The Long-Term Pelvic Floor Health Outcomes of Women After Childbirth: The Influence of Labour in the First Pregnancy

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Abstract

Objective: To estimate the influence of labour and pregnancy factors on long-term pelvic floor health outcomes.

Methods: This population-based cohort study was conducted using linkage between the Nova Scotia Atlee Perinatal Database, the Medical Services Insurance Database, and the Canadian Institute for Health Information's Discharge Abstract Database from 1988 to 2006; this allowed for the evaluation of patient utilization of care providers for pelvic floor disorders and captured conservative and surgical interventions. We compared rates of urinary and anal incontinence, pelvic organ prolapse, and fistula disorders in women undergoing Caesarean section (CS) without labour and women undergoing labour with any method of delivery. Multivariate logistic regression and survival (time-to-event) analyses were performed.

Results: Absolute risks for the selected pelvic floor health outcomes were low, regardless of whether labour was experienced in the first pregnancy. Women with one or more deliveries who had a CS without labour in their first pregnancy had reduced risks for all pelvic floor health outcomes, except fistula formation, and they were also less likely to develop these outcomes during the study period.

Conclusion: Women undergoing obstetrically indicated CS without labour in their first delivery may have reduced risks of pelvic floor health disorders, even after multiple deliveries. These findings contribute important information for health care providers when counselling women and their families who are weighing the risk of long-term pelvic floor disorders against the benefits of spontaneous vaginal delivery.

Résumé

Objectif : Estimer l'influence des facteurs du travail et de la grossesse sur la santé du plancher pelvien à long terme.

Méthodes : Cette étude de cohorte basée sur la population a été menée en utilisant le lien entre la base de données périnatales Atlee de la Nouvelle-Écosse, la Medical Services Insurance Database et la Base de données sur les congés des patients de l'Institut canadien d'information sur la santé de 1988 à 2006; cela permet d'évaluer l'utilisation des fournisseurs de soins par les patients pour les dysfonctions du plancher pelvien et d'évaluer les prises en charge conservatives et les interventions chirurgicales. Nous comparons les taux d'incontinences anale et urinaire, de prolapsus des organes pelviens et les affections de la fistule chez les femmes subissant une césarienne (CS) sans déclenchement du travail et les femmes qui subissent un déclenchement du travail avec toute méthode d'accouchement. Des analyses de régression logistique multivariée et de survie (temps avant l'événement) ont été effectuées.

Résultats : Les risques absolus sur les cas sélectionnés touchant la santé du plancher pelvien étaient faibles, qu'il y ait eu une période de travail avant l'accouchement ou non pour une première grossesse. Les femmes ayant eu un ou plusieurs accouchements qui ont subi une CS sans déclenchement du travail lors de leur première grossesse ont présenté moins de risques de complications touchant le plancher pelvien, la formation d'une fistule exceptée, et il était aussi moins probable qu'elles développent ces complications durant la période d'étude.

Conclusion : Les femmes ayant subi des CS indiquées pour des raisons obstétriques sans déclenchement du travail lors de leur premier accouchement peuvent présenter moins de risques de dysfonctionnement du plancher pelvien, même après plusieurs accouchements. Ces conclusions contribuent à fournir d'importantes informations sur les fournisseurs de soins de santé lorsqu'ils conseillent les femmes et leurs familles qui pèsent le risque entre des dysfonctions du plancher pelvien à long terme et les avantages d'un accouchement vaginal spontané.

Key Words: Caesarean section, labour, incontinence, prolapse

Competing interests: None declared.

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INTRODUCTION

There is increasing interest in evaluating whether labour and/or vaginal delivery have long-term maternal health consequences, such as pelvic floor injuries, leading to urinary or fecal incontinence or pelvic organ prolapse. These conditions can be grouped together and are commonly referred to as pelvic floor dysfunction. Pelvic floor dysfunction symptoms may present in the immediate postpartum period and then gradually improve, but the peak incidence is after age 50, usually after a woman has become postmenopausal. It is estimated that 30% to 50% of all women report having varying degrees of urinary incontinence; typically up to 25% note leakage on a weekly to daily basis.[1,2] Up to 10% of women report anal incontinence; approximately 50% of these report incontinence of feces,[3,4] and pelvic organ prolapse has been observed in approximately 30% of middle-aged women.[5,6] Approximately one in nine women will undergo surgery to correct these pelvic floor disorders during their lifetime.[7] Although urinary or fecal incontinence and pelvic organ prolapse are unlikely to be life-threatening conditions, they negatively affect a woman's sense of confidence, well-being, and her quality of life.

Undergoing Caesarean section (CS) has been proposed as a way to reduce risks for pelvic floor disorder. It is well-known that CS has been associated with adverse maternal and perinatal outcomes, particularly with CS performed during labour.[8–11] Studies evaluating maternal outcomes with more than one CS demonstrate that risks for obstetric hemorrhage, abnormal placentation, and critical care admissions progressively increase with increasing numbers of CS.[12] On the other hand, one study considered cumulative maternal outcomes when the first delivery was a CS and showed that, regardless of subsequent modes of delivery, absolute risks were small; the type of labour in the first pregnancy influenced the subsequent risk for postpartum hemorrhage and blood transfusion, especially when the first labour was spontaneous in onset or was induced. The Term Breech Trial, which compared perinatal outcomes with planned CS and planned vaginal delivery,[13] found no difference in pelvic floor outcomes after two years of follow-up. Methodological challenges in existing studies of long-term pelvic floor health outcomes include the use of data based on patient self-report surveys or questionnaires, variable response rates between age groups, not distinguishing between types of urinary incontinence or the presence or absence of labour, and analyses restricted to comparisons of CS with vaginal delivery.[13–19]

The role of CS without labour as a means of reducing pelvic floor injury remains unclear. With some health professionals supporting this option for their patients and themselves,[20–22] this study was designed to estimate the influence of type of labour in the first pregnancy and maternal, obstetrical, and neonatal factors on long-term pelvic floor health sequelae. Detailed information about maternal, obstetrical, and neonatal factors derived from the Nova Scotia Atlee Perinatal Database, in combination with administrative databases that provided diagnoses of pelvic floor health outcomes, were used to evaluate this influence.

METHODS

This retrospective, population-based cohort study was designed to estimate the influence of labour on long-term pelvic floor health outcomes using three data sources. Information on all women who had an obstetrical delivery in Nova Scotia between 1988 and 2007 was obtained from the clinical NSAPD, the administrative Canadian Institute for Health Information's Discharge Abstract Database (hospital discharge data), and the administrative Medical Services Insurance Database (physician billings). Procedures for linking these databases are well-developed, tested, and formalized. These health databases permit the capture of all diagnosed cases of pelvic floor disorder in both the outpatient and hospital settings.

The NSAPD was utilized to create a population-based dataset identifying all pregnancies categorized by the presence or absence of labour. It is a clinically oriented, high-quality, provincial database containing clinical information on all births at a gestational age of at least 20 weeks or having a birth weight of at least 500 grams in Nova Scotia hospitals and to residents of Nova Scotia since 1988, including maternal and newborn information, demographic variables, procedures, interventions, maternal and newborn diagnoses, and morbidity and mortality information. The information in the database is abstracted by trained health records personnel from standardized forms and hospital medical records across the province of Nova Scotia; it has been shown to be reliable and has been used previously for several studies and to validate other sources of data.[23] The MSID contains data from provincial

ABBREVIATIONS

CIHI	Canadian Institute for Health Information
HDNS	Health Data Nova Scotia
HR	hazards ratio
MSI	Medical Services Insurance
MSID	Medical Services Insurance Database
NSAPD	Nova Scotia Atlee Perinatal Database