

INFLUENCE OF MATERNAL WEIGHT IN THE PERSISTENCE OF PREGNANCY STRESS URINARY INCONTINENCE ONE YEAR AFTER FIRST DELIVERY

Hypothesis / aims of study

Stress urinary incontinence (SUI) is a common problem in pregnancy and affects up to 31% of nulliparous women (1). This problem becomes worse if we consider that these women are at a higher risk to be incontinent not only in the postpartum period but also later in their life. We had analyzed the factors involved in the new onset of stress urinary incontinence in pregnant women at term and we identified increased maternal weight as an independent risk factor (2). Our hypothesis is that gestational overweight can be involved in permanent tissue changes that may play a role in stress urinary incontinence not only in pregnancy but also after delivery. The aim of this study was to investigate if increased maternal weight in pregnancy was associated with stress urinary incontinence that begins in pregnancy and persists one year after delivery. We also wanted to estimate the severity and impact on quality of life of persistent stress urinary incontinence one year after first delivery.

Study design, materials and methods

A prospective cohort study was undertaken to evaluate the influence of first pregnancy and delivery on stress urinary incontinence. The study group was selected from the primigravid women, who came to give birth at our Public Health Hospital from April to October, 2007. Our aim was to only measure the new cases of stress urinary incontinence, so the women who stated any kind of urinary incontinence before pregnancy were excluded from the study. We also excluded: multiple pregnancies, gestational age of less than 37 weeks, previous urogynecological surgery, urogynecological malformations and neurological disorders.

In pregnant women at term, and one year after delivery we performed an interview about urinary symptoms considering the 2002 ICS definitions. Urinary incontinence was defined as the complaint of any involuntary leakage of urine, and stress urinary incontinence was defined as the complaint of involuntary leakage on effort or exertion, or sneezing or coughing. The women with persistent SUI one year after delivery were asked about frequency and amount of leakage to calculate the incontinence severity index (ISI) and were also asked to complete the ICIQ-UI-SF questionnaire to evaluate their condition-specific quality of life.

To investigate the risk factors associated with persistent SUI, we analyzed the next variables: age; height; maternal weight at term and weight gain during pregnancy; gestational age; use of oxytocine, epidural anaesthetics; mode of delivery; birth weight and cephalic perimeter of the newborn. Information about delivery details were collected from the clinical charts.

Statistical analyses were used for mean comparison (Student's test, ANOVA) and proportion comparison (Chi-square and Fisher test). A multivariate logistic regression model was used to assess the relationship between SUI and the variables described above.

Results

We recruited 458 pregnant women who didn't refer urinary incontinence before pregnancy. From the total, 352 (76.9%) attended the one year follow up visit and formed the study group. Mean age was 31.2 years (range:18-43) and mean BMI was 23.3 (range:15.9-44.2). The incidence of stress urinary incontinence in pregnancy was 29.3%. A total of 306 (86.9%) women had a vaginal delivery: 213 (60.5%) spontaneous and 93 (26.4%) instrumental. Caesarean section was performed in 46 (13.1%). SUI persisted in 25 (7.1%) women one year after delivery. The ISI distribution was: 16 (64%) slight; 7 (28%) moderate, 1 (4%) severe and 1 (4%) very severe. The mean value of the ICIQ-UI-SF was 7.76 (range:3-16).

We performed a univariate analysis to associate SUI with different pregnancy and delivery variables. To investigate the influence of body weight we categorised it in two groups (< 75 kg. and ≥ 75 kg). The results are shown in table 1. A multiple logistic regression model was performed with the variables near to statistical significance (p≤0.2): categorized maternal weight at term, use of oxytocine and mode of delivery. We observed that persistent pregnancy SUI one year after delivery was significantly increased among the women with gestational weight at term equal or more than 75 kg (OR: 3.22; 95% CI:1.30-7.96). We didn't find any statistical association with the other variables.

Interpretation of results

Pregnancy SUI persists one year after first delivery in up to 7.1% of women. The majority of the incontinent women are included in the slight or moderate ISI group. Pregnant women at term with body weight equal or more than 75 kg appear to have more than triple risk persisting with pregnancy SUI one year after delivery.

Concluding message

We have identified increased maternal weight in pregnant women as an independent risk factor associated with SUI that begins in pregnancy and persists one year after delivery. This is a factor that can be easily modified and could be used as a starting point in prevention of urinary incontinence based on behavioral modifications in pregnancy. Pregnant women have to be appropriately counselled about this.

Table 1 Results of the univariate analysis performed to associate persistent pregnancy stress urinary incontinence one year after first delivery with different variables.

Pregnancy and delivery factors		Persistence of SUI one year postpartum		P value
		No	Yes	
		(n=327)	(n=25)	
Maternal age (years)	mean, SD	31.2 ± 3.4	31.4 ± 4.8	0.82
Gestational age (days)	mean, SD	278.7 ± 9.7	280.5 ± 10.1	0.37
Maternal BMI at term	mean, SD	27.9 ± 3.7	29.3 ± 3.1	0.07
Maternal weight gain in pregnancy (kg)	mean, SD	12.7 ± 4.4	13.0 ± 4.2	0.74
Maternal weight at term ≥75 kg	n, %	146 (45.1)	18 (72.0)	0.009
Mode of delivery				
Spontaneous vaginal delivery	n, %	196 (59.9)	17 (68.0)	0.13
Instrumental vaginal delivery	n, %	85 (26)	8 (32.0)	
Cesarean section	n, %	46 (14.1)	0 (0.0)	
Use of oxitocine	n, %	252 (77.1)	22 (88.0)	0.2
Epidural anaesthetics	n, %	297 (90.8)	24 (96)	0.37
Birth weight (gr)	mean, SD	3296 ± 452	3405 ± 441	0.24
Cephalic perimeter of the newborn (cm)	mean, SD	34.4 ± 1.4	34.5 ± 1.1	0.86

References

1. Obstet Gynecol 2007; 109(4):922-28
2. Neurourol Urodyn 2008; 27(7s):664-65

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Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Medical Ethics and Investigation Committee of the Hospital Donostia.
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes