

INFLUENCE OF MATERNAL WEIGHT IN THE NEW ONSET OF STRESS URINARY INCONTINENCE IN PREGNANT WOMEN

Hypothesis / aims of study

Stress urinary incontinence (SUI) during pregnancy is common and affects up to 31% of nulliparous women (1). It has been published that the presence of urinary incontinence during pregnancy may be predictive of postpartum incontinence (2) and also that women with persistent stress urinary incontinence at three months postpartum have a 92% risk of having stress urinary incontinence five years after it (3). Causes of gestational incontinence are unclear. Probably, it's the consequence of the local tissue changes caused by the increased hormones and the mechanical pressure of the enlarging uterus on the bladder. Also the modification of the pelvic structures during pregnancy can be as a result of the increased force exerted on it due to the maternal body weight. Taking into account the importance of the new onset of stress urinary incontinence in pregnant women and considering the possibility of prevention, the aim of this study was to investigate the association between increased body weight and SUI in this population. We also estimated the incidence, severity and impact on quality of life of stress urinary incontinence in primigravid women at term.

Study design, materials and methods

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 referred any kind of urinary incontinence before pregnancy were excluded from the study. We also considered the next exclusion criteria: Multiple pregnancy, gestational age of less than 37 weeks, previous urogynecological surgery, urogynecological malformations and neurological disorders. We used the 2002 ICS definitions to interview the women about urinary symptoms: 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 pregnant women with new onset of SUI, 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 SUI, we analysed the next variables: Maternal age; maternal height; maternal weight at term and weight gained during pregnancy; gestational age; fetal presentation; strength of pelvic floor contraction at admission; diagnosis of urinary tract infection during pregnancy; and birth weight. The strength of pelvic floor contraction was assessed using a perineometer (Peritron®) measuring the strongest of three voluntary pelvic floor contractions. Birth weight was obtained after delivery 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 was used to assess the relationship between SUI and the variables described above.

Results

We include a total of 458 primigravid women who didn't refer urinary incontinence before pregnancy. Mean age was 30,87 years (range 18-43), mean BMI was 28,02 (range 20,07- 48,35) and mean gestational age was 278,98 days (range 259-301). Stress urinary incontinence affected to 139 (30,3%) pregnant women at term with an incontinence severity index distribution of: 40 % slight, 54,4% moderate, 4,8% severe and 0,8 % very severe. The mean value of the ICIQ-SF-UI in the different groups was: 5,19 (range 2-10) in the women with slight incontinence; 8,03 (range 4-13) in the moderate group; 12 (range 9-14) in the severe group; and 18 in the one that had very severe incontinence. The results of the univariate analysis performed to associate SUI with different variables are showed in table 1. The women with SUI had a higher body weight (mean weight 77,10 kg vs. 74,06 kg; $P=0.011$) and higher BMI (mean BMI, 28,70 vs. 27,73; $P=0.017$). To investigate the influence of body weight in the new onset of SUI, we categorised it in two groups (< 75 kg. and ≥ 75 kg). We chose those values because the univariate analysis between the categorized groups showed the maximum differences with them. A multiple logistic regression model was performed with categorized maternal weight and gestational age, adjusted for confounding factors: maternal age and urinary infection during pregnancy. We observed that pregnant women with body weight ≥ 75 kg appear to have more than double risk (OR: 2,13; 95% CI, 1.41-3,23) to develop stress urinary incontinence at term. We didn't find any statistical association with the other variables.

Table 1. Results of the univariate analysis performed to associate SUI with different variables

		Stress Urinary Incontinence		P value
		No (n=319)	Yes (n=139)	
Maternal age (years)	mean, SD	30,95±3,71	30,69±4,21	0,51
Maternal BMI at term	media, SD	27,73±3,63	28,70±4,09	0,017
Gestational age (days)	mean, SD	278,68±9,42	279,68±10,11	0,31
Maternal weight at term	=75 (n,%)	129 (41)	82 (59,4)	0,001
Maternal weight gain (kg.)	mean, SD	12,61±4,41	12,70±4,49	0,81
Urinary infection	n, %	35 (11)	24 (17,3)	0,064
Pelvic floor contraction strength	mean, SD	34,83±19,97	32,93±17,93	0,34
Cephalic presentation	n, %	305 (95)	133 (96,1)	0,32
Birth weight (gr.)	mean, SD	3306±445	3315±443	0,83

Interpretation of results

The incidence of stress urinary incontinence among primigravid pregnant women at term is high. The majority of women with SUI are included in the slight or moderate ISI group. The incidence of SUI is significantly increased among the women with body weight equal or more than 75 kg (OR:2,13; 95% CI, 1.41-3,23).

Concluding message

Stress urinary incontinence is common among pregnant women at term, and in the majority of cases the impact on quality of life is low.

We have identified maternal weight as an independent risk factor associated to SUI in pregnant women. It is important to prevent SUI during pregnancy considering its association with persistent SUI after delivery and later in women's life. Pregnant women have to be counselled about this.

References

1. Obstet Gynecol 2007; 109(4):922-28
2. Acta Obstet Gynecol Scand 2004; 83:923-27
3. Am J Obstet Gynecol 2001; 185:82-7

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<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	This study was approved by the Hospital Donostia Ethics Committee
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes