UNIL | Université de Lausanne
Faculté de biologie et de médecine

PELVIC FLOOR DYSFUNCTION 6 YEARS POST VAGINAL VERSUS CESAREAN DELIVERY

Etudiant
Valeria Lombardi

Tuteur
David Baud,
Department of Obstetrics and Gynecology, CHUV

Expert
Chahin Achtari
Department of Obstetrics and Gynecology, CHUV

Lausanne, 14.12.2015

PELVIC FLOOR DYSFUNCTION 6 YEARS POST VAGINAL VERSUS CESAREAN DELIVERY

Valeria Lombardi; **Maud de Rham**, **Sylvain Meyer**, MD; **Yvan Vial**, MD; **Chahin Achtari**, MD ; **David Baud*,** MD PhD

Department of Obstetrics and Gynecology, University Hospital of Lausanne, Maternity-CHUV, Lausanne, Switzerland

***Corresponding author:**

David Baud

Materno-fetal & Obstetrics Research Unit

Department of Obstetrics and Gynecology

University Hospital of Lausanne

Maternity-CHUV

1011 Lausanne

SWITZERLAND

Phone: (00) 41 21 314 32 37

Fax: (00) 41 21 314 55 69

Email: david.baud@chuv.ch

Running foot

Long term pelvic floor dysfunction after vaginal versus cesarean deliveries

Financial Disclosure

The authors did not report any potential conflicts of interest.

Acknowledgment

We thank all midwives and doctors who computerized obstetrical data used in this study. Their involvement was essential to the whole process, and they enthusiastically gave their time to allow this study. We thank Cristina Lyko, Sarah Guidon, Christian Sinobas and Andre Baud for computer assistance, Olivia and Felix Sandri for sending the questionnaire.

The study was funded by the Foundation for Research and Development in Gynecology and Obstetrics of Lausanne, Switzerland. David Baud is supported by the "Fondation Leenaards" through the "Bourse pour la relève académique", and by the Devisa Foundation, Switzerland. The funding sources had no role in the study design, data collection, data analysis or the interpretation thereof, or writing of the report.

Word count

2157

Précis

After 6 years, women who had uncomplicated vaginal deliveries experienced more fecal and urinary symptoms, while sexual dysfunction was more frequently reported after elective cesarean delivery.

ABSTRACT

OBJECTIVE:

To estimate fecal, urinary and sexual symptoms 6 years after uncomplicated vaginal versus elective cesarean deliveries.

METHODS:

Patients who delivered 6 years (2000-2004) before this study were chosen at random from our hospital database. Singleton elective cesarean deliveries (eCS, cases) were compared to uncomplicated vaginal deliveries (uVD, controls). Validated questionnaires grading fecal, urinary incontinence and sexual dysfunction were completed by the patients.

RESULTS:

A total of 309 women with uVD and 208 with eCS returned postal questionnaires in 2008. Socio-demographic characteristics and fecal incontinence were similar between groups. After eCS, women reported significantly less urge urinary incontinence (aOR 0.55; 95%CI 0.34-0-88) and stress incontinence (aOR 0.53; 95%CI 0.35-0-80) than after uVD. However, pain associated with urination (aOR 1.58; 95%CI 1.01-2.49) and sexual activity (aOR 0.40; 95%CI 0.19-0.84) was significantly more frequent after eCS than uVD.

CONCLUSION:

Six years postpartum, uVD is strongly associated with urinary incontinence, while eCS is associated with sexual and urination pains.

Key words Pelvic floor dysfunction, incontinence, vaginal delivery, cesarean section

INTRODUCTION

To many authors, long term pelvic floor dysfunctions are caused by vaginal delivery[1]. Vaginal delivery is known to cause pelvic floor muscles and nerves traumatisms, short- and long-term damages to pelvic organs, thus inducing urinary, anorectal or sexual dysfunctions. Elective cesarean section without labor is supposed to protect from pelvic floor dysfunctions, thus potentially increasing the rate of this procedure[1, 2]. However, there are conflicting evidences as to whether an elective cesarean section confers or not a protective effect against these pelvic dysfunctions.

Because of pelvic floor dysfunctions' latency, studies concerning a relationship between childbirth and pelvic floor dysfunctions are difficult to establish[3].

