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RISK FACTORS FOR INCOMPLETE BLADDER EMPTYING AFTER MIDURETHRAL SLING

Hypothesis / aims of study

Voiding problems after midurethral sling (MUS) are associated with patient dissatisfaction and can lead to urinary tract infections or the need for sling takedown. The aim of this study was to describe the prevalence and risk factors for incomplete bladder emptying after MUS in a large multi-center trial.

Study design, materials and methods

598 women were randomized to retropubic (RMUS) or transobturator (TMUS) mid-urethral slings as part of a randomized multicenter trial of MUS. Design and results of this trial have been reported (1). Demographic data, voiding and voiding accommodation symptoms were obtained pre-operatively. Urodynamic parameters included non-instrumented maximum flow rate, post-void residual, detrusor pressure at maximum, and mechanism of voiding. At the time of discharge after surgery (either outpatient or overnight in some cases of concomitant prolapse surgery), subjects underwent a standardized fill-and-pull voiding trial: 300 mL was instilled via an indwelling catheter which was then removed. A successful voiding trial was defined as 150 mL or more voided immediately after filling. Incomplete bladder emptying was defined as a post void residual of >150 mL and these subjects were subsequently managed with an indwelling catheter or intermittent self-catheterization until resolved.

Results

Three-quarters of subjects (454/597) were self-voiding at the time of discharge, while 19% (114/597) were managed with an indwelling urethral catheter and 5% (29/597) were managed with intermittent catheterization. At two weeks, only 6% (38/586) reported any catheter use, and by six weeks, only 2% (9/587) reported any catheter use. Using a bivariate logistic regression analysis, women with incomplete bladder emptying at discharge were more likely to have had a retropubic midurethral sling (OR 1.79, 95% CI 1.22-2.62, p=0.003), and to have had preoperative voiding symptoms including straining to void (OR 1.75, 95% CI 1.04-2.96, p=0.04), bending forward to void (OR 1.80, 95% CI 1.16-2.77, p=0.008), pressing on bladder to void (OR 2.72, 95% CI 1.49-4.98, p=0.001) or to report any accommodation to urinate (OR 1.56, 95% CI 1.04-2.32, p=0.03). Subjects with incomplete bladder emptying were also more likely to describe their urine stream pre-operatively as unsteady (OR 1.71, 95% CI 1.05-2.78, p=0.03) or slow (OR 1.72, 95% CI 1.14-2.60, p=0.009). Urodynamic measures (maximum flow rate, detrusor pressure at maximum flow, voiding mechanism, preoperative post void residual), and the presence of concomitant surgery were not predictive of incomplete bladder emptying.

Interpretation of results

Women likely to require further catheterization at discharge after MUS included those with voiding symptoms before surgery and those with RMUS. This information may allow better preoperative counseling and perioperative management.

Concluding message

Incomplete bladder emptying at discharge after mid-urethral sling surgery is common, especially after RMUS, but of short duration. Risk factors include preoperative voiding symptoms like straining, bending, and slow stream, but urodynamic variables did not predict incomplete bladder emptying after MUS.

References

1. Richter et al. N Engl J Med 2010

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| Specify source of funding or grant | National Institute of Diabetes and Diseases of Kidney |
| Is this a clinical trial? | No |
| What were the subjects in the study? | HUMAN |
| Was this study approved by an ethics committee? | Yes |
| Specify Name of Ethics Committee | (multicenter NIH data) University of Utah Institutional Review Board |
| Was the Declaration of Helsinki followed? | Yes |
| Was informed consent obtained from the patients? | Yes |