106

Passos F[1], Reis I[1], Coelho A M[1], Bernardino M[1], Ribeirinho A L[1], Valentim-Lourenço A[1], Abranches Monteiro L[2]
1. *Centro Hospitalar Lisboa Norte - Hospital de Santa Maria,* ***2.*** *Hospital Curry Cabral*

NORMAL DISTRIBUTION OF URETHRAL RESISTANCE AND DETRUSOR CONTRACTILITY IN WOMEN WITH URINARY INCONTINENCE

Hypothesis / aims of study

Female bladder outlet obstruction (BOO) is an elusive and controversial entity. Normal pressure-flow study (PFS) parameters for women have not been well defined. Groutz and Blaivas published a nomogram for women with BOO that showed no correlation with symptoms, giving an unlikely high prevalence of obstruction (1). Schäfer nomogram combines maximal flow rate (Qmax) and detrusor pressure at maximal flow rate (PdetQmax) to determine bladder outlet obstruction (2). It seems to correlate more accurately with clinical obstruction but it was constructed with urodynamic parameters in a male population. Probably, it is also applicable to women. Women with urinary incontinence are expected to have a lower outlet resistance (3).
The aims of this study were to: 1) define the distribution pattern of urethral resistance and detrusor contractility using urodynamic study (UDS) parameters, in a population of incontinent women, without anterior compartment pelvic organ prolapse and 2) evaluate this distribution according to the type of urinary incontinence (stress *vs* mixed).

Study design, materials and methods

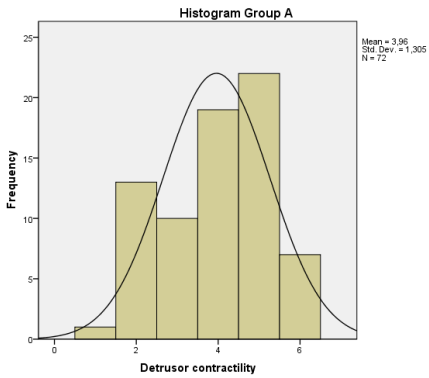
We performed a retrospective observational study of women without anterior compartment pelvic organ prolapse submitted to a sling procedure for urinary incontinence (transobturator vaginal tape, tension-free vaginal tape - TVT or TVT-Secur) between January of 2004 and November of 2008. All had a preoperative evaluation with urodynamic study. Exclusion criteria were: women who voided with abdominal straining greater than 10 cm H_2O, who were unable to void for the PFS or had catheter loss during the exam. Patients were divided into two different clinical groups. Group A had clinical stress incontinence defined as leakage with coughing, sneezing or exercise. Group B had mixed incontinence defined as presence of stress incontinence and urge symptoms. We analysed urethral resistance and detrusor contractility using detrusor/flow plot according to Schäfer and defined: urethral resistance grade 0 as no obstruction, grade 1-2 as mild obstruction, grades 3-4 as moderate obstruction and grades 5-6 as severe obstruction. Detrusor contractility was divided into 6 grades: VW (very weak), W- (weak minus), W+ (weak plus), N- (normal minus), N+ (normal plus) and ST (strong). Statistical analysis was performed with PASW Statistics 18. Different tests were used according to the variable type. *P* values <0.05 were considered statistically significant.

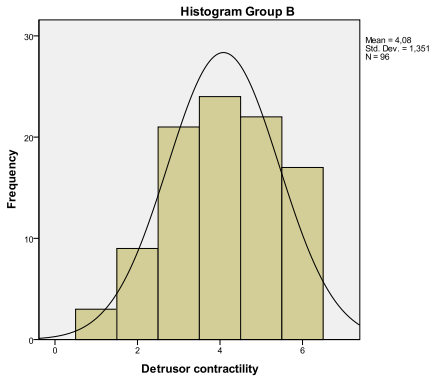
Results

Of the 195 patients submitted to sling procedure, 27 were excluded (23 because of abdominal straining greater than 10 cm H_2O, 2 were unable to void for the PFS and 2 because of catheter loss during the exam). A total of 168 women were analysed – group A (n=72), group B (n=96). The two groups were homogeneous concerning the distribution of race, age, body mass index (BMI), history of vaginal delivery and postmenopausal status.

