

Measuring bladder strength: Letter

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Chung and colleagues tackle the important issue of assessing bladder strength in men with voiding complaints after radical prostatectomy.¹ We agree with the authors that bladder strength has implications for the treatment of post-prostatectomy stress incontinence, because putting a compressive sling in a man with detrusor underactivity could lead to urinary retention. However, we question whether the criteria they used to identify detrusor underactivity is appropriate in men after radical prostatectomy.

The authors report that 41% of the 264 men who underwent urodynamic study had detrusor underactivity, which they defined as a maximum flow rate (Qmax) less than 15 mL/sec and a detrusor pressure at maximum flow (PdetQmax) less than 20 cmH₂O during voiding. These criteria are a derivation of the Bladder Contractility Index (BCI) ($5 \times Q_{\max} + P_{\det Q_{\max}}$, where an index less than 100 is considered weak). Both the BCI and its derivations have been used in most other studies of bladder strength in men following radical prostatectomy.

However, the BCI was developed for men with benign prostatic hyperplasia.² Its use in men after the prostate is removed has not been validated. In fact, for women (who have no prostate and may more closely mirror the post-prostatectomy population in terms of voiding dynamics) the BCI and basic pressure flow tests are considered inaccurate for measuring bladder strength.³ Similarly, in men who lack normal prostatic resistance, the contractile pressure required to maintain axial flow can approach zero.

The results published by Han and colleagues similarly illustrate the potential inappropriateness of using BCI-determined bladder strength to guide treatment of post-prostatectomy stress incontinence.⁴ They reported that in 50 men with weak bladder strength (as measured with the BCI), there was no increase in urinary retention after the placement of male slings. They further showed that a man's use of Valsalva to aid in voiding did not predict urinary retention either.

Perhaps, we need to focus on identifying more suitable measures of bladder strength (i.e., Watts factor, isometric detrusor pressure) in this population if we are to improve our understanding of post-prostatectomy voiding dynamics and identify true risk factors for urinary retention after male sling

placement. Only then will we be able to appropriately counsel patients on their options for stress incontinence treatment.

References

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Measuring bladder strength: Author response

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We used a derivation of the Bladder Contractility Index (BCI)¹ as a measure of bladder strength due to the availability of all variables in our patient population and as a way of identifying potential risk factors. Interestingly, we found that patients who underwent minimally invasive surgery had a higher risk of detrusor underactivity, consistent with current understanding pelvic neural innervation to the bladder and technical differences between minimally invasive surgery and open surgery.

The applicability of these findings to future anti-incontinence procedures remains unclear. Han and colleagues reported no difference with respect to postvoid residual volume or surgical success in patients who underwent a male sling with normal bladder contractility versus those that had