelvic floor and prevent urinary incontinence<sup>1</sup>.

But our and others' work<sup>8,24</sup> do not show a significant association between episiotomy and urinary incontinence.

Forceps delivery has sometimes been suggested to be responsible for stress incontinence. A study by Meyer<sup>16</sup> however found no significant difference in stress incontinence incidence between women with spontaneous delivery and forceps delivery.

A similar result was obtained by Foldspang et al<sup>17</sup>. Who were unable to demonstrate a significant relationship between stress urinary incontinence and forceps delivery in a large cohort of 4345 women.

Studies done by Wilson<sup>18</sup> and Farrell<sup>19</sup> also found no increased risk with forceps deliveries. Vacuum extraction also did not significantly increase risk. We could also not find any significant risk with these instrumental deliveries.

Allen has shown damage to the Pelvic floor during labor<sup>20</sup> and described neurophysiologic changes in

association with a long second stage and larger babies. However, in our study and studies done by others<sup>20,21,22</sup>. Found that birth weight and the length of the second stage did not contribute to postpartum urinary incontinence.

To our knowledge no study showing UI prevalence in Pakistani women has to date been reported and this is first of this kind seeing the affect of different factors on the postpartum incontinence. The study has several limitations. One limitation is small number of patients thus not truly showing the prevalence and influence of various risk factors on urinary incontinence in our

population. There is need to do study on large number of patients, also there is need to follow patients for longer duration.

### CONCLUSION

The study of prevalence and risk factors of urinary incontinence in women is very important to establish preventive strategies. The prevalence of urinary incontinence was 10.6% among the primigravida who were continent during pregnancy. Stress IC was more prevalent than urge incontinence. No significant risk factors were identified.

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| Urinary incontinence 3 months after delivery                     | n   | %    |
|--|-----|------|
| Yes  | 15  | 10.6 |
| No   | 126 | 89.4 |
| <b>Type of incontinence 3 months after delivery</b>              |     |      |
| Stress   | 8   | 53.3 |
| Urge   | 4   | 26.6 |
| Both   | 3   | 20   |
| <b>Frequency of Urinary incontinence 3 months after delivery</b> |     |      |
| Never  | 126 | 89.4 |
| 1-4 times/month  | 3   | 2.1  |
| 1-6 times /wk  | 11  | 7.8  |
| Once a day   | 1   | 0.7  |
| More than once a day   | 0   | 0    |
| <b>Amount of urinary incontinence 3 months after delivery</b>    |     |      |
| Dreplets   | 14  | 9.9  |
| Large amount   | 1   | 0.7  |
| None   | 126 | 89.4 |
| <b>Other problem (n=20)</b>                                      |     |      |
| Dysparunia   | 7   | 85.0 |
| Sexual Dysfunction   | 13  | 15.0 |
| <b>Medical consultant (n=20)</b>                                 |     |      |
| Yes  | 6   | 30   |
| No   | 14  | 70   |

Table-I. Urinary characteristics of study population

| Characteristic                      | Urinary Incontinence |       |     |       | Chi square test    |         |
|-------------------------------------|----------------------|-------|-----|-------|--------------------|---------|
|                                     | No                   |       | Yes |       | Statistic          | P-value |
| <b>Mod of delivery</b>              |                      |       |     |       | 1.733 <sup>a</sup> | 0.188   |
| LSCS                                | 56                   | 93.3% | 4   | 6.7%  |                    |         |
| SVD/VVD/FVD                         | 70                   | 86.4% | 11  | 13.6% |                    |         |
| <b>Onset of Labour</b>              |                      |       |     |       | 2.858 <sup>a</sup> | 0.091   |
| Not induced                         | 71                   | 84.6% | 5   | 15.4% |                    |         |
| Induced                             | 55                   | 93.4% | 10  | 6.6%  |                    |         |
| <b>Perineal Trauma</b>              |                      |       |     |       | 1.733 <sup>a</sup> | 0.188   |
| Intact                              | 56                   | 93.3% | 4   | 6.7%  |                    |         |
| Epiziotomy/ Anal Sphincter Involved | 70                   | 86.4% | 11  | 13.6% |                    |         |
| <b>Baby Weight</b>                  |                      |       |     |       | 1.733 <sup>a</sup> | 0.188   |
| >3.5                                | 9                    | 93.3% | 1   | 6.7%  |                    |         |
| <equal 3.5                          | 117                  | 86.4% | 14  | 13.6% |                    |         |

Table-II. Independent determinant of urinary incontinence

|                        | B    | S.E.  | Wald  | df | P-value | OR    | 95.% C.I |       |
|------------------------|------|-------|-------|----|---------|-------|----------|-------|
|                        |      |       |       |    |         |       | Lower    | Upper |
| <b>Mod of delivery</b> |      |       |       |    |         |       |          |       |
| LSCS                   |      |       |       |    |         | R     |          |       |
| SVD / VVD / FVD        | .788 | .611  | 1.666 | 1  | .197    | 2.200 | .665     | 7.283 |
| <b>Perineal Trauma</b> |      |       |       |    |         |       |          |       |
| Intact                 |      |       |       |    |         | R     |          |       |
| Episiotomy             | .788 | .611  | 1.666 | 1  | .197    | 2.200 | .665     | 7.283 |
| <b>Baby Weight</b>     |      |       |       |    |         |       |          |       |
| >3.5                   |      |       |       |    |         | R     |          |       |
| <equal 3.5             | .788 | 1.091 | .005  | 1  | .946    | 1.077 | .127     | 9.144 |
| <b>Onset of Labour</b> |      |       |       |    |         |       |          |       |
| Not Induced            |      |       |       |    |         | R     |          |       |
| Induced                | .948 | .576  | 2.708 | 1  | .100    | 2.582 | .834     | 7.991 |

OR; Odd Ratio, C I; Confidence Interval, ®; Reference group

Table-III. Univariate logistic regression analysis for the relationship between urinary incontinence 3 months after delivery and mod of delivery, perineal trauma, baby weight and onset of labour.

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*A consensus means that everyone agrees to say collectively what no one believes individually.*

*Abba Eban (1915-2002)*