

WHAT IS THE BEST TEST OF URETHRAL DYSFUNCTION?

Aims of Study

Many different methods of assessing urethral function have been described. These can include urethral pressure profilometry, pressure flow studies and ultrasound assessment of the urethral sphincter. The aim of this study is to determine which is the best test for discriminating between the two urodynamic diagnostic groups of urodynamic stress incontinence and detrusor overactivity. A good urethral test should discriminate between the women urethral sphincter incompetence and those with a competent sphincter.

Methods

Women were recruited from the urodynamic clinic the underwent urodynamic investigation which involved uroflowmetry, filling and voiding cystometry (Aquarius, Laborie SA, Canada). The women then had urethral pressure profilometry in the supine position using the technique suggested by Hilton and Stanton. A microtip dual sensor urethral pressure catheter was used to measure the pressure in the urethra during a static urethral profile and a stress urethral profile. Finally the women had a transperineal ultrasound scan of the urethral using a 3 dimensional ultrasound scan (Kretztechnik, Zipf, Austria). The rhabdosphincter and urethral volumes were calculated. The Mann Whitney U test was used.

Results

Nineteen women were recruited, ten were diagnosed with detrusor overactivity (DO) and 9 had urodynamic stress incontinence (USI). The different test results were calculated for the two urodynamic groups.

The only test found to produce significant discrimination between the two groups was the 3 dimensional volume measurement of the urethral sphincter volume. In table 1 the median with the interquartile ranges for the different tests are shown and in fig 1 the mean with 95% confidence intervals for the urethral sphincter are shown.

Urethral test	DO (n=10)	USI (n=9)	Mann Whitney U test
Urethral opening pressure (cmH ₂ O)	21 (14-51)	11 (10-24)	P = 0.3
Urethral closure pressure (cmH ₂ O)	19 (12-35)	10 (6-16)	P = 0.08
Maximum urethral closure pressure (cmH ₂ O)	57 (36-81)	43 (33-46)	P=0.2
Sphincter volume (ml)	4.0 (2.9-6.7)	1.3 (1.0 – 2.8)	P = 0.003

Table 1: Summary of the urethral test measures

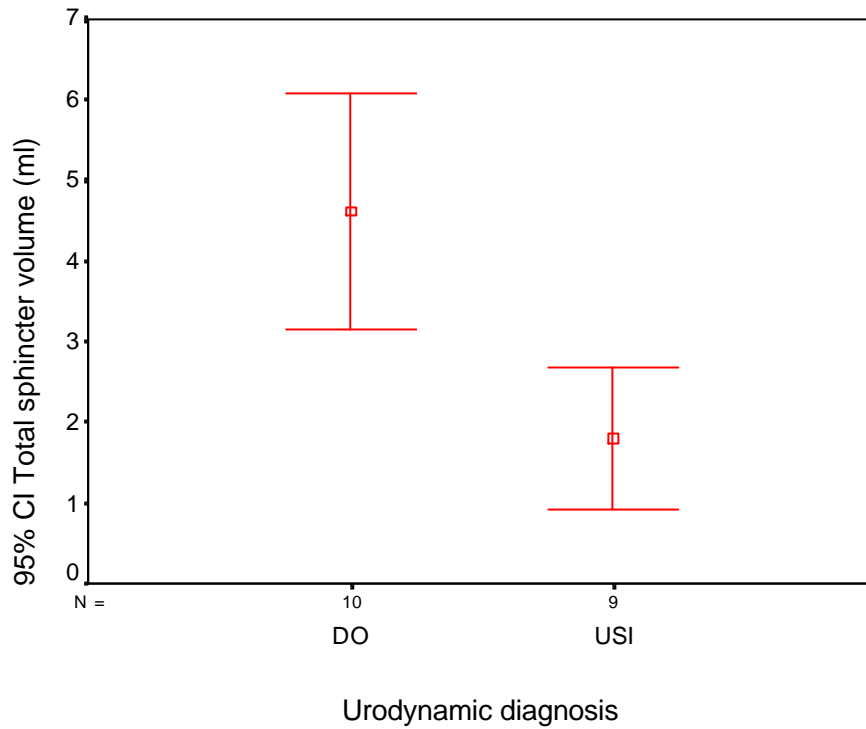


Figure 2 : Mean and 95% confidence intervals for urethral sphincter volume.

Conclusion

Urethral sphincter volumes measured using 3 dimensional ultrasound appears to be the most discriminant measurement of urethral sphincter incompetence in this study and may be valuable for assessing treatments for urodynamic stress incompetence instead of urethral pressure profilometry or pressure flow studies.