

USE OF NOMOGRAMS TO ASSESS PERINEAL RISK BEFORE BIRTH: POTENTIAL IMPACT ON THE RATE OF CESAREAN DELIVERIES AMONG NULLIPAROUS WOMEN.

Hypothesis / aims of study

Urinary incontinence (UI) and fecal incontinence (FI) may occur after childbirth and have a negative impact on woman's quality of life. Pregnant women are waiting for prenatal information about risks related to delivery and may wish to choose their mode of delivery (1). Obstetricians have expressed their need for a prediction tool that can identify prenatally women with a high-risk of postnatal incontinence (2). We found in the scientific literature only one prediction model for postpartum UI and FI in nulliparous women: Jelovsek nomograms (3). It can be assumed that if the risk of postnatal incontinence could be predicted before delivery, some women would choose to give birth by elective caesarean section. We do not know what level of risk of incontinence would be considered unacceptable by women and how much would request an elective caesarean section.

Our aim was to estimate the potential number of cesarean section on demand related to the risk of incontinence calculated with Jelovsek nomograms in a sample of nulliparous women.

Study design, materials and methods

It was an observational study in one maternity hospital. We used data from medical records and a self-report questionnaire. Patients' approvals were obtained before participation to the study. Clinical characteristics for calculating jelovsek's probabilities of developing UI and FI and birth issues (instrumental extractions, perineal tears) were collected.

For each participating woman, we calculated her UI and FI risks using antenatal data before delivery: maternal age, prepregnancy BMI and predelivery BMI, ethnical origin, urinary incontinence symptoms before and during pregnancy, planned mode of delivery. We studied the distribution of our participants' scores. For each score value, we calculated how many women had an equal or upper score. This represents the theoretical number of elective cesareans if Jelovsek's nomograms was used to determine the mode of delivery at this level of risk. We did likewise with all score's values and create a curve. Two curves were drawn: one for UI and one for FI. With these curves, we could estimate the number of elective prophylactic cesarean deliveries depending on perineal risk accepted by women.

We also asked women if they would accept to randomize their mode of delivery.

We performed a descriptive statistical analysis using R statistical software.

Results

Between the 15th of March and the 15th of April, 125 nulliparous women gave birth in our hospital maternity, among them 99 agree to participate (79%). Mean maternal age was 28,8 years. Mean Body Mass index (BMI) was 23,6 kg/m² before pregnancy and 28 at the end of pregnancy. Before childbirth, 82 women reported no urinary incontinence symptom, 13 women had symptoms rarely and 3 sometimes. During the ninth month of pregnancy, 55 women reported no urinary incontinence symptoms, 28 women had symptoms rarely, 12 patients experienced sometimes and 3 often. One patient didn't answered these 2 questions.

Among these 99 women, 8 had an elective cesarean delivery and vaginal birth was planned for 91. The attempt of vaginal birth succeeded for 78: 55 spontaneous and 23 instrumental vaginal deliveries (20 vacuum extractions and 3 forceps); Among them, 18 women need an episiotomy and no anal sphincter injury was reported. 12 women need an emergency C-section.

We calculated woman's individual probability of developing UI and FI for each 91 women who had planned a vaginal birth using only antenatal data available. Mean probability of developing UI was 27.4% (min= 9.2%, max= 84.2%) and mean probability of developing FI was 11% (min=1.6%, max=38.3%). Figure 1 estimated the theoretical number of elective prophylactic cesarean deliveries depending on Jelovsek's probability of developing UI and figure 2 of developing FI.

Thirty-four women would accept to participate to a randomized trial, it represented 35% of our sample (3 didn't answered).

Interpretation of results

Jelovsek's prediction models are simple and none time-consuming tools. Data needed to calculate risk of incontinence are easy to collect.

Prediction of a woman's individual probability of developing UI or FI after her first delivery can appear valuable. It might help women who want to choose their routes of delivery.

Use of Jelovsek's prediction models for postpartum incontinence in common practice would probably lead to a significant increase of elective cesarean deliveries on demand in an obstetrical low risk population. For example, if women decide that a probability of 20% of FI is unacceptable, it would lead to increase the C-section rate by 10%. If women choose a threshold value for urinary incontinence as 40%, it would lead to increase the C-section rate by 19%. Prognostic value of Jelovsek's models has an area under the curve less than 0,70. It appears for us insufficient for daily clinical practice (it gets wrong in 30% of case). There is a lack of external validation.

Concluding message

Although prediction models might be an interested tool to assess UI or FI probabilities, their results might have a serious impact on cesarean deliveries rate. Considering that the preventive effect of cesarean on postpartum incontinence didn't show adequate clinical evidence, it should be used with caution. However, it may be a help to identify high-risk women that could be included in a randomized trial to investigate effectiveness of pelvic floor prevention interventions.