However, some studies[2, 4] suggest that women who sustained a vaginal delivery have a higher risk to develop pelvic floors dysfunctions than women with cesarean section; whereas others defend the vaginal delivery and claim that the pregnancy in itself is one of the major risk factors, at least for stress urinary incontinence[5]. In the literature, there are many studies analyzing one or two aspects of the pelvic organs. In our study, we aimed to compare three spheres: urinary, anorectal and sexual functions. We allowed a complete vision of the problematic and a better overview of the different dysfunctions caused by the vaginal delivery.

To evaluate long-term urinary, anorectal, and sexual function, we analysed outcomes of a cohort of patients who sustained elective cesarean section (CS) compare to outcomes of a cohort of uncomplicated vaginal delivery (VD).

This study investigated the whole spectrum of pelvic dysfunctions and gave accurate update of the multiple long-term dysfunctions caused by the different mode of delivery.

To evaluate the long-term impact of the mode of delivery, we used validated questionnaires concerning fecal, urinary and sexual function.

MATERIALS AND METHODS

The case-control study was designed in 2008 using our obstetrical database at the Maternity Hospital of the Centre Hospitalier Universitaire Vaudois in Lausanne, Switzerland (33'274 patients delivered between 1996 and 2011). The quality of this database of prospectively collected data has already been described elsewhere (cross-check congruent data in 98.2-99.8% of the cases)[6].

To estimate a sample size, we used studies that compare urinary incontinence rates after vaginal (23-25%) versus cesarean deliveries (10-16%) [7, 8]. On the basis of these estimates, a sample size of 213 patients in each group would have an 80% power to detect a 11% difference with a significance level of 0.05. Similar sample size was calculated for fecal incontinence.

The literature was insufficient to determine the sample size necessary for the other pelvic floor functions. Based on a 35% response rate we previously observed[6], a total of 1217 patients would be necessary.

In order to compare the results with our previous work investigating "Pelvic floor dysfunction 6 years post-anal sphincter tear at the time of vaginal delivery"[6] and with other studies in the field[7, 9, 10], patients who delivered 6 years before this study were chosen at random from our hospital database (from 2000 to end 2003). During that period, the number of vaginal deliveries exceeds the number of cesarean deliveries. For this reason, 800 uncomplicated vaginal deliveries (vaginal tears of maximal grade 1, uVD, controls) and 500 singleton elective cesarean deliveries (eCS, cases) were selected (n=1300). These deliveries are referred to throughout as the 'index deliveries'.

Both groups received the same questionnaires by post mail, Non-responders received a second mail 2-3 months later. A total of 98 patients (7.5%) had no longer address mentioned during last consultation at our hospital. These women's current home address was traced

using phone or internet directories. Sixty-nine (5.3%) women were not located. Help for translation (n=6) had been proposed to women who were not fluent in French, either by a nurse or a midwife. The Ethical Committee of the University and the Hospital approved the study. Responding to the questionnaires was considered informed consent for our study's participation.

Current socio-demographic and physical patients' characteristics were registered using self-reported questionnaires. Obstetrical history and mode of delivery of subsequent birth (that might have occurred in other hospitals) were also collected with a self-questionnaire. Multiparus patients who delivered by both modes of delivery were excluded from the analysis (n=87). Four validated questionnaires were used: the short forms of the Urogenital Distress Inventory (UDI-6) and the Incontinence Impact Questionnaire (IIQ-7)[11, 12]; Wexner fecal incontinence scale[13]; and the Female Sexual Function Index (FSFI)[14, 15].

The validated UDI-6 questionnaire measures the bothersomeness of incontinence symptoms, with higher scores indicating a greater degree of bothersomeness or a worse quality of life[11] (Table 2). Severe urinary incontinence was defined as a UDI-6 score $\geq$ 3. The IIQ-7 measures the impact of urinary incontinence on activities, roles, and emotional states (Table 3): higher scores indicating a greater impact/worse quality of life. For both questionnaires, each item is categorised by the frequency of occurrence or the degree of discomfort (never, slightly, moderately and much).

