

significantly lower than that in controls, and subsequent reperfusion slightly recovered the Pdet; 3) Ischemia-reperfusion injury was prevented by treatment with NO inhibitors *in vivo* and *in vitro* studies.

TABLE 1

	Emax, gm/mm <sup>2</sup>	% Control	ED <sub>50</sub> , μM
Control	11.1 ± 1.3	100.0	1.9 ± 0.3
I	8.8 ± 0.7	80.0	2.4 ± 0.3 <sup>c</sup>
I-R	4.5 ± 0.6 <sup>a</sup>	40.5 <sup>a</sup>	4.8 ± 0.9 <sup>a</sup>
+ L-NAME, 30 mg/kg	6.6 ± 0.4 <sup>a</sup>	59.4 <sup>a</sup>	4.5 ± 0.9 <sup>a</sup>
I-R (1Week)	7.9 ± 0.7 <sup>b</sup>	71.2 <sup>b</sup>	0.9 ± 0.1
+ L-NAME (30 mg/kg)	9.0 ± 0.8	81.1	1.3 ± 0.2
+ L-NMMA (30 mg/kg)	9.2 ± 0.6	82.9	1.1 ± 0.2

Data are shown as mean ± S.E.M. of 6-8 separate determinations in each group. a) significantly different from any other group. b) significantly different from control and I-R groups. c) significantly different from ischemia-reperfusion groups. p < 0.05 is level of significance.

TABLE 2

	Pdet, cmH <sub>2</sub> O	Bladder Capacity, ml
Basel	34.4 ± 1.8*	0.53 ± 0.09
I	29.5 ± 0.7	0.80 ± 0.18 <sup>#</sup>
I-R	32.0 ± 1.6	0.63 ± 0.15
Basel (L-NAME, 30 mg/kg)	35.0 ± 1.9*	0.64 ± 0.15
I (L-NAME, 30 mg/kg)	28.2 ± 1.0	1.01 ± 0.12 <sup>#</sup>
I-R (L-NAME, 30 mg/kg)	33.7 ± 2.7*	1.10 ± 0.14 <sup>#</sup>

Data are shown as mean ± S.E.M. of 6-8 separate determinations in each group. \*) significantly different from I group. #) significantly different from Basel group. p < 0.05 is level of significance.

**References:** 1) Life Sci. 62: PL149, 1998. 2) Neurorol. Urodyn. 17: 409, 1998. 3) J Pharmacol Meth 15:157, 1986

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V.Khullar, S.Salvatore, L.Cardozo, K.Anders, J.Bidmead, A.Digesu and K.Clifford
Urogynaecology Unit, King's College Hospital, London, UK
VALSALVA AND COUGH URETHRAL PRESSURES :
INTERCHANGEABLE OR COMPARABLE?

**Aims of study:** Valsalva and cough leak point pressures have been used to evaluate the outcome of continence surgery and identify low pressure urethras. The Valsalva leak point pressure (LPP) relies on the woman gradually increasing her intra-abdominal pressure until urinary leakage is seen whereas the cough LPP relies on the woman producing graded coughs of increasing pressure until she leaks. Cough LPP's are higher than Valsalva LPP's in the same woman but this may be due to the method of increasing intra-abdominal pressure. A standardised technique does make the Valsalva LPP reproducible and the technique has been found to be reproducible and correlate with urethral pressure profilometry. The aim of this study is to evaluate whether the mechanism of incontinence during a cough or Valsalva are the same by measuring the pressure transmitted to the urethra.

**Method:** Symptomatic women underwent urodynamics. At the end of the test a fluid filled rectal line was left in place and urethral pressure profilometry was carried out. Urethral pressure profilometry was performed using a 7F catheter with 2 solid state microtip transducers 4 cm apart. The technique of Hilton and Stanton(1) was used. The pressure along the urethra was then measured at three points, the proximal urethra, at the point of maximal urethral closure pressure and the distal urethra during a cough and a Valsalva manoeuvre. The intra-abdominal pressure was kept the same for both manoeuvres by simultaneously recording pressures through the rectal pressure catheter.

