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## A SYSTEMATIC REVIEW OF ETIOLOGICAL FACTORS FOR POSTPARTUM FECAL INCONTINENCE

### Hypothesis / aims of study

Authors have reported conflicting results about the contribution of maternal, obstetric and fetal characteristics to postpartum fecal incontinence (FI), which is hampering prevention and management of FI. We therefore conducted a systematic review on delivery-related risk factors for postpartum FI.

### Study design, materials and methods

A literature search was carried out in the Cochrane Library, PubMED, EMBASE, CINAHL, the DocOnline database of the Dutch Institute of Allied Health Care and reference lists from January 1<sup>st</sup> 1980 up to May 2008. Prospective cohort studies evaluating maternal, obstetric or fetal risk factors for postpartum FI, with a follow-up period of at least three months, were assessed. The review included only full reports in English, German or Dutch, with anal incontinence, FI, flatus incontinence, soiling, urgency and FI severity scores as reported outcomes. Data on study characteristics, methodological quality and outcome were extracted from included studies according to a standardized protocol. Two sensitivity analyses were conducted to assess whether exclusion of studies with only univariate results and exclusion of studies with a low methodological quality led to different conclusions.

### Results

The 26 included studies varied widely due to lack of consistency in the definitions of FI or to differences in methods of assessment (questionnaire/interview), in study design, in classification, in follow-up and in study population (primiparous versus multiparous women). Since the clinical and methodological heterogeneity of the reviewed studies precluded statistical pooling, a qualitative analysis was conducted. Evidence for associations between 79 different etiological factors and outcome was summarized in a level of evidence. A third- or fourth-degree sphincter rupture was the only etiological factor strongly (outcome: anal incontinence) or moderately (flatus incontinence) associated with postpartum FI. No strong or moderate evidence was found for an association with other postulated risk factors.

### Interpretation of results

A third- or fourth-degree sphincter tear after delivery is a primary marker of postpartum FI. Not all of these injuries are recognized at the time of delivery. Moreover, women are often inadequately informed whether they have sustained sphincter laceration during delivery and antenatal women are inadequately informed about the risks of an anal sphincter injury. Although anatomical defects after delivery do not always result in anorectal symptoms, women with a third- or fourth-degree tear should be monitored carefully and support should be provided if necessary.

To achieve a reduction in postpartum FI, we need to know more about etiological pathways for postpartum incontinence. Future research should focus on these mechanisms and on comparing delivery modes in large prospective studies, with sufficient methodological quality, using multivariate analyses and sufficiently long follow-up periods. Finally, research should include etiological factors that require further analysis, because they show inconclusive or weak evidence or because they have rarely been studied and may be potential risk factors.

### Concluding message

The potential co-existence of different risk factors impedes the interpretation of the influence of a single delivery-related risk factor. Nevertheless, it is important to know whether a particular risk factor is a marker that predisposes to postpartum FI, even though the same risk factor can be a surrogate marker for other factors. Third- or fourth-degree sphincter rupture is the only marker strongly or moderately associated with postpartum FI. Surprisingly, no strong or moderate evidence was found for postulated risk factors like age, instrumental delivery, birth weight, prolonged labour, epidural anesthesia, obesity, episiotomy and parity. After delivery, women with anal sphincter injury should be identified and followed up appropriately, since this prevents further cases of postpartum FI or deterioration of existing cases.

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