

## ANAL INCONTINENCE AND POSTPARTUM DEPRESSION. A COHORT STUDY.

### Hypothesis / aims of study

In the year after birth one in six women had a risk of depressive illness. Anal or fecal incontinence may increase this risk. The aim of this study was to estimate the prevalence of anal and fecal incontinence in post partum, to describe the main risk factors and to analyse the relationship between anal incontinence and depressive symptoms until 1 year post partum.

### Study design, materials and methods

Data are from the EDEN mother-child cohort which has recruited 2002 pregnant women from 2003 to 2006 in two maternity units in France. Written consent was obtained from each participant.

Depression during pregnancy was assessed by the CES-D (Center for Epidemiologic Studies Depression Scale) in a self-questionnaire filled in between 24 and 28 weeks of pregnancy. Women who had a score at 16 or higher to the CES-D were considered as depressed. Data about previous pregnancies, deliveries, birthweight of newborns, have been extracted from obstetrical records. On 4 months post partum the following questions were asked in: "During last month, have you experienced accidental leakage of gas or stools ? yes/no", "If yes, - accidental leakage of gas ? - accidental leakage of liquid stools ? - accidental leakage of solid stools ?". Postpartum anal incontinence (AI) was defined by any leakage of flatus or stools and fecal incontinence (FI) by any leakage of stools. Postpartum depression was assessed by postal questionnaires at 4 and 12 months postpartum using Edinburgh Postpartum Depression Scale (EPDS score  $\geq 13$  defines a probable depression) and consumption of psychotropic drugs (sleeping pills, tranquilizers, anxiolytics, or antidepressants).

We estimated the prevalence of AI and FI on 4 months postpartum. We analysed these percentages depending on social, demographic and medical factors and calculated adjusted odds ratios of AI and FI by logistic regressions in order to take into account simultaneously the different factors related to at least one of both indicators of AI. We calculated also adjusted odds ratios of AI and FI among women reporting that they did not have AI before or during the pregnancy. In a second step we studied the link between incontinence and mental health at 4 and 12 months postpartum, by comparison of percentages and by logistic regressions allowing adjustment for main risk factors of a low mental health.

### Results

Questionnaires 4 months postpartum were returned by 1668 (83%) of the 2002 women included at baseline. Respondents were more likely to be 30 or older (50.7 vs 38.0%), primiparous (45.4 vs 39.1%), in married couples, less often smokers and with higher household's income than no-respondents. They had also more often vaginal deliveries (87.8 vs 64.7%). The response rate was not different according to centre, parity nor body mass index. Among respondents, data about anal incontinence was available for 1632 women, that is the analysis sample.

Table 1: Postpartum anal incontinence among women without AI before or during pregnancy.

N=1458	AI adjusted OR (95%CI)	FI adjusted OR (95%CI)
Age: younger than 30	1	1
30 years or older	1.53 (1.05-2.23)	1.41 (0.41-4.87)
1 <sup>st</sup> child	1	1
2 <sup>nd</sup> child	1.19 (0.80-1.77)	1.91 (0.43-8.42)
3 <sup>rd</sup> child or +	1.02 (0.61-1.71)	4.68 (1.02-21.5)
No vaginal delivery	1	
At least one, all natural	2.37 (1.12-5.02)	
At least one instrumental	3.98 (1.82-8.72)	
Birthweight < 4000g	1	1
$\geq 4000g$	1.28 (0.73-2.23)	0.45 (0.05-3.76)

The prevalence of AI was 16.1% (n=263, confidence interval at 95%: 14.3-17.9) on 4 months post partum. The prevalence of FI was 1.7% (n=28, 1.1-2.3). Among women who did not have anal incontinence before or during the pregnancy, 10.3% (n=155) reported anal incontinence and 1.0% (n=15) reported FI on 4 months post partum.

Logistic regression showed two independent risk factors for postpartum AI: age 30 years or older, and a baby weighing 4000 g or more. For FI, smoking was an independent risk factor. Restricted to women reporting that they did not have anal incontinence before or during the last pregnancy, the multivariate analysis showed that a vaginal delivery, especially instrumental one, is strongly related to anal incontinence (Table 1).

On 4 months post partum women having anal incontinence reported more frequently that their physical and mental health was "very bad" or "rather bad". The percentage of women scoring 13 or more at the EPDS was especially high among women with FI (28.6%) higher also among women having flatus incontinence (13.7%) compared to women without AI (8.6%). On 12 months after the birth, the differences remained clearly for mental health: women with AI reported more often a bad mental health. They scored more frequently 13 or more on the EPDS scale (24.0, 12.7, and 9.2% of women with FI, flatus only incontinence, and no-incontinence respectively) and used much more often psychotropic drugs. Among women who were not depressed during pregnancy and who reported not to have AI before or during pregnancy, the differences in mental health were less important. Nevertheless the same trends can be observed: for instance, 10% of these women with AI at 4 months postpartum consumed psychotropic drugs 8 months after the birth compared to 4% among women without AI.

After adjustment for age, marital status, household income, parity, smoking and centre the odds ratio of depression is significantly higher for women with FI (Table 2), the odds ratios of psychotropic drugs use are significantly different for women with flatus incontinence as well as for women with FI (Table 2).

Table 2: Anal incontinence at 4 months and mental health at 12 months postpartum.

Depression (EPDS $\geq 13$ )	Psychotropic drugs use
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N=1384	OR	(95%CI)	OR	(95%CI)
No anal incontinence	1		1	
Flatus incontinence only	1.46	(0.91-2.36)	2.09	(1.25-3.50)
Fecal incontinence	3.02	(1.15-7.96)	4.05	(1.41-11.6)

#### Interpretation of results

Our study has some weaknesses, prevalence of prenatal anal continence is not known, there is no information about perineal tears, or intestinal transit. Its qualities are broad sample, regular and prolonged cohort, high response rates and quality data on mental health. The prevalence of AI and the FIS postpartum conforms to those found in other works. The link between anal or fecal incontinence and depressive symptoms is known in menopausal women [1] but remains little studied during the postnatal period. In our population followed up to one year of the postpartum, fecal incontinence declared at 4 months postpartum was followed by a significant risk of depressive symptoms and consumption of psychotropic drugs 8 months later.

#### Concluding message

In our population postnatal fecal incontinence is rare but it has a significant impact on mother mental health.

#### References

1. Fritel X, Ringa V, Varnoux N, Zins M, Bréart G. Mode of Delivery and Fecal Incontinence at Midlife: A Study of 2,640 Women in the GAZEL Cohort. *Obstet Gynecol* 2007;110:31-38.

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<b><i>Is this a clinical trial?</i></b>	No
<b><i>What were the subjects in the study?</i></b>	HUMAN
<b><i>Was this study approved by an ethics committee?</i></b>	Yes
<b><i>Specify Name of Ethics Committee</i></b>	The EDEN study received approval from the ethics committee (CCPPRB) of Kremlin-Bicêtre (France) on December 12th, 2002.
<b><i>Was the Declaration of Helsinki followed?</i></b>	Yes
<b><i>Was informed consent obtained from the patients?</i></b>	Yes