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Predictors of success with postoperative voiding trials after a mid urethral sling procedure

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Purpose: We identified predictors of passing a voiding trial after incontinence surgery with a mid urethral sling and examined if successful performance on a voiding trial was maintained.

Materials and Methods: A total of 89 women scheduled for incontinence surgery were enrolled from July 2005 until April 2006. Voiding trials were performed the day of discharge from the hospital, with a two-thirds volume void after a 300 mL fill considered passing. Those who passed underwent a second voiding trial 3 hours later.

Results: Of the participants 60 (67.4%) underwent tension-free vaginal tape surgery, 29 underwent transobturator tape (32.6%) and 64 (71.9%) underwent concurrent vaginal repairs. A total of 59 (67.0%) participants passed the first voiding trial. Univariate analysis identified 12 potential predicting variables for passing the first voiding trial. From these 12, model building via backward stepwise logistic regression found maximum flow on preoperative uroflowmetry to be the only significant predictive variable ($p = 0.0002$). Of the 59 women who passed the initial voiding trial 9 (16.4%) failed the second voiding trial. None of the 11 participants who had maximal flow rates greater than 30 cc per second failed the first or second voiding trial, whereas 17 of 22 subjects (77.3%) who had maximal flow rates less than 15 cc per second failed either of these trials.

Conclusions: Maximum flow rates on preoperative uroflowmetry were the best predictor of passing an initial voiding trial after undergoing a mid urethral sling procedure for incontinence. However, the ability to maintain performance on a second voiding trial, even only 3 hours after passing an initial trial, is not assured.

Editorial Comment

The authors prospectively studied a cohort of patients with regard to their ability to successfully void on the day of their discharge after anti-incontinence surgery. The patients were asked to complete two "fill-pull" trial of voids using 300 cc's of instilled fluid to see if they could go home without their urinary catheter. Successful voids were characterized by at least two-thirds of the bladder instillate being voided out over a ten-minute period. The investigators subsequently reviewed the patients' clinical histories and urodynamic evaluations and based on 51 potential predictors noted that the maximum flow rates were the best predictor of passing the first voiding trial. Nevertheless, voiding well the first time did not guarantee that the patient would pass the second voiding test.

I found this an interesting contribution to the literature if only to remind surgeons of the challenge of postoperative voiding function. Successful initial voiding does not rule out subsequent urinary retention: the

authors noted that approximately 16% of their population failed the second voiding trial and ultimately ended up with a catheter upon discharge to home. In addition, their flow diagram reveals that approximately one-third of their patients had to leave the hospital with a catheter. We have all shared in the muted appreciation of a postoperative patient who must go home with a catheter after her surgery.

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Does uroflow predict ISD?

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Aim: The term superflow has been given to abnormally high flow rates in women, and has been thought to be indicative of intrinsic sphincteric deficiency (ISD), as ISD is associated with low urethral pressure. Pelvic organ prolapse (POP) damages the sphincteric mechanism extrinsic to the urethra. The aim of this study was to determine if ISD can be predicted from voiding flow rates in women with symptomatic POP.

Methods: The charts of 82 patients who had undergone surgery for repair of symptomatic vaginal prolapse were reviewed. Uroflow and urodynamic endpoints were compared between dry and stress incontinent patients, and correlations between abdominal leak point pressures (LPP) and pressure/flow data evaluated.

Results: Average maximum flow (Q(max)) at uroflow was greater than at urodynamics with no significant difference in voided volumes. Twenty eight patients were found to have urodynamic stress incontinence (SUI), and an additional 19 to have "occult" stress incontinence. Patients with SUI had higher flow rates at urodynamics than continent patients. Voiding detrusor pressures and flow rates were not different when categorized by LPP cutoffs of 100 and 60 cm/w. Abdominal leak point pressure did not significantly correlate with any uroflow or urodynamic pressure/flow parameter.

Conclusions: Flow rates, whether determined by uroflow testing or at urodynamics, are not predictive of ISD as defined by a low abdominal leak point pressure, in patients with symptomatic POP. Either the effect of ISD on flow rates is a non-linear complex relationship or LPP does not adequately define ISD.

Editorial Comment

The authors examine the correlation of catheter free uroflow to the presence of intrinsic sphincter deficiency during urodynamic evaluation in a population of patients with symptomatic pelvic organ prolapse. This population was selected in that it was conjectured that the pelvic organ prolapse group would offer the truest evaluation of urethral sphincter function since the impact of the external sphincter mechanism would be minimized secondary to their anatomic pathology. The authors found that catheter free uroflow rates were not correlated to leak point pressures in this select population of women (symptomatic pelvic organ prolapse and stress urinary incontinence).

An excellent article from a noted leader in the field. The introduction and discussion section alone are worth reading for the commentary and description of the continence control mechanisms. I found it interesting that in review of the tables and the results section there was no notation of variability of voiding pattern: pure Valsalva voiders; combined detrusor contraction with Valsalva voiding; and voiders who empty their bladder by

relaxing the pelvic floor. All who have evaluated female voiding dysfunction have found the noted voiding patterns at times to be very confounding with regards to analysis secondary to their variability (1).

Reference

1. Lemack GE: Urodynamic assessment of bladder-outlet obstruction in women. *Nat Clin Pract Urol.* 2006; 3: 38-44.

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