RECONSTRUCTIVE UROLOGY

Changes in uroflowmetry maximum flow rates after urethral reconstructive surgery as a means to predict for stricture recurrence

Erickson BA, Breyer BN, McAninch JW
Department of Urology, University of California, San Francisco, San Francisco, California
J Urol. 2011; 186: 1934-7

Purpose: A reliable, noninvasive screening method for urethral stricture recurrence after urethroplasty is needed. We hypothesized that changes in flow rates on uroflowmetry relative to preoperative values might help predict stricture recurrence.
Materials and Methods: All men who underwent urethral reconstructive surgery from 2000 to 2009 with adequate preoperative and postoperative uroflowmetry studies were included in the study. Preoperative and

postoperative maximum flow rates were compared. The absolute change in maximum flow rate was compared between patients with and those without recurrence as determined by retrograde urethrogram.
Results: A total of 125 patients treated with urethroplasty were included in the study. Mean ± SD preoperative maximum flow rate was 11.8 ± 9.1 mL per second, which did not vary by stricture length ($p = 0.11$), patient age ($p = 0.46$) or stricture location ($p = 0.58$). The change in maximum flow rate in men without recurrence was 19.2 ± 11.7 vs 0.2 ± 6.4 mL per second ($p < 0.001$) in failed repairs. Setting a change in maximum flow rate of less than 10 ml per second as a screen for stricture recurrence would have resulted in a test sensitivity and specificity of 92% and 78%, respectively. There were 85 men without stricture recurrence who underwent more than 1 postoperative uroflowmetry study. Repeated maximum flow rate values achieved reasonable test reproducibility ($r = 0.52$), further supporting the use of uroflowmetry.
Conclusions: Change in flow rate after urethral reconstruction represents a promising metric to screen for stricture recurrence that is noninvasive and has a high sensitivity.

Editorial Comment

This is a follow-up study to one published a year earlier by the same group (1). In this series of manuscripts they strive to identify a sensitive non-invasive screening test for urethral stricture recurrence after urethroplasty. Follow-up mechanisms after urethroplasty are varied and may include uroflowmetry, symptom assessment with validated instruments, urethrogram or cystoscopy. Herein, the authors present a mechanism to avoid more invasive tests (urethrogram and cystoscopy) in the majority of patients. If one only performs invasive testing on those with a post-operative maximum urinary flow rate that is < 10 cc/s better than their pre-operative maximum flow rate then one will capture 92% of stricture recurrences. In other words, the false negative rate was low. The description of limitations in the discussion is well done and includes mention of the fact that the recurrence rate in this population was slightly high (26%) and that this will artificially increase the positive predictive value; however, for a screening tool, the high sensitivity is the most important attribute.

Reference

1. Erickson BA, Breyer BN, McAninch JW: The use of uroflowmetry to diagnose recurrent stricture after urethral reconstructive surgery. J Urol. 2010; 184: 1386-90.

Dr. Sean P. Elliott
Department of Urology Surgery
University of Minnesota
Minneapolis, Minnesota, USA
E-mail: selliott@umn.edu