

DOES THE PRESENCE OF TRANSURETHRAL CYSTOMETRY CATHETER AFFECT THE MEASUREMENT OF ABDOMINAL LEAK POINT PRESSURE (ALPP) IN WOMEN WITH STRESS URINARY INCONTINENCE (SUI)?

Hypothesis / aims of study

ALPP measurements in female SUI may show variability because of the variations in measurement protocols. The aim of this study is to investigate the effect of cystometry catheter on ALPP measurement and compare the effectiveness of valsalva and cough manoeuvres in demonstrating urinary leakage.

Study design, materials and methods

In this prospective study, 194 female patients with SUI underwent urodynamic studies using a 8-fr urethral cystometry and 10-fr rectal catheter (Medical Measurement Systems USA ®). At the cystometric capacity, valsalva ALPP and than cough ALPP was measured in semi-supine position. The same procedure was repeated after removing the cystometry catheter. The results were analyzed with chi-square and student t-test and $p < 0.05$ accepted as statistically significant.

Results

In the whole study group, cough-induced stress test was found to be significantly more effective than valsalva in demonstrating the leakage. Urine leakage could not be demonstrated in 28 patients (14 %) with any manoeuvre even without catheter standing position. Twenty nine (17 %) women leaked only after the removal of the cystometry catheter (mean ALPP 54 cmH₂O).

The rest of women had a positive stress test both with and without catheter where the presence of the catheter highly significantly increased the cough ALPP and significantly the valsalva ALPP. Results were shown on both Table I and II.

Table I: Cough and valsalva-induced stress test results according to presence or absence of cystometry catheter

	With catheter		Without catheter	
	Cough	Valsalva	Cough	Valsalva
Number of patients with stress test (-)	51	84	44	73
Number of patients with stress test (+)	115	82	122	93
Total	166	166	166	166
Chi-square test	p=0,0003		p=0,0013	

Table II: Comparison of cough and valsalva-induced ALPP measurements in patients with positive stress test in the presence and absence of the cystometry catheter

	Cough ALPP (cmH ₂ O)	Valsalva ALPP (cmH ₂ O)	Paired student t-test
In the presence of catheter	67,3±40,4	46.7±29.8	P<0.0001
In the absence of catheter	50,9±38,5	39,5±24.4	p=0.003
Paired student t-test	p=0.0009	p=0.0166	

Interpretation of results

The masking effect of urethral catheter on leakage can be in up to 50% of patients with SUI (1-3). We suggest to repeat ALPP measurements after the removal of the urethral catheter for patients with SUI. Although higher abdominal pressures are reached on coughing, the valsalva ALPP is better controlled and less variable over time. Cough ALPP then is used for assessing leakage in patients who fail to leak on valsalva ALPP (4).

Concluding message

In about one fifth of females complaining of SUI, stress test in urodynamic studies can be false negative due obstructive effect of cystometry catheter. Furthermore, cystometry catheter significantly increases cough ALPP. Cough appears to be a more affective manoeuvre than valsalva to demonstrate leakage.

References

1. Maniam P, Goldman HB: Removal of transurethral catheter during urodynamics may unmask stress urinary incontinence. J Urol. 2002 ;167(5):2080
2. Lane TM, Shah PJ: Leak point pressures. BJU Int 2000; 86:942
3. Peschers UM, June K, Dimpfl T: Differences between cough and valsalva leak-point pressure in stress incontinent women. Neurourol Urodyn 2000; 19: 677
4. 2nd International Consultation on Incontinence Paris, July 1-3, 2001: Committee 7: Urodynamics. pg 338

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CLINICAL TRIAL REGISTRATION:

This clinical trial has not yet been registered in a public clinical

trials registry.

HUMAN SUBJECTS: This study was approved by the Marmara University School of Medicine Ethics Committee and followed the Declaration of Helsinki Informed consent was obtained from the patients.