	Group A (n=72)	Group B (n=96)	*P* value
Caucasian n (*%*)	70 (*97.2*)	95 (*98.9*)	> 0,05
BMI (kg/m^2) median [min-max]	29.5 [21.5-38.9]	30.3 [21.6-40.7]	> 0,05
Age (years) median [min- max]	55.0 [39-78]	58.0 [33-78]	> 0,05
Patients with vaginal births n (*%*)	71 (*98.6*)	90 (*93.8*)	> 0,05
Postmenopausal n (*%*)	35 (*48.6*)	59 (*61.5*)	> 0,05

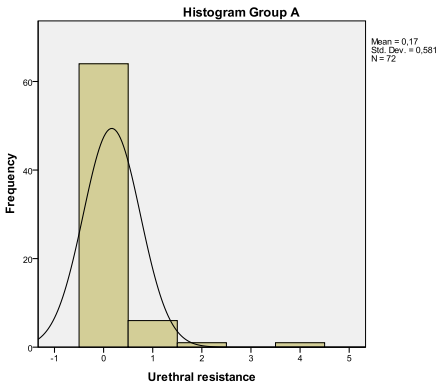
	Group A	Group B
Detrusor contractility	N (*%*)	N (%)
V W	1 (*1.4*)	3 (*3.1*)
W -	13 (*18.1*)	9 (*9.4*)
W +	10 (*13.9*)	21 (*21.9*)
N -	19 (*26.4*)	24 (*25*)
N +	22 (*30.6*)	22 (*22.9*)

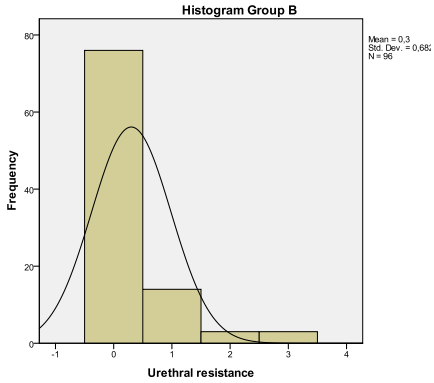




ST	7 (*9.7*)	17 (*17.7*)
Total	72 (*100*)	96 (*100*)

Urethral resistance	Group A N (*%*)	Group B N (%)
0	64 (*88.9*)	76 (*79.2*)
1	6 (*8.3*)	14 (*14.6*)
2	1 (*1.4*)	3 (*3.1*)
3	0	3 (*3.1*)
4	1 (*1.4*)	0
5	0	0
6	0	0
Total	72 (*100*)	96 (*100*)





Interpretation of results

The difference in the urethral resistance distribution and detrusor contractility between group A and B had no statistical significance. This was still observed when considering subgroup analysis between non-obstructed and obstructed women (resistance 0 *vs* 1-4) or subgroups of contractility (VW/W- *vs* W+/N- *vs* N+/ST).

The main shortcoming of this study is the obligation of excluding women who could not urinate or exhibited valsalva voiding, which may be indicative of BOO.

Concluding message

Schäfer nomogram applied in this population of incontinent women, without anterior compartment pelvic organ prolapse, suggested an urethral resistance of 0 as the normal value. For detrusor contractility, the most frequent values are N- and N+ in women with stress incontinence and W+, W- and N+ in those with mixed incontinence. There were no significant differences between stress and mixed incontinence in what concerns urethral resistance and detrusor contractility.

References

1. Akikwalaa T, Fleischman N, Nitti V. Comparison of Diagnostic Criteria for Female Bladder Outlet Obstruction. J Urol 2006; 176:2093-2097.
2. Rosario D J, Woo H, Chapple C. Definition of Normality of Pressure-Flow Parameters Based on Observations in Asymptomatic Men. Neurourol Urodyn 2008;27:388-394.
3. Defreitas G, Zimmern P, Lemack G et al. Refining Diagnosis of Anatomic Female Bladder Outlet Obstruction: comparison of pressureflow study parameters in clinically obstructed women with those of normal controls. Urology 2004;64:675-81.

Specify source of funding or grant	**None**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require eithics committee approval because	**it is a retrospective study**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**