

Risk of obstetric anal sphincter injury among women who birth vaginally after a prior caesarean section: A state-wide cohort study

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Background

Compared with vaginal birth in primiparous women, there is evidence to suggest that vaginal birth after caesarean (VBAC) is associated with an increased risk of obstetric anal sphincter injury (3rd and 4th degree tears). Past studies in this field have been limited by their smaller cohort sizes or outdated methodology and the risk of obstetric anal sphincter injury is still not widely incorporated into antenatal counselling and professional guidelines.

Objectives

We aimed to validate whether the risk of obstetric anal sphincter injury among women having their first VBAC is greater than primiparous women having a vaginal birth.

Methods

This state-wide retrospective cohort study included all births between 2009-2014 in Victoria, Australia. The risk of obstetric anal sphincter injury was determined for women having their first VBAC and compared with primiparous women. Covariate distribution was examined using univariable logistic regression for categorical data and Wilcoxon rank-sum test for continuous data. Missing covariate data were handled using multiple imputation; and relative risk was determined using the Stata teffects suite.

Table 1. Characteristics of women who had a VBAC, by perineal tear status

	VBAC without OASIS N = 4,571	VBAC with OASIS N = 351	p-value
Maternal age			
Mean (SD)	31.7 (4.7)	31.4 (4.5)	P=0.18
12-19	19 (0.4)	<5 (0.6)	P=0.87
20-24	338 (7.4)	27 (7.7)	
25-29	1,013 (22.2)	81 (23.1)	
30-34	1,904 (41.7)	155 (44.2)	
35-39	1,134 (24.8)	77 (21.9)	
40-44	156 (3.4)	9 (2.6)	
≥45	<5 (0.1)	0	
Missing	<5	Nil	
BMI			
Mean (SD)	25.4 (5.1)	25.7 (5.1)	P=0.32
Missing	1,431 (31.3)	115 (32.8)	
Gestation			
37	314 (6.9)	16 (4.6)	P=0.39
38	770 (16.9)	61 (17.4)	
39	1,371 (30.0)	103 (29.3)	
40	1,515 (33.1)	116 (33.1)	
41	549 (12.0)	53 (15.1)	
≥42	52 (1.1)	<5 (0.6)	
Missing	0	0	
Mode of birth			
Spontaneous vaginal	2,622 (57.3)	171 (48.7)	<0.001
Vacuum	1,090 (23.9)	70 (19.9)	
Forceps	859 (18.8)	110 (31.3)	
Missing	Nil	Nil	
Episiotomy			
No	2,475 (54.2)	233 (66.4)	P<0.001
Yes	2,096 (45.9)	118 (33.6)	
Epidural analgesia			
No	2,616 (57.2)	213 (60.7)	P=0.08
Yes	1,398 (30.6)	88 (25.1)	
Missing	557 (12.2)	50 (14.3)	
Birthweight (g)			
Mean (SD)	3443.3 (441.5)	3576.6 (440.2)	P<0.001
Birthweight <4000g	4,095 (89.6)	295 (84.1)	P=0.001
Birthweight ≥4000g	476 (10.4)	56 (15.9)	
Missing	Nil	Nil	

Results

Women having a VBAC (n=5,429) were significantly more likely than primiparous women (n=123,353) to sustain a 3rd or 4th degree tear during vaginal birth (7.1 vs 5.7%, p<0.001). After adjustment for mode of birth, BMI, maternal age, birthweight, episiotomy and epidural, there was a 21% increased risk of perineal injury (relative risk 1.21, 95%CI 1.07 to 1.38).

A sub-analysis examining only women who had a VBAC showed that those with obstetric anal sphincter injury were more likely to have had a forceps birth, a baby with a birthweight >4000g and were less likely to have had an episiotomy (Table 1).

Conclusions

Women having their first vaginal birth after caesarean section have a clinically significant increased risk of sustaining a 3rd and 4th degree tear, compared with primiparous women. Antenatal counselling and professional guidelines should reflect this increased risk.

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