

Category No.

4

Video  
Demonstration

Ref. No.

191

**Abstract Reproduction Form B-1**

Author(s):

J Sullivan, P Lewis, S Howell, A Shepherd, P Abrams

Double Spacing

Institution  
City  
Country

Bristol Urological Institute, Southmead Hospital, Bristol, United Kingdom

Double Spacing

Title (type in  
CAPITAL  
LETTERS)**BASELINE PRESSURES IN URODYNAMICS**

**Aims of Study:** Existing ICS recommendations on urodynamic technique state that external transducers should be zeroed to atmospheric pressure using the upper edge of the symphysis pubis as the reference point. This is important in quality control, as the empty resting (or baseline) pressures provide useful information on the quality of pressure recording before starting urodynamics (UDS). Zeroing transducers in the bladder or rectum may produce UDS traces which look almost perfect, but valuable quality control information is lost in the process, and serious pressure transmission problems may be masked. Problems with the positioning of the zero line were common when UDS traces from multiple centres were centrally reviewed for the ICS 'BPH' study [1]. The recent draft guidelines entitled 'Good Urodynamic Practice' [2] suggest normal ranges for baseline pressures, but there are no prospective data to support these figures. This study was designed to provide accurate prospective data on the ranges of baseline pressures which can be expected when following current ICS guidelines. We also studied the relationship between these pressures and obesity, since there are very few data available on this topic.

**Methods :** Patients referred for UDS were recruited for the study, and written consent was obtained. Intravesical pressure was recorded using a 6 Fr dual-lumen catheter after emptying of any residual urine. Intra-abdominal pressure was recorded using a 6 Fr rectal line covered with a finger cot to prevent faecal plugging, and with a slit in the cot to allow flushing of the catheter. Detrusor pressure was calculated by electronic subtraction. External transducers were zeroed to atmospheric pressure with the open end of the tubing at the level of the upper edge of the symphysis pubis, determined by direct palpation. Pressure transmission was tested by asking the patient to cough. If the baseline detrusor pressure was outside the range 0-5 cm H<sub>2</sub>O the lines were checked and flushed to ensure that the reading was correct. Baseline pressures were recorded in supine, sitting and standing positions, with flushing of both lines after each position change.

**Results:** Twenty-six patients have been studied so far (19 males: 7 females). The patients showed a mean ( $\pm$  1 S.D.) weight of 76.1 ( $\pm$  13.8) kg and body mass index of 26.5 ( $\pm$  5.6). The baseline pressures recorded in each position are shown below. The values shown are mean pressures ( $\pm$  1 S.D.) in cm H<sub>2</sub>O.

Category No.  
4Video  
DemonstrationRef. No. (Page 2)  
191

## Abstract Reproduction Form B-2

Author(s):

J Sullivan, P Lewis, S Howell, A Shepherd, P Abrams

	Pves	Pabd	Pdet
SUPINE	8.1 ( $\pm$ 5.5)	7.3 ( $\pm$ 5.5)	0.7 ( $\pm$ 2.7)
SITTING	27.1 ( $\pm$ 7.2)	26.5 ( $\pm$ 7.4)	0.6 ( $\pm$ 2.0)
STANDING	35.9 ( $\pm$ 9.3)	35.0 ( $\pm$ 9.1)	1.1 ( $\pm$ 1.6)

Detrusor pressures lay in a relatively narrow range and close to zero in all postures. No detrusor pressure was outside the range  $-3$  to  $+6$  cm H<sub>2</sub>O in any posture. The ranges for intra-abdominal and intravesical pressures were naturally wider, since they reflect variation in body habitus between individuals. Individual readings in all postures showed reasonable correlation with the body mass index (i.e. the weight in kilograms, divided by height in metres squared), and slightly stronger correlation with the weight in kilograms. Correlation coefficients for intra-abdominal pressure were:

	Padb SUPINE	Pabd SITTING	Pabd STANDING
BMI	0.70	0.53	0.65
Weight (kg)	0.75	0.60	0.75

**Conclusions:** As suggested by experience [2] and retrospective study [3], detrusor pressure is normally close to zero when existing ICS guidelines are followed and lines are checked and flushed carefully. Baseline detrusor pressure should certainly lie between  $-5$  and  $+10$  cm H<sub>2</sub>O. Intravesical and intra-abdominal baseline pressures are normally in the range 4-15 cm H<sub>2</sub>O - supine position; 15-35 cm H<sub>2</sub>O - sitting position; and 20-50 cm H<sub>2</sub>O - standing position. As expected these pressures correlate well with indices of obesity, which should be taken into account when checking baseline pressures for plausibility. Values of baseline pressures outside these ranges should arouse suspicion, and lead to correction of the problem. We continue to recruit patients to this study in order to provide an accurate guide to the range of baseline pressures to be expected.

**References:**

- 1 'The ICS 'BPH' study: pressure-flow studies, quality control and initial analysis'. NeuroUrol Urodyn 1994; 13 (4): 491-2.
- 2 'Good Urodynamic Practise' draft report. Good Urodynamic Practice workshop, 28<sup>th</sup> Annual Meeting of the International Continence Society, Jerusalem, 1998.
3. 'Achievable standards for male urodynamics'. Poster presentation, 28<sup>th</sup> Annual Meeting of the International Continence Society, Jerusalem, 1998.

**Acknowledgement :** Mr Sullivan was supported by an educational grant from Lorex Synthelabo.