

## INTER-OBSERVER RELIABILITY OF THREE DIFFERENT METHODS OF ASSESSING URETHRAL MOBILITY

### Hypothesis / aims of study

Some authors suggest that the evaluation of urethral mobility has relevant implications in the management of urodynamic stress incontinence (USI). For these investigators, suburethral sling procedures can correct more effectively the cases of USI associated with urethral hypermobility, whereas the forms of USI with fixed urethra have a higher rate of recurrence after surgical treatment. At the moment, there are no completely reliable and universally accepted methods to evaluate urethral mobility. The aim of this study was to assess the inter-observer reliability of three different methods of evaluation of urethral mobility in women: the Q-tip test, the Sensor-Q™ test and the ultrasonographic measurement.

### Study design, materials and methods

From November 2006, consecutive women referred for urinary symptoms were submitted to one of the three procedures (Q-tip test, Sensor-Q™ test and ultrasonographic measurement), performed by two different Urogynecologists, one blinded to the measurement obtained by the other. The Q-tip test was performed by measuring with a goniometer the angle between urethral axis at rest and urethral axis under maximal Valsalva manoeuvre. Sensor-Q™ test was performed using the specific equipment able to electronically assess the change between the urethral axis at rest and under Valsalva, giving a graph with a print-out of the result. The ultrasonographic measurement of urethral mobility was performed as follows: perineal ultrasound was done on supine patients with the transducer placed lightly against the vulva in a sagittal orientation to view the bladder, the bladder neck, the urethra and the pubis; bladder neck position at rest and during maximal Valsalva, was measured with the x, y coordinate system based on the pubic bone, and bladder neck movement was calculated using the formula: vector length =  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ , where  $x_1$  and  $y_1$  represent the coordinates at rest and  $x_2$  and  $y_2$  represent the coordinates during Valsalva (1). Data were analyzed using the Pearson product moment correlation coefficient and the following rules given by Colton (1974) were used to interpret the data: correlations between 0 and 0.25 (or -0.25) indicate little or no relationship; from 0.25 to 0.50 (or -0.25 to -0.50) a fair degree of relationship; from 0.50 to 0.75 (or -0.50 to -0.75) a moderate to good relationship; and between 0.75 and 1 (or -0.75 and -1.00) a very good to excellent relationship.

### Results

A total of 75 patients were assessed. The median age of the study population was 64 years (range: 46 – 76 years). The Q-tip test, the Sensor-Q™ test and the ultrasonographic measurement were performed on 27, 33 and 15 patients respectively. Median age of the patients did not significantly differ in the three different groups. The inter-observer reliability of the Q-tip measurement was very good, having a correlation coefficient of 0.83. The inter-observer reliability of the Sensor-Q™ test was excellent, with a correlation coefficient of 0.92, whereas the ultrasound measurement showed a low correlation coefficient of 0.33 (Table).

Table: Inter-observer reliability of the three different methods of evaluation of urethral mobility.

<u>Method of evaluation</u>	<u>N. of patients</u>	<u>Interobserver reliability (correlation coefficient)</u>
Q-tip test	27	0.83
Sensor-Q™	33	0.92
Ultrasonography	15	0.33

### Interpretation of results

Sensor-Q™ test showed the highest interobserver reliability among the 3 methods investigated for the evaluation of urethral mobility, given its objective, computerized system of analysis of data.

### Concluding message

The high reproducibility with Sensor-Q™ obtained by our study encourages us to continue with this device to assess the clinical relevance of different urethral mobility conditions and to determine whether this has any significant impact on final treatment outcome.

### References

1. Obstet Gynecol (1999) 93; 412 – 416.

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**HUMAN SUBJECTS:** This study was approved by the Institutional Review Board of the Department of Obstetrics and Gynecology, University of Insubria, Varese - Italy  
Institutional Review Board of the Urologic Clinic, University of Padua, Padua - Italy and followed the Declaration of Helsinki Informed consent was obtained from the patients.