Progrès en urologie (2013) 23, 911—916

Disponible en ligne sur
SciVerse ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

LITERATURE REVIEW

Specific obstetrical risk factors for urinary versus anal incontinence 4 years after first delivery☆

Facteurs de risque obstétricaux spécifiques de l'incontinence urinaire ou de l'incontinence anale quatre ans après le premier accouchement

X. Fritel[a,*], B. Khoshnood[b], A. Fauconnier[c]

[a] *Poitiers University Hospital, Inserm CIC0802, 86000 Poitiers, France*
[b] *Inserm, UMR S953, Paris-6 University, Epidemiological research unit on perinatal health and women's and children's health, Hôpital Cochin, 75014 Paris, France*
[c] *Versailles-St-Quentin University, EA7285 Risk and safety in clinical medicine for women and perinatal health, CHI Poissy-Saint-Germain-en-Laye, 78000 Poissy, France*

Received 6 May 2013; accepted 17 June 2013

KEYWORDS
Urinary incontinence;
Anal incontinence;
Delivery

Summary
Aim. — Delivery can be complicated by urinary or anal incontinence (UI or AI). We hypothesized that the mechanisms of injury may differ for UI and AI. Hence, obstetrical risk factors may be specific for different types of incontinence.
Design. — Data on maternal characteristics were collected at first delivery. Data on incontinence were obtained by a questionnaire completed by 627 women 4 years after first delivery. UI was defined by ''Do you have involuntary loss of urine'' and AI by ''Do you have involuntary loss of flatus or stool''. A multinomial logistic regression analysis was conducted to assess risk factors for UI only, AI only, and UI+AI.
Results. — Twenty-two percent of women reported UI only, 6.5% AI only, and 6.5% both. Risk factors associated with UI only were age (at first delivery) ≥ 30 (OR 2.27 [95% CI 1.47—3.49]), pre-existing UI (6.44 [2.19—19.0]) and pregnancy UI (3.64 [2.25—5.91]). Risk factors associated with AI only were length of the second active stage > 20 minutes (2.86 [1.15—7.13]) and third degree perineal tear (20.9 [1.73—252]). Significant predictors of UI+AI were age ≥ 30 (2.65 [1.29—5.46]), no epidural (4.29 [1.65—11.1]), third degree perineal tear (20.0 [1.28—314]), and UI before pregnancy (32.9 [9.00—120]). Cesarean delivery was not significantly associated with

☆ Level of evidence: 3.

* Corresponding author.
E-mail address: xavier.fritel@univ-poitiers.fr (X. Fritel).

1166-7087/$ — see front matter
http://dx.doi.org/10.1016/j.purol.2013.06.009

UI, AI, or UI+AI, although for all three outcomes, the adjusted odds ratios were substantially less than one.
Conclusion. — We found specific associations between obstetrical risk factors and urinary versus anal incontinence 4 years after first delivery. Our results are consistent with the hypothesis that the underlying mechanisms of injury differ for UI and AI.

MOTS CLÉS
Incontinence urinaire ;
Incontinence anale ;
Accouchement

Résumé
Objectif. — L'accouchement peut se compliquer par une incontinence urinaire ou anale (IU ou IA). Notre hypothèse est que si les mécanismes lésionnels sont différents pour chaque incontinence, les facteurs de risque obstétricaux devraient être spécifiques à chaque type d'incontinence.
Méthodes. — Les données sur la mère ont été recueillies à la première naissance. Les données sur l'incontinence ont été obtenues par un questionnaire rempli par 627 femmes, quatre ans après le premier accouchement. L'IU était définie par « Avez-vous des fuites involontaires d'urine ? » et l'IA par « Avez-vous des pertes involontaires de gaz ou de selles ? ». Une régression logistique multinomiale a été conduite afin d'estimer les facteurs de risque pour l'IU isolée, l'IA isolée, et IU+IA.
Résultats. — Vingt-deux pour cent des femmes avaient une IU isolée, 6,5 % une IA isolée, et 6,5 % les deux à la fois. Les facteurs de risque associés à l'IU isolée étaient un âge (au premier accouchement) supérieur ou égal à 30 ans (OR 2,27 [IC 95 % 1,47—3,49]), une IU préexistante (6,44 [2,19—19,0]), et une IU de la grossesse (3,64 [2,25—5,91]). Les facteurs de risque associés à l'IA isolée étaient une durée des efforts expulsifs supérieures à 20 minutes (2,86 [1,15—7,13]) et un périnée complet (20,0 [1,28—314]). Les facteurs de risques pour IU+IA étaient un âge supérieur ou égal à 30 ans (2,65 [1,29—5,46]), l'absence de péridurale (4,29 [1,65—11,1]), un périnée complet (20,0 [1,28—314]), et une IU préexistante à la grossesse (32,9 [9,00—120]). L'accouchement par césarienne n'était pas significativement associée à l'IU isolée, à IA isolée, ou IU+IA, bien que pour les trois, les OR ajustés étaient sensiblement inférieur à un.
Conclusion. — Nous avons trouvé des associations spécifiques entre des facteurs obstétricaux et l'incontinence urinaire ou anale quatre ans après le premier accouchement. Nos résultats sont compatibles avec l'hypothèse que les mécanismes lésionnels diffèrent pour l'IU et l'IA.

Introduction

First childbirth may become complicated by urinary or anal incontinence (UI or AI). The exact pathophysiology of postnatal incontinence is not well understood. Observable lesions such as third degree perineal tears can explain AI but this occurs in only a minority of deliveries. Other occult injury to the pelvic floor, e.g., pudendal neuropathy or *levator ani* muscle avulsion could affect urinary or anal continence [1]. The pudendal nerve innervates striated muscles of the pelvic floor, including levator ani, urethral sphincter and anal sphincter. Risk factors for pudendal nerve damage during childbirth are birth weight > 4 kg and a second active stage longer than 30 minutes [2]. The levator ani muscle, which is involved in the maintenance of the urinary and anal continence, can also be injured at the time of childbirth. Using MRI findings, DeLancey reported injuries of the levator ani in 20% of primiparous women and Dietz found lesions in 36% of women using sonography [3,4]. Risk factors for the lesions of the levator ani during childbirth are advanced maternal age, forceps delivery and the duration of the second stage [5]. The two sphincteric (urinary and anal) complexes are also bound by crossed reflex like the vesico-anal reflex [6].

Previous literature has not elucidated to what extent postnatal UI and postnatal AI result from the same underlying mechanisms of injury. The analysis of risk factors associated with postnatal incontinence suggests that certain risk factors such as advanced maternal age and parity may be common to both UI and AI [7,8]. Other risk factors may be more specifically associated with one type of incontinence. For example, UI during pregnancy has been found to be a specific risk factor for postnatal UI and instrumental vaginal childbirth for postnatal AI [9,10].

We hypothesized that pregnancy and delivery-associated traumatic mechanisms at the origin of postnatal incontinence differ at least to some extent for UI and AI. Therefore, specific obstetrical risk factors are likely to be associated with different types of incontinence. The analysis of risk factors related to stress UI was published previously for a portion of the population [11]. To complete this objective, we performed a secondary analysis in the whole sample of primiparous to identify both risk factors that may be common to UI and AI, and those that may be specifically associated with different types of postnatal incontinence, 4 years after a first delivery.