International Continence Society | August 22-26, 1999 | 29th Annual Meeting | Denver, Colorado USA

Category No. 5 | Video Demonstration | Ref. No. 211

Abstract Reproduction Form B-1

Author(s): HP Dietz, B. Clarke

Institution City Country: Royal Women's Hospital, Brisbane, Australia

Title (type in CAPITAL LETTERS): **THE INFLUENCE OF POSTURE ON THE POSITION AND MOBILITY OF THE BLADDER NECK**

Aims of Study

A prospective comparative clinical study was carried out to assess the influence of posture on the position and mobility of bladder neck and proximal urethra.

Methods

132 women undergoing multichannel urodynamics and fluoroscopic imaging for the investigation of lower urinary tract symptoms were examined by translabial ultrasound in the supine and erect position. Ultrasound was performed after voiding, using a 5 MHz curved array transducer placed on the perineum. Bladder neck position was measured relative to the inferoposterior margin of the symphysis pubis as described previously (1).

Results

Average age was 51 (27- 81) years. Median parity was 3 (0-10), mean Body Mass Index was 29 (17- 59). We measured 1.) the distance between bladdder neck and symphyseal margin (BSD), 2.) bladder neck descent (BND) on valsalva in the horizontal and vertical direction, 3.) retrovesical angle (RVA) at rest and on valsalva, 4.) rotation and 5.) funneling (simple and extensive) on valsalva manoeuvre and 6.) the displacement of the internal meatus on pelvic floor contraction (ventral and cranial lift). All measurements were performed by one investigator (HPD) in the supine and the erect position (see Tab. 1).

	Supine	Upright	p
RVA at rest	106 (14)	110 (18)	0.002
RVA on Valsalva	148 (32)	150 (33)	0.067
Rotation of prox. urethra	50 (34)	43 (28)	0.001
Funneling	75	94	<0.001
Extensive funneling	16	29	<0.001
BSD craniocaudal	27.4 (4.7)	22.1 (6.8)	<0.001
BSD ventrodorsal	6.3 (7)	11.6 (8.1)	<0.001
BND (caudal displ.)	24.1 (11.7)	18.1 (8.3)	<0.001
BND (dorsal displ.)	9.5 (6.7)	7.8 (7.2)	0.008
Ventral lift with PFC	2.7 (2.3)	2.7 (2.8)	0.739
Cranial lift with PFC	6.4 (4.1)	5.7 (4.7)	0.437

Tab. 1: Translabial imaging data (n= 132), means (StD), paired t- Test.

Abstract Reproduction Form B-2

Author(s): H.P. Dietz, B. Clarke

The position of the bladder neck at rest was higher in the supine position ($p<0.001$) and it descended further with a Valsalva manoeuvre ($p<0.001$). The bladder neck also moved further posteriorly with Valsalva ($p= 0.008$). There was a higher degree of urethral rotation in the supine patient ($p=0.001$). Funneling of the internal meatus on Valsalva manoeuvre was seen in the supine position in 75 patients and in the erect position in 94 patients (see Tab. 3). In 33 cases these results did not agree (Cohen's kappa 0.47, $p<0.001$). For extensive funneling to midurethra the respective numbers were 16 and 29 with 17 cases of disagreement (kappa 0.55, $p<0.001$), see Tab. 2. Simple or extensive funneling was more frequently detected in the erect position. The effect of a pelvic floor contraction was not markedly influenced by posture. However, more patients were unable to perform an effective pelvic floor contraction in the erect position, usually due to prolapse.

Funneling	supine	pos	neg
erect	pos	68	26
	neg	7	31
			$p<0.001$

Ext. funneling	supine	pos	neg
erect	pos	14	15
	neg	2	101
			$p<0.001$

Tab. 2: Funneling and extensive funneling are more frequently observed in the erect position.

Conclusion

Posture influences the position and mobility of the bladder neck and the proximal urethra. These structures are more mobile in the supine position. The data presented here supports work showing increased urethral rotation in the supine patient as ascertained by QTip test (2). Previous studies using transvaginal (3) and translabial (4) ultrasound have suggested similar effects of posture on hypermobility although sample sizes and consequently statistical power were limited.

Simple as well as extensive funneling of the proximal urethra is more frequently seen in the erect position, an effect which has been observed previously (4).

Imaging of the bladder neck in urodynamic imaging should be undertaken in the supine as well as in the erect position to document reliably both hypermobility and funneling.

Literature

1. *Neurourol. Urodyn* 15 (1996) : 363- 364
2. *Obstet.Gynecol.* 86(2):273-276, 1995.
3. *Neurourol. Urodyn.* 13(6):637-646, 1994.
4. *Ultrasound.Obstet.Gynecol.* 7(5):347-352, 1996.