

STUDY OF THE EFFECT OF PATIENT POSITION ON THE MEASUREMENT OF VALSALVA LEAK POINT PRESSURE IN FEMALE STRESS URINARY INCONTINENCE

Hypothesis / aims of study

Valsalva leak point pressure (VLPP) is one of most important parameters that are measured by cystometrography to diagnose stress urinary incontinence (SUI). It is defined as the lowest intravesical pressure (Pves) at which urine leakage occurs due to increased abdominal pressure in the absence of detrusor contraction. It is originally designed to categorize women with SUI into two groups; urethral hypermobility and intrinsic sphincter deficiency (ISD). This study was done in order to define the effect of position of the patient on valsalva (abdominal) leak point pressure (VLPP) in trial to standardize the technique of VLPP measurement in female patients with stress urinary incontinence (SUI)

Study design, materials and methods

26 cases of stress incontinence or mixed incontinence with predominant stress incontinence were included in the study with the age ranged from 20-60 years. Patients with urge incontinence, genital organ prolapse, or neurological diseases were excluded from the study. At a bladder volume of 200 ml with 6Fr catheter in the urethra, all patients were investigated to do valsalva maneuver in three different positions; supine, sitting & standing in order to get the lowest intravesical pressure (Pves) at which urine leakage occurs due to increased abdominal pressure in the absence of detrusor contraction.

Results

Only 12 patients (46%) showed a positive VLPP in supine position and only 18 patients (69.2%) were positive in sitting position while all the 26 patients (100%) were positive in the standing position [Table 1&2].

Table 1: Positive and Negative VLPP in different positions.

Position	Supine		Sitting		Standing	
	No.	%	No.	%	No.	%
Negative VLPP	14	53.8	8	30.8	0	0.0
Positive VLPP	12	46.2	18	69.2	26	100
(p)			2.836 (0.092)		FEp <0.001*	
FEp2					0.004*	

Only patients with grade III SUI (12 patients) had positive test in all positions. However, on comparing the mean values of VLPP in those 12 patients, we found a drop of the mean value when the patient position was changed from supine to sitting and to standing position (77.5, 68.17, 59 cmH₂O respectively). However, this decrease in VLPP values was not statistically significant [Table 3].

Table 2: Comparative study of different values of VLPP in different positions.

	Supine (n = 12)	Sitting (n = 18)	Standing (n = 26)
Range	40.0 – 120.0	30.0 – 110.0	25.0 – 130.0
Mean ± SD	77.50 ± 27.68	77.22 ± 25.67	71.15 ± 26.55
Median	75.0	79.50	73.50
Z ₁ (p)	0.106 (0.915)		0.631 (0.528)
Z ₂ (p)			0.896 (0.370)

Table 3): Different values of VLPP in 12 patients with positive valsalva in all positions.

	Supine	Sitting	Standing
Range	40.0 – 120.0	30.0 – 105.0	25.0 – 95.0
Mean ± SD	77.50 ± 27.68	68.17 ± 25.70	59.0 ± 24.76
Median	75.0	66.50	59.0
Z ₁ (p)	1.071 (0.284)		1.633 (0.102)
Z ₂ (p)			0.955 (0.340)

Interpretation of results

In the present study, we found that change of position from supine to sitting and to standing increase the chance of positive VLPP test. This might indicate that the standing position is a suitable position for doing the test. Furthermore, the mean value of VLPP was found to be lower on changing from supine to sitting and from sitting to standing positions. Although the decrease in VLPP values was not significant (probably due to the small number of studied patients); again, this might be in favor of doing the test in the standing position. Patients who had positive test in all positions were proved to have grade III SUI, which might explain a positive test even in the supine position.

Concluding message

We concluded that change of position definitely has an effect on the valsalva leak point pressure (VLPP) test. The test becomes more positive with change from supine to sitting and to standing position. Even the values of VLPP decrease more with change of position from supine to sitting and to standing position.

Disclosures

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