Fecal incontinence was evaluated using Wexner fecal incontinence scale[13]. The Wexner scale consists of eight items (Table 4), each item scores between 0 and 4 related to the frequency of occurrence (0 absent, 1 less than once a month, 2 less than once a week, 3 less than once a day, 4 daily). A Wexner score of zero means absence of anal incontinence, and a score of 20 means complete incontinence. Severe fecal incontinence was defined as a Wexner score $\geq$ 3.

The FSFI is a validated instrument for sexual function assessment. This multidimensional score combines 18 questions shared in 6 subscales (desire, arousal, lubrication, orgasm, satisfaction and pain). The score ranges from 2 to 36: low scores signifying sexual impairment or little to absence of sexual activity while high scores represent a high sexual activity and great satisfaction. Severe sexual dysfunction was defined as FSFI scores $\leq$ 25.

As we expected that most women would not report any symptoms and to avoid reporting very skewed distributions, we dichotomized ordinal outcomes of each questionnaire. The effect of the exposure, demographic data and risk factors were compared between both groups using the Pearson $\chi 2$ test (or the Fisher exact test when indicated) for categorical variables. For continuous variables, medians were compared using the Wilcoxon-Mann-Whitney test. Relative risks adjusted for all variables of Table 1 were also calculated. Statistical analyses were performed using STATA 13.0 (Stata Corporation, College Station, USA).

RESULTS

Among the 1231 (94.7%) women who were localized, 604 (49%) completed the questionnaires, including 208 CS, 309 VD and 87 patients who delivered by another mode of delivery after the index pregnancy and were thus excluded from the analysis. Socio-demographic and obstetrical characteristics at index pregnancy of responders and non-responders/lost patients were similar (data not shown).

Regarding the index delivery, both gestational age at birth (39.6 versus 39.5 weeks, p=0.57) and neonatal weight (3263g versus 3234g, p=0.51) were similar between VD and CS groups, respectively. The reasons for elective CS were breech/transverse presentations (n=64), maternal wish (n=58), pre-eclampsia (n=18), low-lying placenta (n=15), genital herpes/HIV/Hepatitis-C (n=9), declined vaginal birth after previous cesarean section (n=33) and other (n= 11).

Table 1 shows women socio-demographic characteristics of both groups at the time the patients returned back the questionnaires. The mean time between index delivery and the submission of the questionnaires was 6.7 and 6.3 years for women having had a VD and a CS, respectively (p=0.157). VD and CS did not exhibit any significant differences, except for marital status and religion. Data presented below are adjusted for all variables presented in Table 1. All significant univariate analysis remained significant after adjustment in multivariate analysis.

The results of the UDI-6 questionnaire are presented in Table 2. After a CS, women were significantly less likely to be bothered by urge incontinence (adjusted Relative risk [aRR] 0.55; 95% Confidence Intervals [95%CI] 0.34-0.88) and urine leakage related to physical activity (aRR 0.53; 95%CI 0.35-0.80) compared to women who had VD. Similar association can be observed for frequent urination, without to reach statistical significance. In contrast, women were more likely to complain lower abdominal after CS compared to VD women

(aRR 1.58; 95%CI 1.01-2.49). When considering the total UDI-6 score, the mean score was higher for women with VD compared to those in the CS group, although this difference did not reach statistical significance (p=0.185). The incidence of severe urinary incontinence (defined as a UDI-6 score≥3) was higher after VD than CS (respectively 43% versus 34.6% with borderline significance p=0.055). Women complaining of at least one symptom (UDI-6 score≥1) were significantly more frequent after VD than CS (76.7% versus 66.4%, p=0.01). The results of the IIQ-7 questionnaire are presented in Table 3. Women who had a CS reported significantly less frequent urine leakage during physical activities outside home than women who had VD (aRR 0.43, 95%CI 0.20-0.92). No others significant differences were observed between both groups in the other items of the IIQ-7 questionnaire or in the IIQ-7 final score.

Regarding fecal incontinence (Table 4), all the items investigated through the Wexner questionnaire were similar between both modes of delivery, except for alteration of sexual life which was significantly more present after CS than VD (aRR 1.72; 95%CI 1.13-2.63). This result was confirmed through investigation of sexual life using the Female Sexual Function Index (FSFI, Table 5). Four questions (no.2, 17, 18, 19) of the FSFI were significantly worse after CS than VD, and 3 other questions showed similar borderline significant trend (no.8, 10, 16). Indeed, women who sustained elective CS reported significantly more difficulties in two questions relating to lubrication (no.8 and 10) and to satisfaction (no.16) than women of the VD group. Surprisingly, all items investigating pain during/following sexual intercourse were significantly worse after CS than VD. The subscore for pain was also significantly worse after CS than VD (p=0.002). None of the other sub-scores for excitation, lubrication, orgasm or satisfaction showed significant differences when comparing both groups. The incidence of severe sexual dysfunction (defined as a FSFI score≤25) was higher after CS than VD (respectively 36.2% versus 26.4%, p=0.018).

DISCUSSION

Over the past years, the rate of cesarean section has increased, despite limited information on potential consequences on women's health. Our study of women who sustained a CS was designed to evaluate their current symptoms compared to a group of women who had a VD. We demonstrated that women who sustained VD have an increased risk of developing urinary symptoms 6 years after the index delivery, such as stress incontinence and urge incontinence. Similar associations were found by others, although some of them used urinary incontinence scoring questionnaire that were not validated[8, 16-18]. One study with a long-term follow-up (more than 18 years) showed poor association between VD and urinary incontinence [19], but this study involved a small sample size. Women who were most bothered by their symptoms were probably more likely to return the questionnaire than women without symptoms.

Our data suggest that women who sustained VD have no increased risk of anal incontinence and thus no alteration of their quality of life to declare. This confirms results published by Liebling et al.[20].

Concerning the sexual function, women who sustained CS reported more frequently sexual dysfunction than women after VD (similar results in the Wexner and FSFI questionnaires), mainly in questions related to pain. These results might be explained by three hypotheses: 1) scar tissues after CS are painful; 2) sexual sensation, and thus pain, are decreased after VD due to elongation of pudental nerves; and 3) vaginism is more likely to persist after CS than after VD.

The strengths of our study were the use of validated and detailed questionnaires exploring all three pelvic floor functions. Moreover, socio-demographic and physical characteristics of the patients were similar between both groups. Some limitations of the present investigation must be considered. First, women with incontinence or sexual dysfunction may be more predisposed to participate in studies and therefore their symptoms might be overestimated.

Second, the symptoms were self-reported. Third, this study lacks information on whether incontinence or sexual dysfunction were present or not before or/and during pregnancy or started after delivery. Fourth, the overall response rate of 49% may appear low in comparison to other studies[20-23]. However, to avoid a selection bias, we decided not to reach women by phone before sending the questionnaires, neither asked them to participate at our study in the direct postpartum period. Similar or lower response rates (27-39%) were obtained by others authors who mailed a brief questionnaire concerning pelvic floor symptoms in an unselected group of women after vaginal birth[3, 9, 18]. Finally, we wished to determine the effect of the actual method of delivery rather than the effect of the approach to delivery. Our results were thus not analyzed according to intention to treat.

In conclusion, we demonstrated that VD is more likely to induce urinary incontinence than CS. In contrast, CS is more likely to induce sexual dysfunction through more painful intercourse than VD. This study highlights pros and cons for each type of delivery, thus providing to the clinicians a decision toll to better inform pregnant women about delivery's long-term consequences.

