

ANTENATAL PELVIC FLOOR BIOMETRY AND POSTPARTUM STRESS URINARY INCONTINENCE

Hypothesis / aims of study

Antenatal stress urinary incontinence (SUI) is associated with a lower bladder neck position during pregnancy. Antenatal SUI is one of the risk factor for postpartum SUI. Position of bladder neck and other pelvic floor biometry may predispose a woman higher risk of postpartum SUI. The aim of this study is to evaluate if there is any relationship between antenatal pelvic floor biometry and postpartum SUI.

Study design, materials and methods

This was an analysis of translabial 3D-ultrasound (US) volumes collected in a previous prospective study.(1,2) Nulliparous women, who had no pelvic floor disorders before the pregnancy, have been recruited at first trimester of pregnancy. Trans-labial 3D-US was performed at rest, Valsalva (VM) and pelvic floor contraction (PFMC) during first and third trimester. Their SUI symptoms were explored at each trimester and at 12 months postpartum using Pelvic Floor Distress Inventory. Offline analysis of the US volumes were performed to assess the bladder neck, cervix and ano-rectal junction position, using posterior-inferior margin of pubic bone; and hiatal area (HA) at plane of minimal hiatal dimension.

Results

In all, 328 women completed the study. Their mean age was 30.6±3.8 years, mean gestational age at delivery was 39.2±1.8 weeks and mean birth weight was 3.09±0.47 kg. 252 had vaginal delivery (VD). Overall, 124 (37.8%) reported SUI at third trimester and 85 (25.9%) women reported SUI at 12 months. Bladder neck position and hiatal area at first trimester were not associated with postpartum SUI. A lower bladder neck position at third trimester was associated with postpartum SUI in VD group but not in women after caesarean delivery (CS). A larger hiatal area at third trimester was associated with postpartum SUI in women after CS. For all women, logistic regression analysis was performed with five factors analysed (bladder neck position at rest, VM or PFMC, antenatal SUI and mode of delivery), only antenatal SUI (OR 4.29, 95% CI 2.5 – 7.5, P<0.005) and VD (OR 2.3, 95% CI 1.1-4.8, P = 0.027) were identified as independent factors increasing the risk of postpartum SUI. For women who had VD, only antenatal SUI was a risk factor (OR 4.34, 95% CI 2.4 – 8.0, P<0.005), BN position was not an independent factor.

Interpretation of results

A lower bladder neck and a larger hiatal area at third trimester were associated with postpartum SUI. However, antenatal SUI and VD were two independent risk factors for postpartum SUI; while antenatal pelvic organs' position and hiatal area were not risk factors for postpartum SUI.

Concluding message

Antenatal SUI and VD were two independent risk factors for postpartum SUI; while antenatal pelvic organs' position and hiatal area were not risk factors for postpartum SUI.

Table 1. Relationship of antenatal pelvic floor biometry at third trimester and postpartum stress urinary incontinence

	Symptoms of stress urinary incontinence		P-value
	Yes	No	
<u>All</u> (N = 328)	(n = 85)	(n = 243)	
BN position at rest	-2.60 (0.38)	-2.71 (0.38)	0.018
Hiatal area at rest	13.48 (2.82)	12.65 (3.23)	0.04
BN position at PFMC	-2.75 (0.44)	-2.85 (0.41)	0.05
Hiatal area at PFMC	11.16 (2.31)	10.33 (2.12)	0.003
<u>VD only</u> (n = 252)	(n = 74)	(n = 118)	
BN position at rest	-2.59 (0.34)	-2.72 (0.37)	0.014
<u>CS only</u> (n = 76)	(n = 11)	(n = 65)	
Hiatal area at PFMC	11.55 (2.09)	10.09 (2.15)	0.04

CS = caesarean section, VD = vaginal delivery

References

1. Chan SS, Cheung RY, Yiu KW, Lee LL, Leung TY, Chung TK. Pelvic floor biometry during first singleton pregnancy and the relationship with symptoms of pelvic floor disorders: a prospective observational study. BJOG
2. Chan SS, Cheung RYK, Yiu KW, Lee LL, Chung TK. Effect of levator ani muscle injury on primiparous women during the first year after childbirth. Int Urogyn J 2014;25:1381-1388.

Disclosures

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