The urethral and intra-abdominal pressure rises during both manoeuvres were then compared using the technique of Altman and Bland (2).

**Results:** 34 women with genuine stress incontinence were studied and 44 women with competent urethral sphincters. Table 1 shows the mean difference between cough and Valsalva pressures in the urethra and the 95% confidence interval for the difference.

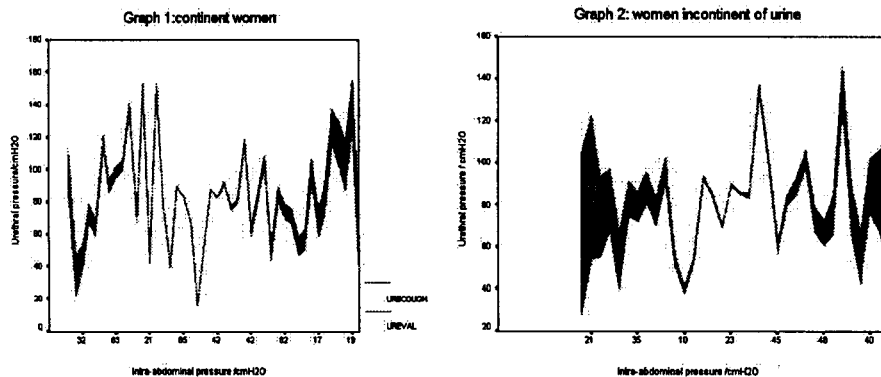
WOMEN WITH COMPETENT URETHRAL SPHINCTERS	Urethral Pressures (cmH <sub>2</sub> O)	Rectal Pressures (cmH <sub>2</sub> O)
Mean difference between Cough and Valsalva (cmH <sub>2</sub> O)	3.3	0.6
95 <sup>th</sup> centile of difference between Cough and Valsalva manoeuvre (cmH <sub>2</sub> O)	31.7	4.0
5 <sup>th</sup> centile of difference between Cough and Valsalva manoeuvre (cmH <sub>2</sub> O)	-22.5	-1
WOMEN WITH SPHINCTER INCOMPETENCE		
Mean difference between Cough and Valsalva (cmH <sub>2</sub> O)	-1.5	0.3
95 <sup>th</sup> centile of difference between Cough and Valsalva manoeuvre (cmH <sub>2</sub> O)	44.0	7.2
5 <sup>th</sup> centile of difference between Cough and Valsalva manoeuvre (cmH <sub>2</sub> O)	-71.0	-2.7

Table 1: Differences between cough and Valsalva urethral pressures

The 95% confidence interval for difference between the rectal pressures is acceptable as the largest range is 9.9 cmH<sub>2</sub>O.

Unfortunately the 95% confidence interval difference between the Valsalva and cough pressures is 115 cmH<sub>2</sub>O. This indicates that these techniques are not comparable as this range of difference would include the pressure differences between a low pressure and normal pressure urethral LPP.

The urethral measurements (Graph 1 and 2) show that continent women have a higher intraurethral pressures during coughs (dark grey) than Valsalva (light grey) at the same intrabdominal pressures. The incontinent women have greater variations in intraurethral pressures between Valsalva and cough manoeuvres at the same intrabdominal pressures. This may mean that leak point pressures may not be a valid method of assessing outcome after continence procedures such as injectables as the mechanism of continence may produce different LPP measurements according to whether a cough or Valsalva was used to produce an increase in intra-abdominal pressure.



**Conclusion:** The pressures generated within the urethra during a Valsalva and cough are different even with the same increase in intra-abdominal pressure. The direction of this difference depends on whether the woman is continent or incontinent. Thus the technique used to obtain a leak point pressure may influence the changes seen when the measurement used as an outcome measure.

**References**

1. Br J Obstet Gynaecol 1983;90:919-33.
2. Lancet 1986;i:307-10.