

VAGINAL DELIVERY INCREASES THE RISK OF URINARY INCONTINENCE COMPARED TO CESAREAN SECTION

Aims of Study

Parity is established as a risk factor for female urinary incontinence in young and middle-aged women, but the mechanism for this association is unclear. The vaginal delivery may be the real risk factor, possibly involving important muscle tissue or nerves. Another hypothesis is that the pregnancy itself causes mechanical and/or hormonal changes that can lead to urinary incontinence. Previous studies present contradictory results regarding this issue. This large community-based study had two aims: 1. To investigate whether pregnancy in itself contributes to an increased risk of incontinence, measured by comparing the risk in a group of women delivered by cesarean section only with nulliparous women. 2. To investigate whether the vaginal delivery further increases the risk, measured by comparing the risk in a group of women with vaginal deliveries with women with cesarean sections.

Methods

Questionnaire data on urinary incontinence from 27936 women in the cross-sectional Norwegian EPINCONT study were coupled to data from the Norwegian Medical Birth Registry, which is based on compulsory notification and comprises all births in Norway since 1967. From this material all women under 55 years fulfilling one of the three following criteria were selected: 1. Nulliparous women 2. One or two cesarean sections and no vaginal deliveries 3. One or two vaginal deliveries and no cesarean sections. The number of women in the study group was 10836. Associations between delivery mode and any incontinence, subtypes and severity of incontinence were investigated. We report absolute risks, relative risks and odds ratios as effect measures.

Results

For any incontinence there was a stepwise increase in prevalence, from 9.7% in the nulliparous group via 16.7% in the cesarean section group to 22.8% in the vaginal delivery group. This corresponds to a relative risk (RR) of 1.7 (95% confidence interval 1.4-2.1) for the cesarean group and 2.4 (2.1-2.6) for the vaginal delivery group compared with the nulliparous women. The association between stress type and vaginal delivery was even stronger. For this subtype the prevalence in the cesarean group was closer to the nulliparous group than to the vaginal delivery group with an RR of 1.6 (1.2-2.3), while in the vaginal delivery group the RR was 3.2 (2.7-3.9). Among urge incontinent women there was no statistically significant association with delivery mode. Mixed incontinence was associated with delivery mode in the same manner as any incontinence. In logistic regression analyses of any incontinence, the odds ratio (OR) for vaginal vs. cesarean delivery was 1.5 (1.2-1.9) in the univariate analysis. Adjusting for age, period of delivery, gestational age, birthweight and parity, the OR was 1.2 (0.9-1.7). Corresponding ORs for stress incontinence were 2.1 (1.5-3.0) in univariate and 2.1 (1.3-3.3) in adjusted analyses.

Conclusions

This study demonstrates an increased risk of incontinence among women delivered by cesarean section compared to nulliparous women, implying that pregnancy is an independent risk factor for urinary incontinence. Women with vaginal deliveries have an even higher risk of incontinence, indicating that the mechanical strain during labour adds to the risk due to the pregnancy. This study contributes to the knowledge about risk factors and possible mechanisms for the development of incontinence. It should not be employed to argument for the use of cesarean section to prevent urinary incontinence. We have not evaluated the morbidity, mortality and economic costs associated with cesarean section, and these will probably outweigh the advantage demonstrated in this study.