

PRENATAL URETHRAL MOBILITY: A DETERMINING RISK FACTOR FOR URINARY INCONTINENCE DURING PREGNANCY AND THE POSTPARTUM PERIOD?

Hypothesis / aims of study :

The most cited causes for urinary incontinence (UI) and defective urethral support are the muscular and fascial-ligamentous traumas, caused by vaginal deliveries. According to this hypothesis, the caesarean section is a protective factor against UI. Our aim was to investigate the relationship between postpartum UI, mode of delivery and urethral mobility, taken as an indicator of the laxity of the pelvic floor.

Study design, materials and methods :

Our population comes from the multicenter randomized study 3PN ("Prenatal Perineal Prevention") whose main objective was to compare the effect of antenatal pelvic floor muscle training versus oral instructions only on the severity of urinary incontinence at 12 months postpartum. It involved a population of primiparous women with a single pregnancy, and low obstetrical risk (1).

One hundred and eighty four primiparous patients, from 3 university centres, received validated questionnaires about their urinary symptoms during their pregnancy, then 3 months and one year after their first delivery. Clinical evaluation performed during pregnancy and 3 months postpartum consisted of a clinical examination scoring genital prolapse, a cough test and a sonographic evaluation of bladder neck mobility. Data on the mode of delivery were identified on the medical files. Three multivariate logistic regressions were used to determine the risk factors for UI during pregnancy, at two months and one year after first delivery. The urethral hypermobility (UH) was defined as a clinical Aa point above -1 cm or a "Bladder Neck Descent" over 15 mm measured according to the technique described by Dietz.

Results:

The prevalence of UI was 39.1% during pregnancy, 36.1% at 2 months and 34.4% 1 year after 1st delivery. During pregnancy, the risk factor associated with UI was the age at first birth. Body Mass Index (BMI) and UH (clinical or by ultrasound) were not significantly associated with the risk of UI during pregnancy. Three months after delivery, UI during pregnancy was the only factor associated with the risk of UI (OR = 6.12 [2.63-14.2]). At 1 year, UI during pregnancy (OR = 6.14 [2.22-16.9]), BMI (OR = 1.19 [1.04-1.36]) and the clinical measure of UH (OR = 7.21 [2.20-23.7]) were significantly associated with the risk of UI. UH during pregnancy was not significantly associated with the mode of delivery (table 1).

Interpretation of results :

We were not able to find a significative association between mode of delivery and post-partum urinary incontinence. Urethral hypermobility is significantly associated with the risk of UI 1 year after the first delivery but not at 3 months. The presence of UI during pregnancy significantly increases the risk of postpartum UI, indicating the importance of an existing individual susceptibility to UI before delivery.

Concluding message :

Pre-existing factors in delivery are important to consider when studying UI.

Table 1. Factors associated with the prevalence of urinary incontinence during pregnancy, 3 months and 1 year postpartum. Cervico-urethral mobility assessed with point Aa (adjusted multivariate analysis of group randomization)

	UI during pregnancy (inclusion) Adjusted OR [95%IC]	UI at 3 month Adjusted OR [95%IC]	UI at 1 year Adjusted OR [95%IC]
Age at inclusion (years)			
< 26.5	1	1	1
≥ 26.5, <29.0	1.82 [0.68-4.85]	1.58 [0.53-4.68]	1.21 [0.31-4.71]
≥ 29.0, 32.7	4.04 [1.54-10.5]	0.87 [0.27-2.74]	0.49 [0.10-2.32]
≥ 32.7	3.11 [1.20-8.04]	0.72 [0.22-2.40]	0.48 [0.11-2.15]
Mean BMI* at inclusion (kg/m ²)	1.09 [0.99-1.19]	1.00 [0.89-1.13]	1.19 [1.04-1.36]
UI during pregnancy			
No	-	1	1
Yes	-	6.12 [2.63-14.2]	6.14 [2.22-16.9]
Aa point during pregnancy (mm)			
< -10 mm	1	1	1
≥ -10 mm	1.63 [0.73-3.65]	1.68 [0.65-4.33]	7.21 [2.20-23.7]
Mode of delivery			
Vaginal	-	1	1
Instrumental	-	2.11 [0.82-5.39]	2.24 [0.74-6.78]
Caesarean	-	0.59 [0.20-1.75]	1.07 [0.29-3.89]
First child's weight (g)	-	0.998 [0.99-1.00]	0.998 [0.99-1.00]

References

1. Fritel X, Guilhot-Gaudeffroy J, de Tayrac R, Savary D, Deffieux X, Cotte L, Fauconnier A. Prevention of postnatal urinary incontinence by antenatal pelvic floor muscle exercises, secondary per protocol analysis of the 3PN (Prenatal Pelvic floor Prevention) randomized trial. International Continence Society (ICS), 2013 August, Barcelona.

Disclosures

Funding: NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** This study is derived from the clinical trial "3PN" : "PREVENTION OF POSTNATAL URINARY INCONTINENCE BY ANTENATAL PELVIC FLOOR MUSCLE EXERCISES, SECONDARY PER PROTOCOL ANALYSIS OF THE 3PN (PRENATAL PELVIC FLOOR PREVENTION) RANDOMIZED TRIAL", registered with ANSM under number 2007-A00641-52, and in ClinicalTrials.gov under the number NCT00551551. The abstract was presented last year at the ICS congress in Barcelona. **Helsinki:** Yes **Informed Consent:** Yes