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Title (type in CAPITAL LETTERS, leave one blank line before the text) ANTENATAL BLADDER NECK HYPERMOBILITY-DOES IT PREDICT POSTNATAL INCONTINENCE? <u>Introduction</u> At ICS in Athens King & Freeman ¹ presented data suggesting a relationship between increased antenatal bladder neck mobility assessed by terms of rotational movement and a greater risk of postnatal incontinence. Meyer ² has also demonstrated a relationship between increased bladder neck movement and both incontinence and the use of obstetric forceps which are often considered to be a risk factor for the development of incontinence. Both these studies were short term and incontinence may be a transient feature after delivery. We therefore decided to investigate the association between bladder neck hypermobility antenatally and the development of postnatal incontinence. <u>Methods</u> 114 women were recruited in to an ongoing study on the effects of pregnancy and childbirth on the pelvic floor. All women completed a symptom questionnaire prior to undergoing an ultrasound assessment of the bladder neck, urethra and levator hiatus. Women returned for further assessment at 6 weeks and six months after delivery. Scans were performed using a Kretz Technik 360 Combison ultrasound machine. Images were obtained at rest, maximum excursion and maximum incursion during valsalva and squeeze respectively. All scans were analyzed blinded to mode of delivery and symptoms of incontinence. Analysis was performed using an XY co-ordinate system the zero reference was through the axis of the pubic symphysis with 0 degrees being at the inferior border of the pubis and 180 degrees at the superior border of the pubis. Statistical analysis was performed using T-tests comparing for mode of delivery and urinary symptoms. <u>Results</u> 105 women completed the questionnaire and first scan antenatally, 90 women correctly completed the six week evaluation and 74 completed the study. The analysis was performed with women symptomatic at six weeks. Stress incontinence at 6 weeks after a vaginal delivery was associated with increased bladder neck mobility at six weeks which appears to resolve with time. These findings did not occur in the women delivered by Caesarean section. There was a trend

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towards increased bladder neck mobility in the women who were symptomatic at 6 months although the numbers were not statistically significant.

Table 1 bladder neck movement in women with urinary symptoms at 6 weeks

Bladder neck movement	Rest (degrees)			Valsalva(degrees)			Squeeze(degrees)			Movt(degrees)		
	AN	6/52	6/12	AN	6/52	6/12	AN	6/52	6/12	AN	6/52	6/12
VD no symp	91	85	92	56	45*	47	112	102	110	54	59	63
VD symp	92	83*	93	62	42***	62	111	105	109	49	61*	46
LSCS no symp	99	94	95	74	69	69	113	111	117	38	41	48*
LSCS symp	92	102	103	68	83	70	106	120	116	38	37	44

* denotes sig p=<0.05 ** denotes sig p=<0.01 ***denotes sig p=<0 001

Table 2 bladder neck movement in women with urinary symptoms at 6 months

Bladder neck	Rest(degrees)			Valsalva(degrees)			Squeeze(degrees)			Movt(degrees)		
	AN	6/52	6/12	AN	6/52	6/12	AN	6/52	6/12	AN	6/52	6/12
VD No symp	92	88	92	55	45	51	111	106	113	56	60	62
VD symp	93	84*	93*	62	44	58	113	106	107	50	60	49
LSCS no symp	101	96	96	73	71	68	111	111	118	38	39	49*
LSCS symp	89	100	99	73	75	71	11	117	115	38	42	42

With regards to predicting the development of postnatal symptoms. We were unable to correlate the development of postnatal incontinence with an increase in antenatal bladder neck movement. The only significant difference antenatally and postnatally was the Y co-ordinate position on performing a valsalva in the women who delivered vaginally. Whereas the bladder neck was more inferior (smaller X co-ordinate) antenatally in the women who developed stress incontinence after a caesarean section. This relationship persists in the women who were symptomatic at six months We performed a logistic regression analysis which suggested the most important antenatal factor was the presence of antenatal stress incontinence

Conclusion This paper, in keeping with the current literature, demonstrates a relationship between bladder neck hypermobility and the presence of stress incontinence. Whilst there was a tendency towards a greater degree of antenatal movement in women who develop postnatal symptoms the overlap between the two groups was such that the test was not useful to differentiate between them We would therefore suggest that bladder neck movement is not clinically useful in our population in identifying women at risk of postnatal urinary incontinence. The development of postnatal incontinence is associated with increased bladder neck movement which may recover in time and explain why symptoms are less prevalent six months after delivery.

¹Neurology & Urodynamics 15(4) 330. 1996

² Int Urogynecol J pelvic floor Dysfunct 1996 7(3) 138-46.