REFERENCES

1. BAYTUR YB, DEVECI A, UYAR Y, OZCAKIR HT, KIZILKAYA S, CAGLAR H. Mode of delivery and pelvic floor muscle strength and sexual function after childbirth. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 2005;88:276-80.
2. ALTMAN D, EKSTROM A, FORSGREN C, NORDENSTAM J, ZETTERSTROM J. Symptoms of anal and urinary incontinence following cesarean section or spontaneous vaginal delivery. American journal of obstetrics and gynecology 2007;197:512 e1-7.
3. HANDA VL, BLOMQUIST JL, KNOEPP LR, HOSKEY KA, MCDERMOTT KC, MUNOZ A. Pelvic floor disorders 5-10 years after vaginal or cesarean childbirth. Obstetrics and gynecology 2011;118:777-84.
4. KOC O, DURAN B. Role of elective cesarean section in prevention of pelvic floor disorders. Current opinion in obstetrics & gynecology 2012;24:318-23.
5. EKSTROM A, ALTMAN D, WIKLUND I, LARSSON C, ANDOLF E. Planned cesarean section versus planned vaginal delivery: comparison of lower urinary tract symptoms. International urogynecology journal and pelvic floor dysfunction 2008;19:459-65.
6. BAUD D, MEYER S, VIAL Y, HOHLFELD P, ACHTARI C. Pelvic floor dysfunction 6 years post-anal sphincter tear at the time of vaginal delivery. International urogynecology journal 2011;22:1127-34.
7. MACARTHUR C, GLAZENER CM, WILSON PD, LANCASHIRE RJ, HERBISON GP, GRANT AM. Persistent urinary incontinence and delivery mode history: a six-year longitudinal study. BJOG : an international journal of obstetrics and gynaecology 2006;113:218-24.
8. SCHYTT E, LINDMARK G, WALDENSTROM U. Symptoms of stress incontinence 1 year after childbirth: prevalence and predictors in a national Swedish sample. Acta obstetricia et gynecologica Scandinavica 2004;83:928-36.
9. MACARTHUR C, GLAZENER C, LANCASHIRE R, HERBISON P, WILSON D, GRANT A. Faecal incontinence and mode of first and subsequent delivery: a six-year longitudinal study. BJOG : an international journal of obstetrics and gynaecology 2005;112:1075-82.
10. DEAN N, WILSON D, HERBISON P, GLAZENER C, AUNG T, MACARTHUR C. Sexual function, delivery mode history, pelvic floor muscle exercises and incontinence: a cross-sectional study six years post-partum. The Australian & New Zealand journal of obstetrics & gynaecology 2008;48:302-11.
11. SHUMAKER SA, WYMAN JF, UEBERSAX JS, MCCLISH D, FANTL JA. Health-related quality of life measures for women with urinary incontinence: the Incontinence Impact Questionnaire and the Urogenital Distress Inventory. Continence Program in Women (CPW) Research Group. Qual Life Res 1994;3:291-306.
12. UEBERSAX JS, WYMAN JF, SHUMAKER SA, MCCLISH DK, FANTL JA. Short forms to assess life quality and symptom distress for urinary incontinence in women: the Incontinence Impact Questionnaire and the Urogenital Distress Inventory. Continence Program for Women Research Group. Neurourology and urodynamics 1995;14:131-39.
13. JORGE JM, WEXNER SD. Etiology and management of fecal incontinence. Diseases of the colon and rectum 1993;36:77-97.
14. MESTON CM. Validation of the Female Sexual Function Index (FSFI) in women with female orgasmic disorder and in women with hypoactive sexual desire disorder. J Sex Marital Ther 2003;29:39-46.

15. ROSEN R, BROWN C, HEIMAN J, LEIBLUM S, MESTON C, SHABSIGH R, FERGUSON D, D'AGOSTINO R, JR. The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. J Sex Marital Ther 2000;26:191-208.
16. GYHAGEN M, BULLARBO M, NIELSEN TF, MILSOM I. The prevalence of urinary incontinence 20 years after childbirth: a national cohort study in singleton primiparae after vaginal or caesarean delivery. BJOG : an international journal of obstetrics and gynaecology 2013;120:144-51.
17. RORTVEIT G, DALTVEIT AK, HANNESTAD YS, HUNSKAAR S, NORWEGIAN ES. Urinary incontinence after vaginal delivery or cesarean section. The New England journal of medicine 2003;348:900-7.
18. GARTLAND D, DONATH S, MACARTHUR C, BROWN SJ. The onset, recurrence and associated obstetric risk factors for urinary incontinence in the first 18 months after a first birth: an Australian nulliparous cohort study. BJOG : an international journal of obstetrics and gynaecology 2012;119:1361-9.
19. HANNAH ME, WHYTE H, HANNAH WJ, HEWSON S, AMANKWAH K, CHENG M, GAFNI A, GUSELLE P, HELEWA M, HODNETT ED, HUTTON E, KUNG R, MCKAY D, ROSS S, SAIGAL S, WILLAN A, TERM BREECH TRIAL COLLABORATIVE G. Maternal outcomes at 2 years after planned cesarean section versus planned vaginal birth for breech presentation at term: the international randomized Term Breech Trial. American journal of obstetrics and gynecology 2004;191:917-27.
20. LIEBLING RE, SWINGLER R, PATEL RR, VERITY L, SOOTHILL PW, MURPHY DJ. Pelvic floor morbidity up to one year after difficult instrumental delivery and cesarean section in the second stage of labor: a cohort study. American journal of obstetrics and gynecology 2004;191:4-10.
21. BAHL R, STRACHAN B, MURPHY DJ. Pelvic floor morbidity at 3 years after instrumental delivery and cesarean delivery in the second stage of labor and the impact of a subsequent delivery. American journal of obstetrics and gynecology 2005;192:789-94.
22. LEIJONHUFVUD A, LUNDHOLM C, CNATTINGIUS S, GRANATH F, ANDOLF E, ALTMAN D. Risks of stress urinary incontinence and pelvic organ prolapse surgery in relation to mode of childbirth. American journal of obstetrics and gynecology 2011;204:70 e1-7.
23. BLOMQUIST JL, MCDERMOTT K, HANDA VL. Pelvic pain and mode of delivery. American journal of obstetrics and gynecology 2014;210:423 e1-6.