Figure 1: curve representing the rate of elective prophylactic cesarean delivery depending on urinary incontinence risk using Jelovsek's antenatal nomogram (n=91).

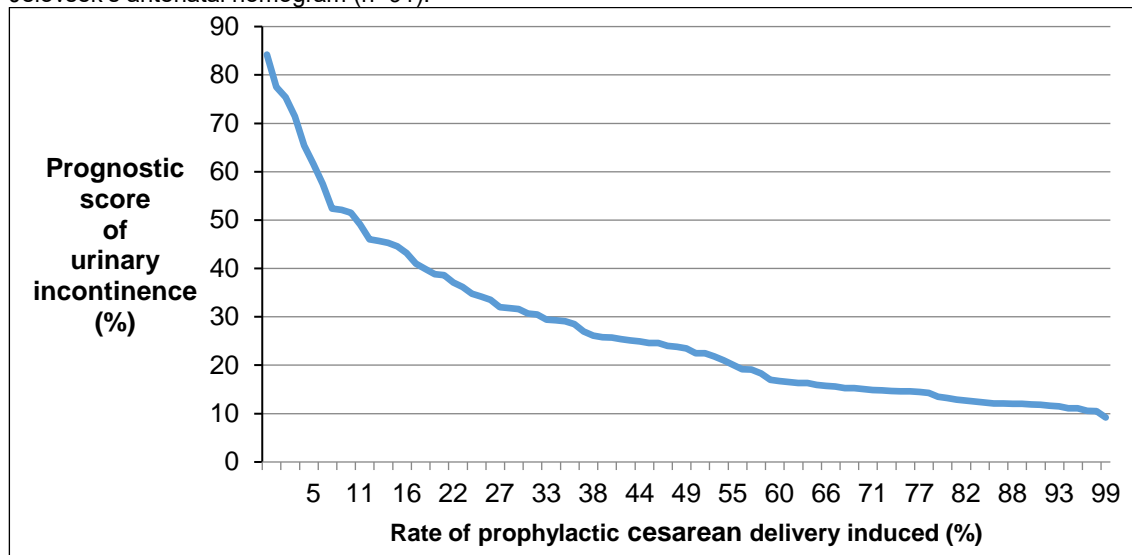
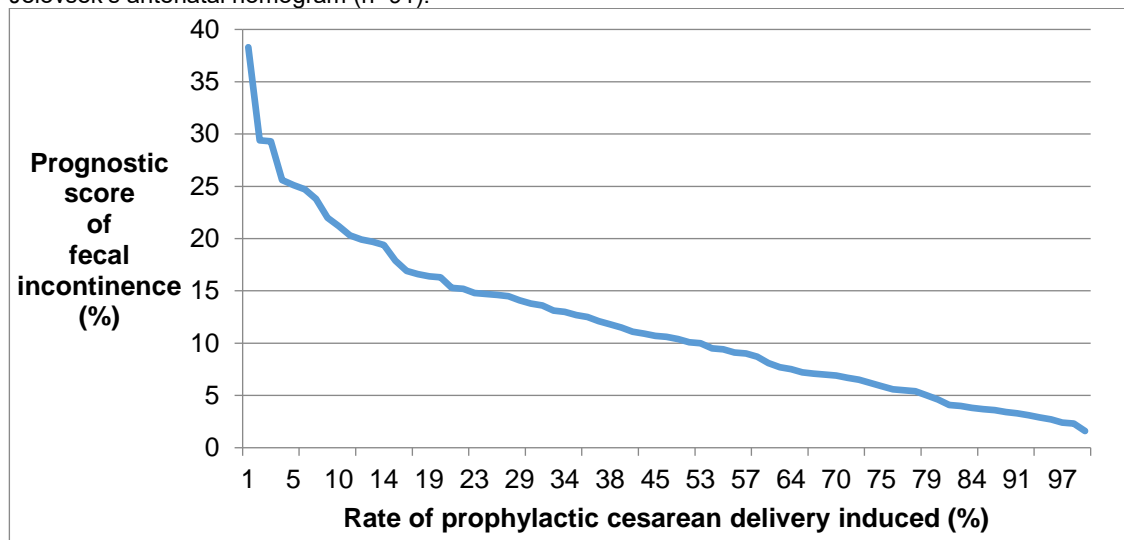


Figure 2: curve representing the rate of elective prophylactic cesarean delivery depending on fecal incontinence risk using Jelovsek's antenatal nomogram (n=91).



References

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Disclosures

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