

URODYNAMIC EVALUATION OF PATIENTS WITH LOWER URINARY TRACT SYMPTOMS AND PROSTATE VOLUME LESS THAN 40 ML

Hypothesis / aims of study

The relevance of prostate size in the pathophysiology of the voiding symptoms in patients with benign prostatic hyperplasia as well as its implications for the treatment of this condition are controversial. Despite a few studies reporting unsuccessful clinical results after transurethral resection in men with small prostates it is not considered an indication for urodynamic studies by many urologists. The objective of this study was to evaluate the urodynamic findings in patients with lower urinary tract symptoms and prostate volumes less than 40mL.

Study design, materials and methods

The records and urodynamic studies of 84 patients aged ≥ 50 years with lower urinary tract symptoms and prostate volumes less than 40mL were reviewed. Study exclusion criteria included previous prostatic surgery, prostate or bladder cancer, pelvic radiotherapy, neurological diseases, urethral stenosis, use of medications that could affect voiding and an International Prostate Symptom Score (IPSS) less than eight. Average age of the patients was 62.0 ± 8.1 years (range 50 to 88 years). Symptoms were evaluated with the IPSS. All patients underwent uroflowmetry and multichannel urodynamics. Detrusor contractility was assessed with the Bladder Contractility Index (BCI) and bladder outlet obstruction (BOO) was assessed with the bladder outlet obstruction index (BOOI). All definitions conform to the International Continence Society terminology. We divided the patients in groups based on the median prostate volume and the presence or absence of obstruction to ascertain the impact of these parameters on the voiding symptoms and urodynamic findings.

Results

Mean prostate volume was 29.2 ± 7.2 mL (range 12 to 39) and mean IPSS was 13.5 ± 4.6 (range 8 to 26). Urodynamic abnormalities were found in 76 (90.5%) patients, with bladder outlet obstruction as the main finding, affecting 42 (50.0%) patients. Other findings included detrusor hypocontractility in 41 (48.8%) and detrusor overactivity in 28 (33.0%) patients.

Comparison of patients with and without BOO showed a significant difference in the mean age of patients, which was 60.0 ± 6.9 years and 64.0 ± 8.8 years, respectively ($p = 0.013$). The mean prostate volume and IPSS were not different between the two groups. Cystometric parameters demonstrated no differences between the two groups, with detrusor overactivity found in 26.2% of the obstructed patients and in 40.5% of those without B.O.O. ($p = 0,165$). Impaired detrusor contractility was shown in 9 (21.4%) of the obstructed patients and in 32 (76.2%) of those considered unobstructed ($p < 0.001$). Comparison of patients based on prostate volume (median of 30mL) showed no significant differences in terms of age and IPSS. Cystometric parameters demonstrated significant differences between the two groups in maximum flow rate, which was 8.6 ± 3.0 mL/s in the patients with prostates < 30 mL and 6.7 ± 3.1 mL/s in those with prostates ≥ 30 mL ($p = 0.003$) and in post-void residual volume, which was 65.5 ± 95.0 mL in the patients with prostates < 30 mL and 141.5 ± 211.4 mL in those with prostates ≥ 30 mL ($p = 0.019$). No other significant differences were observed in terms of urodynamic parameters.

Interpretation of results

Bladder outlet obstruction was found in 50% of the patients, with half of the patients having other types of bladder dysfunction as the basis for their voiding symptoms. In the non obstructed patients, decreased detrusor contractility was a very common finding, while detrusor overactivity was equally common in the obstructed and non obstructed patients. A weak but significant correlation of prostate volume with voiding parameters was observed, with patients with smaller prostates presenting higher flow rates and lower residual volumes.

Concluding message

Urodynamic studies can identify bladder abnormalities in most patients with lower urinary tract symptoms and prostate volumes less than 40mL. Although bladder outlet obstruction is a common finding, half of the patients had other types of voiding dysfunction responsible for their symptoms. Our results emphasize the value of urodynamic studies in patients with small prostate volumes, especially when invasive treatments are being considered.

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