TABLE 1:

Socio-demographic and physical characteristics of patients at the time of the questionnaire. Data are shown as percent of the total of each group, except for age and weight. SD: Standard Deviation.

Characteristics	**Uncomplicated vaginal delivery** (n=309) **%**	**Elective cesarean delivery** (n=208) **%**	**p value**
Age [year ± SD]	36,6 ± 5,3	37,3 ± 5,4	0,196
≥40 yo	29,5	35,7	0,135
Etnicity			
Swiss	60,9	59,7	0,784
Non-swiss	39,1	40,3	
Parity			
Multiparous	16,3	18,5	0,515
Weight [kg + SD]			
	64 ± 12	66 ± 15	0,1
Smoker			
Yes	12,7	15,6	0,343
University degree			
Yes	10,1	9	0,763
Marital status			
Unmarried	14	23,2	0,007
Married	86	76,8	
Religion			
Christian	82,1	74,4	0,035
Health insurance			
Non-private	98,1	97,2	0,56
Private	2	2,8	

TABLE 2:

Urinary distress inventory (UDI-6). Relative Risks (RR) were adjusted for all socio-demographic and physical variables of table 1. VD: uncomplicated vaginal deliveries. CS: elective cesarean sections. 95%CI: 95% Confidence Intervals.

Moderate to great symptoms	**VD** (n=309) **%**	**CS** (n=208) **%**	**p value**	**Adjusted RR**	**95% CI**
Frequent urination	38,1	30,5	0.074	0,67	0,43-1,02
Urine leakage related to urgency	32,9	22,1	**0,008**	0,55	0,34-0,88
Urine leakage related to physical activity	50,5	36,1	**0,001**	0,53	0,35-0,80
Small amounts of urine leakage (drops)	32,1	32,1	0,986	1,03	0,66-1,61
Difficulty emptying bladder	14,1	14,0	1.000	0,93	0,52-1,67
Lower abdominal or genital pain	21,0	29,7	**0.025**	1,58	1,01-2,49
Mean UDI-6 score :	2,7	2,4	0,185		

TABLE 3:

Incontinence impact questionnaire (IIQ-7). Relative Risks (RR) were adjusted for all socio-demographic and physical variables of table 1. VD: uncomplicated vaginal deliveries. CS: elective cesarean sections. 95%CI: 95% Confidence Intervals.

Urine leakage during:	**VD** (n=309) **%**	**CS** (n=208) **%**	**p value**	**Adjusted RR**	**95% CI**
Physical activities at home	0,7	1	1	0,28	0,02-4,07
Physical activities outside home	13,4	6,5	**0,017**	0,43	0,20-0,92
Entertainment activities (cinema,…)	2,7	2,5	1	0,66	0,17-2,58
Travel longer than 30 minutes	3,4	3	1	0,57	0,17-1,97
Social activitites	2,0	2,5	0,762	0,60	0,13-2,8
Feeling anxious or depressive	13,8	16	0,498	1,10	0,62-1,96
Feeling frustrated	12,1	15,6	0,27	1,18	0,65-2,15
Mean IIQ-7 score:	0,69	0.67	0,902		

TABLE 4:

Wexner anal incontinence score. Relative Risks (RR) were adjusted for all socio-demographic and physical variables of table 1. VD: uncomplicated vaginal deliveries. CS: elective cesarean sections. 95%CI: 95% Confidence Intervals.

