

## **MAXIMAL URETHRAL CLOSURE PRESSURE < 20 CM H<sub>2</sub>O – IS IT PREDICTIVE FOR DIAGNOSIS OF INTRINSIC SPHINCTER DEFICIENCY?**

### **Aims of Study**

Measurement of maximal urethral closure pressure (MUCP) is considered by many clinicians as part of the urodynamic evaluation for urinary stress incontinence and correlates with its severity. This criteria of a maximal urethral closure pressure of 20 cm H<sub>2</sub>O or less, obtained during a static urethral pressure profilometry was used to define intrinsic sphincter deficiency (ISD) and has been correlated with unfavorable surgical outcome. The prevalence of low maximal urethral pressure among stress incontinent women varied between 11% to 50%. In our unit 500-750 urodynamic tests are performed yearly. Urethral pressure profilometry is a standard measurement for stress incontinence patients. Our prevalence of MUCP < 20 cm H<sub>2</sub>O resulted, throughout the years to be 2.4.% of our stress incontinent patients. In order to understand this large prevalence discrepancy we referred to the technique by which UPP was measured in the original description. UPP was performed in the sitting position with a full bladder, while in our unit UPP is performed in the supine position with 300 ml of saline in the bladder in accordance with the International Continence Society guidelines. The purpose of this study was to compare UPP measurement in the supine position (300) and sitting position (full bladder) in patients with urinary incontinence in order to test the validity of the MUCP < 20 cm H<sub>2</sub>O as a cutoff point for diagnosis of intrinsic sphincter deficiency.

### **Methods**

Fifty four consecutive patients diagnosed to have urinary stress incontinence were enrolled for this study. All patients had a full history taken, underwent gynecologic, urologic and neurologic system examination. Patients were examined with a full bladder for the visual appearance of urinary incontinence. The urodynamic investigation included twin channel subtracted cystometry. Uroflowmetry and urethral pressure profilometry.

Cystometry and uroflowmetry were performed using the Investigation System 5000 (Lectomed, Jersey, UK) using Saline Solution as the filling substance, at room temperature at an infusion rate of 100 ml/min. Urethral profile measurement were performed using the 7F Gaeltec dual microtip catheter (Gaeltec, Glasgow, Scotland) positioned at 90° and withdrawn at a rate of 2mm/sec. Measurements were performed in the supine position with 300 ml of saline in the bladder and then in the sitting position with a full bladder. Three urethral pressure profile measurements were recorded for each position and mean value of maximal urethral closure pressure was calculated. The statistical method used was the student t test.

### **Results**

The mean age of the 54 patients included in the study group was 55.3 years (42-78). Mean parity 3.2 (1-11). Previous incontinent surgery were performed in 15/54 patients (27.7%). Thirty five out of fifty four patients were postmenopausal (64.8%) all of which have been treated with estrogen replacement therapy. Table 1 summarizes the MUCP measurements in the supine and sitting positions. The mean MUCP in the supine position with 300 ml saline in the bladder was 38.45 cmH<sub>2</sub>O compared with 22.80 cmH<sub>2</sub>O in the sitting position with a full bladder. The mean difference in MUCP measurement between supine and sitting positions was 15.65 cmH<sub>2</sub>O (P<0/0001). MUCP measurements in the supine position were found consistently higher than in the sitting position for each patient. In the sitting position 14/54 (25.9%) patients had MUCP < cmH<sub>2</sub>O compared with one patient (1.8%) in the supine position.

### **Conclusions**

In the present study it was not our intention to test the validity of static profilometry as a diagnostic method for intrinsic sphincter deficiency but rather to challenge the widely used cutoff point of maximal urethral closure pressure < 20 cmH<sub>2</sub>O as predictor for intrinsic sphincteric deficiency. The study was motivated by the persistent low rate of MUCP < cmH<sub>2</sub>O among our stress incontinent patients compared to the figures published in the

literature. We believe that the difference is due to technique variation in urethral profilometry measurements. In conclusion, our results indicate that static profilometry performed according to the International Continence Society guidelines (supine position with 300 ml in the bladder) should elevate the cutoff point for diagnosis of intrinsic sphincteric deficiency, using maximal urethral closure pressure, from 20 cmH<sub>2</sub>O to 35 cmH<sub>2</sub>O. More clinical studies are needed to verify whether this new cutoff point of 35 cmH<sub>2</sub>O has adverse effect on the results of conventional surgery for urinary stress incontinence.