

HOW DO INCONTINENCE STATUS IN PREGNANCY AND DELIVERY MODE AFFECT URINARY INCONTINENCE 6 MONTHS POST PARTUM?

Hypothesis / aims of study

Pregnancy per se seems to be an independent risk factor for urinary incontinence both during pregnancy and later in life. Only a few and small studies have investigated how continence status during pregnancy influences urinary incontinence post partum [1]. Several studies have compared urinary incontinence after cesarean section (cs) and vaginal delivery, but incidence and prevalence estimates vary widely. Some report a significant protection against urinary incontinence 6 months after cesarean section [2], some do not [3]. The aims of this study were first to estimate the incidence and prevalence of urinary incontinence 6 months post partum, secondly to investigate the association between urinary incontinence status in week 30 of pregnancy and urinary incontinence status 6 months after delivery. Thirdly, we also investigated how cesarean delivery and vaginal delivery influence prevalence of urinary incontinence 6 months post partum.

Study design, materials and methods

We defined a large cohort of primiparous women who were continent before pregnancy by means of data from the Norwegian Mother and Child Cohort Study, maintained by the Norwegian Institute of Public Health. We present questionnaire data about urinary incontinence gathered 6 months post partum, obtained from 12,679 primiparous women who were continent before pregnancy. The incontinence question was not answered by 186 (1.5%) women. Information about delivery mode and other delivery related data were collected from the Medical Birth Registry of Norway. For the present analyses, the study population was analyzed with respect to two different exposures; mode of delivery (vaginal delivery, non-elective cesarean section or elective cesarean section) and continence status in week 30 of pregnancy (urinary continent or urinary incontinent). Potential risk factors were investigated by logistic regression analyses. We adjusted for confounding factors; age and BMI. The following potential confounding factors did not actually confound the analyses in this material and were not adjusted for; child's head circumference, child's weight, child's gender, fetus position and any perineal rupture.

Results

Mean age was 27.6 years (range 14 – 44) and mean BMI was 24.1 (range 14.2 – 53.9). The number of continent and incontinent women in week 30 of pregnancy were 7,450 (58.8%) and 5,026 (39.6%), respectively. A total of 355 women (2.8%) had a planned elective cesarean section, 1,460 women (11.5%) had a non-elective cesarean section and 10,864 women (85.7%) had vaginal delivery. We found that 3,991 (31.5%) women had incontinence 6 months after delivery. The incidence of any urinary incontinence at this time point was 21 % (1,562 women). Stress incontinence was the most common type of incontinence; experienced by 1,728 women (13.5% of total, and 43.3% of those being incontinent) 6 months post partum. There was significantly more urinary incontinence 6 months after delivery among women who experienced urinary incontinence in week 30 of pregnancy compared with women who did not experience urinary incontinence in week 30 of pregnancy (Table 1). The adjusted OR was 3.5 (95% CI 3.2 - 3.8) for incontinence 6 months after delivery if the mother was urinary incontinent at week 30 of pregnancy. Prevalence of urinary incontinence 6 months post partum among women who underwent planned elective cesarean section, non-elective cesarean section or vaginal delivery was 12.1%, 16.3%, and 34.1%, respectively (Table 1). In unadjusted analyses, vaginal delivery in general was a strong and significant risk factor for incontinence 6 months post partum, both among continent women in week 30 of pregnancy (OR 3.3; 95% CI 2.7 – 4.2) and among incontinent women in week 30 of pregnancy (OR 2.7; 95% CI 2.3 – 3.2). The difference in ORs between these two groups was not significant (Breslow-Day test; $p = 0.15$). In adjusted analyses, ORs for incontinence after vaginal delivery among women who were continent and incontinent before pregnancy were 4.0 (95% CI 2.4 – 6.5) and 5.6 (95% CI 3.5 – 9.0), respectively (Table 2). This difference, however, cannot be tested by way of Breslow Days test since these are adjusted analyses.

Table 1. Prevalence of incontinence 6 months after delivery according to type of delivery and continence status in week 30 of pregnancy.

	All			Continent week 30				Incontinent week 30			
	Total	Incontinent		Total	Incontinent			Total	Incontinent		
	N	N	%	N	%	N	%	N	%	N	%
Elective cs	355	43	12	223	3	18	8	123	3	25	20
Non-elective cs	1,460	238	16	876	12	73	8	553	11	164	30
Vaginal delivery	10,864	3,710	34	6,351	85	1,471	23	4,350	86	2,232	51
Total	12,679	3,991	32	7,450	100	1,562	21	5,026	100	2,421	48

Table 2 ORs, adjusted for BMI and age, for incontinence 6 months after delivery according to type of delivery and continence status in week 30 of pregnancy

All	Continent week 30	Incontinent week 30
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	OR	CI	OR	CI	OR	CI
Elective cs	1	Ref	1	Ref	1	Ref
Non-elective cs	1.4	(1.0-2.1)	1.0	(0.6-1.8)	1.9	(1.1-3.1)
Vaginal delivery	4.8	(3.4-6.9)	4.0	(2.4-6.5)	5.6	(3.5-9.0)

Interpretation of results

Urinary incontinence is common 6 months post partum. The results show that the occurrence of urinary incontinence during pregnancy is an underestimated risk factor for incontinence post partum. Cesarean section appears to be an important protective factor for urinary incontinence 6 months post partum. The protective effect of cesarean section is most obvious among women who were incontinent in week 30 of pregnancy. However, further exploration of this topic is needed.

Concluding message

In this large cohort study the cumulative incidence of urinary incontinence 6 months after delivery among primiparous women, who were continent before pregnancy, was 21%. Urinary incontinence in week 30 of pregnancy is a significant risk factor for urinary incontinence 6 months after delivery (OR 3.5 for all women), especially among women who have a vaginal delivery (OR 5.6). Cesarean section seems to protect women against urinary incontinence 6 months post partum.

References

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2. Obstet Gynecol (2001) 97; 350-356.
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HUMAN SUBJECTS: This study was approved by the The Norwegian Data Inspectorate approved the Mother and Child Cohort Study in 1996 and renewed in 2003. The Regional Ethics Committees for Medical Research, Health Region II has also endorsed the project. and followed the Declaration of Helsinki Informed consent was obtained from the patients.