Symptoms	**VD** (n=309) **%**	**CS** (n=208) **%**	**p value**	**Adjusted RR**	**95% CI**
Incontinence for gas	39,6	38,6	0,812	0,95	0,63-1,42
Incontinence for liquid stool	10,0	11,4	0,664	1,10	0,57-2,08
Incontinence for solid stool	2,9	1,9	0,58	0,58	0,12-2,70
Alteration of lifestyle	5,5	7,1	0,45	1,04	0,43-2,54
Alteration of sexual life	1,4	4,6	**0,044**	1,72	1,13-2,63
Need to wear a pad	6,2	6,8	0,855	0,97	0,43-2,15
Taking constipating medicine	0,3	0,5	1	3,23	0,16-66,1
Inability to defer defecation for 15 min	9,8	13,5	0,202	1,66	0,88-3,12
Mean Wexner score:	1,2	1,4	0,46		

TABLE 5 :

Female sexual function index (FSFI).

no.	FSFI questionnaire	vaginal birth 309 %	Cesarean 208 %	p value	Adjusted RR	95% CI
1	Sexual desire half of the time or less	22,41	25,98	0,36	1,19	0,74 - 1,89
2	Low level of sexual desire	18,79	26,44	**0,041**	1,54	0,96 - 2,50
	score "DESIRE" (1.2-6)	3,84	3,7	0,178		
3	Excitation during sexual activity half of the time or less	10,3	13,46	0,324	1,27	0,68 - 2,33
4	Low level of excitation during sexual activity	9,97	12,98	0,318	1,06	0,56 - 2,04
5	Low confidence about becoming sexually excited during sexual activity	10,7	13,59	0,331	1,10	0,59 - 2,04
6	Satisfied with excitation during sexual activity less than half the time	9,03	12,56	0,238	1,23	0,65 - 2,38
	score "EXCITATION" (0-6)	4,48	4,35	0,236		
7	Lubrication during sexual activity less than half of the time	13	14,9	0,54	0,93	0,53 - 1,64
8	Difficulty becoming lubricated during sexual activity	18,43	24,76	0,088	1,30	0,80 - 2,08
9	Maintain lubrication until completion of sexual activity less than half of the time	12,75	14,49	0,573	1,03	0,57 - 1,85
10	Difficulty maintaining lubrication until completion of sexual activity	15,15	21,78	0,058	1,35	0,80 - 2,27
	score "LUBRIFICATION" (0-6)	4,83	4,7	0,274		
11	Reach orgasm less than half of the time	14,72	14,56	0,962	0,99	0,56 - 1,75
12	Reaching orgasm difficult	17,73	20,87	0,376	1,08	0,65 - 1,79
13	Moderately dissatisfied with ability to reach orgasm	15,67	18,05	0,48	1,19	0,68 - 2,04
	score "ORGASM" (0-6)	4,7	4,63	0,582		
14	Moderately satisfied with the amount of emotional closeness during sexual activ	16,05	18,05	0,557	1,14	0,67 - 1,92
15	Moderately dissatisfied about the sexual relationship	11,15	16,1	0,107	1,43	0,79 - 2,56
16	Moderately dissatisfied about overall sexual life	12,75	19,02	0,055	1,43	0,83 - 2,50
	score "SATISFACTION" (0-6)	4,39	4,26	0,283		
17	Pain during vaginal penetration about half the time or more	8,36	18,36	**0,001**	2,04	1,10 - 3,85
18	Pain following vaginal penetration more than half of the time	13,29	20,98	**0,027**	1,79	1,04 - 3,03
19	High level of pain during or following vaginal penetration	5,7	13,73	**0,002**	2,50	1,19 - 5,26
	score "PAIN" (0-6)	5,14	4,78	**0,002**		
	SCORE TOTAL (2-36)	27,18	26,23	0,094		