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OBSTETRICAL HISTORY AND FAECAL INCONTINENCE. A CROSS-SECTIONAL STUDY AMONG 2640 WOMEN AGED FROM 49 TO 61 YEARS

Hypothesis / aims of study

Faecal incontinence is a serious handicap that affects especially parous and aged women. Childbirth seems to be the principal predisposing event leading to faecal incontinence. Injury to the anal sphincter may occur during vaginal delivery [1]. Few months after delivery, anal incontinence is more frequent in case of instrumental delivery and less frequent in case of caesarean section [2]. But at menopausal age, it is unclear if caesarean section is still protective.

Our purpose was to estimate the prevalence of faecal incontinence among perimenopausal women and to assess its obstetrical risk factors.

Study design, materials and methods

Our population was composed of women volunteered to participate in epidemiological research. They were included in a longitudinal study between 1990 and 1996 when they were between 45 and 50 years old. This project's principal objective is to study women health during menopausal age. A questionnaire about incontinence symptoms and obstetrical history was mailed in 2000 to all women included.

The prevalence of anal incontinence over the previous year was estimated from responses to the question: *In the past 12 months, have you experienced involuntary loss of gas or stool?* (*yes* or *no*). Severity of anal incontinence was estimated using a validated grading system [3]. Faecal incontinence was defined by involuntary loss of liquid or solid stool in the past 12 months.

We tested a wide assortment of potential risk factors: age, educational level, incomes, body mass index, menopausal status, diabetes mellitus, anal surgery, hysterectomy, surgery for incontinence or pelvic organ prolapse, marital status, smoking habits, regular physical exercise, and parity. Among parous women, additional factors concerning their first delivery were tested: age, birth weight, labor longer than 12 hours, active second stage longer than 30 minutes, mode of delivery, episiotomy, urine leakage during pregnancy or first postpartum week, and third-degree perineal tear at 1st or further deliveries.

We compared women with faecal incontinence versus others and conducted a multivariate analysis with stepwise logistic regression. We constructed a logistic regression model for the entire population and a second model for parous women only.

The GAZEL cohort scientific committee and the French committee for health research data approved this study, which received no external funding.

Results

Of 3114 questionnaires sent out, 2640 (85%) were returned.

Prevalence of anal incontinence in the past 12 months was 38.5% (1016), 28.6% (755) experienced gas incontinence and 9.5% (250) faecal incontinence.

Risk factors associated with faecal incontinence were body mass index, anal surgery, urinary incontinence surgery, higher education, low incomes, prolonged active second stage and urinary leakage during first pregnancy or post-partum (Table).

Table: Bivariate and multivariate analyses among the whole population (Model I) or among parous women only (Model II). No significant variables (age, menopausal status, smoking, physical exercise, diabetes, hysterectomy, pelvic organ prolapse surgery, marital status) not shown except parity, mode of delivery and 3rd degree perineal tear. Variables were “excluded” of multivariate analysis when they were not significant. Variables concerning the first delivery were “not introduced” in Model I.

Variables		Faecal Incontinence (%)	Bivariate OR (95% CI)	Multivariate Model I OR (95% CI)	Model II OR (95% CI)
Body mass index (kg/m²)	< 25	8.1	1	1	1
	25–30	11.2	1.4 (1.1-1.9)	1.4 (1.1-2.0)	1.4 (1.0-2.0)
	> 30	13.6	1.7 (1.2-2.6)	1.6 (1.0-2.5)	1.4 (0.8-2.2)
Urinary incontinence surgery	No	9.0	1	1	1
	Yes	26.8	3.7 (2.1-6.4)	3.8 (2.2-6.7)	3.8 (2.1-6.8)
Anal surgery	No	9.2	1	1	1
	Yes	15.7	1.9 (1.1-3.1)	1.9 (1.1-3.1)	1.9 (1.1-3.3)
Parity	0	11.3	1.3 (0.8-1.9)	excluded	excluded
	1	9.0	1		
	2	9.0	1.0 (0.7-1.3)		
	3+	10.4	1.2 (0.8-1.9)		
High school diploma	No	8.8	1	1	1
	Yes	12.0	1.4 (1.0-1.9)	1.5 (1.1-2.1)	1.6 (1.1-2.3)
Monthly income	< 1600€	12.5	1	1	1
	1600-2592€	9.7	0.7 (0.5-1.0)	0.7 (0.5-1.0)	0.7 (0.5-1.0)
	≥ 2592€	7.4	0.6 (0.4-0.8)	0.5 (0.4-0.7)	0.5 (0.3-0.8)
Mode of 1st delivery	Vaginal	9.3	1	not	excluded
	Instrumental	9.9	1.1 (0.7-1.6)	introduced	
	Caesarean	8.0	0.9 (0.5-1.5)		
Active second stage at 1st delivery	≤ 30 min	8.1	1	not	1
	> 30 min	11.8	1.5 (1.1-2.0)	introduced	1.4 (1.1-2.0)
Episiotomy at 1st delivery	No	8.1	1	not	excluded
	Yes	10.2	1.3 (1.0-1.8)	introduced	
1st pregnancy urinary leakage	No	8.3	1	not	1
	Yes	20.7	2.9 (1.9-4.6)	introduced	1.9 (1.1-3.3)
1st postpartum urinary leakage	No	8.5	1	not	1
	Yes	20.4	2.7 (1.6-4.4)	introduced	1.9 (1.0-3.5)
3rd degree perineal tear	No	9.2	1	not	excluded
	Yes	11.4	1.3 (0.8-2.0)	introduced	

Interpretation of results

In our population faecal incontinence prevalence is similar among nulliparous and parous women. It is also similar among women delivered spontaneously, instrumentally or by caesarean section.

Concluding message

A caesarean section for first delivery does not seem to protect women from faecal incontinence when they reach menopausal age.

References

1 Anal-sphincter disruption during vaginal delivery. N Engl J Med 1993;329:1905

2 Obstetric practice and faecal incontinence three month after delivery. BJOG 2001;108:678

3 New grading and scoring for anal incontinence, evaluation of 335 patients. Dis Colon Rectum 1992;35:482