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BLADDER OVERSENSITIVITY IS DIFFERENT FROM URODYNAMICALLY PROVEN DETRUSOR OVERACTIVITY IN OVERACTIVE BLADDER

Hypothesis / aims of study

Sensory urgency is considered as an early form of detrusor overactivity (DO) and may be the earlier in the spectrum of overactive bladder. Patients with DO have significantly smaller volume of first sensation of filling, first desire to void, normal desire to void and strong desire to void as well as maximal cystometric capacity comparing to patients without DO . However, a large scale retrospective study revealed that patients with only 54.2% of patients with overactive bladder (OAB) syndrome had urodynamically proven detrusor overactivity, whereas 45.8% of women with OAB syndrome had a stable urodynamic trace. We conducted a prospective urodynamic study to evaluate whether the bladder oversensitivity exists in the urodynamic findings in patients with OAB according the new terminology for pelvic floor dysfunction proven by ICS in 2010 .

Study design, materials and methods

In this prospective study, we recruited 251 consecutive patients with OAB symptoms who were referred to our urodynamic unit. All patients underwent a complete urogynecological evaluation including detailed history, physical examination, urine analysis, pad test for quantification of urine leakage, and urodynamic study. These patients were interviewed with 5 validated structural questions to specify their lower urinary tract symptoms which contained daytime frequency, urgency, nocturia, urge urinary incontinence and stress urinary incontinence as described previously. Urodynamic diagnosis has been made according to urodynamic parameters by one of coauthors (G.. D. C) who blinded to patients' symptoms and clinical findings. Patients' symptoms, clinical findings and basic characteristics were collected from chart records. Forty-five patients with cerebral vascular disease, previous anti-incontinence, pelvic reconstruction surgery, hysterectomy or a radical hysterectomy history were excluded. In total, 206 patients were recruited into this study. The study protocol was approved by the Institutional Review Board of Chung Shan Medical University Hospital.

Urodynamic examinations were performed using a Dantec DUET (Medtronic, Denmark) by a senior technician in an isolated room. Following uroflowmetry and measurement of postvoid residual urine, the woman was placed in a supine position. During filling cystometry, the bladder was filled with sterile water at room temperature at a filling rate of 60 ml/min. Volume at first desire to void (FDV, ml), volume at maximal bladder capacity (MC, ml), pressure changes during filling phase and involuntary detrusor contraction spontaneously or provocated by running water or changing position were measured.

Student t test and Chi square test were used for comparing differences between groups. A receiver operating characteristic (ROC) was used to find the cut-off value of FDV and MC for sensitivity and specificity in diagnosing patient with bladder oversensitivity. Logistic regression was used to determine the contributing factors of each subgroup. A p-value of less than 0.05 was considered to be statistically significant.

Results

The overall incidence of bladder oversensitivity was 34.2% (70/205) and DO was 65.8% (135/205) in patients with OAB symptoms. FDV in patients with bladder oversensitivity and DO were 117.5 $\pm$ 21.7 and 135.2 $\pm$ 22.9 ($p< 0.05$). MC in patients with bladder oversensitivity and DO were 259.4 $\pm$ 33.9 and 265.3$\pm$ 44.1 ($p> 0.05$). Area under curve was 0.702 ($p < 0.005$, 95% confidence interval: 0.626- 0.779) if FDV was determined as less than 127 ml. Patients with bladder oversensitivity have significantly increased daytime urinary frequency and nocturia symptoms compared to patients with DO (97.0% vs. 77.7% and 48.6% vs. 29.6%; each $p < 0.05$).

Interpretation of results

Patients with DO have significantly more urgency urinary incontinence than patient with bladder oversensitivity (37.7% vs. 14.3%, $p < 0.05$). Higher FDV, previous cesarean section and higher body mass index are the association factors for OAB patients with DO after Logistic regression analysis.

Concluding message

Our results show that only two third of OAB patients have urodynamically proven involuntary detrusor contraction and more than one third of patients have a stable urodynamic trace without any abnormal increases in detrusor pressure in filling cystometry profile. Patient with bladder oversensitivity seems not on the same spectrum of DO and also have different symptoms-specific and association factors.

References

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