

THE IMPACT OF URGE PERCEPTION INDEX ON DEFINING OVERACTIVE BLADDER SEVERITY IN MALE LUTS PATIENTS

Hypothesis / aims of study

Since urinary urgency is the cornerstone symptom that defines overactive bladder (OAB), quantification of urinary sensory dysfunction or bladder hypersensitivity could significant impact on defining the overactive bladder severity. There is increased evidence that bladder diaries with self-reported grading of urinary perception or an urge scale can be a diagnostic tool for urinary sensory function, especially when the bladder diary can provide the voided volume as well as the degree of urge perception at each void [1,2]. By analyzing bladder diaries with patient self-reported urinary perception grades, we developed urge perception index (UPI), a quantitative measure of bladder hypersensitivity, defined as a quotient of voided volume divided by urinary perception grade [3]. We recently reported UPI had significance impact on quantifying the severity of overactive bladder or bladder hypersensitivity in female LUTS patients (n=69) [3]. The aim of this study was to evaluate the impact of UPI on defining overactive bladder severity in male LUTS patients.

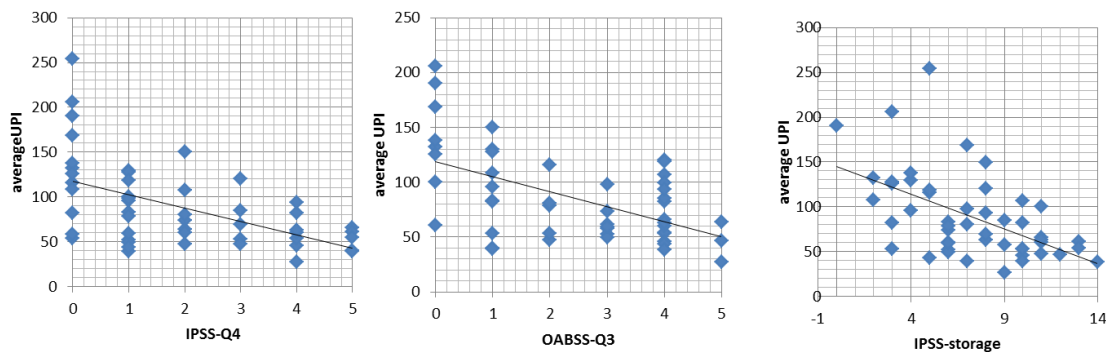
Study design, materials and methods

Male patients (n= 53) in our outpatient clinic suffering from lower urinary tract symptoms (LUTS) were asked to complete a 3-day bladder diary with self-reported grading of urinary perception, OABSS, and IPSS. OAB was diagnosed by the symptom of urgency, which is a sudden, compelling desire to void that is difficult to defer, and a urinary frequency of greater than 8. In the bladder diary, the grade of urinary perception was defined by a score from 1 to 5 as follows; 1=Sensation of bladder filling without desire to void, 2=Desire to void, which is easy to defer, 3=Strong, persistent desire to void, which is still possible to defer, 4=Urgent desire to void, including a persistently increased desire to void that is difficult to defer, and urgency, which is a sudden, compelling desire to void that is difficult to defer, and 5=Urgency with urge urinary incontinence episode. The grade of urinary perception at each void was recorded in the bladder diary. Urge perception index (UPI) was defined as a quotient of voided volume/urinary perception grade at each void. A-UPI is defined as 3-day bladder diary average of all UPIs, and S-UPI is defined as single lowest UPI during 3 days.

Results

A total of 1404 voids reporting both voided volume and urge scales at each void were analyzed in self-assessed bladder diaries for all the 53 patients.

There were significant negative linear correlations of the A-UPI-values with IPSS-Q4 (urgency) ($r=-0.53$, $p=0.0001$), OABSS-Q3 (urgency) ($r=-0.55$, $p<0.0001$)(Figure). There were also significant negative linear correlations of the A-UPI-values with sum of IPSS-storage symptoms (urgency, frequency, and nocturia) ($r=-0.54$, $p<0.0001$) (Figure).



The most severe (lowest) single urge perception index (S-UPI) value during the 3 days was significantly lower in patients with OAB than without OAB (mean 27.6 ± 15.4 vs. 60.1 ± 39.5 , $p = 0.0004$).

According to the grade of urinary perception, mean values of UPI in OAB group demonstrated significantly lower values than those in non-OAB group; in patients with OAB vs. non-OAB, the mean UPI was 94 ± 48 vs. 172 ± 80 for grade 1 ($p < 0.0001$), 74 ± 43 vs. 104 ± 39 for grade 2 ($p < 0.0001$), 63 ± 32 vs. 73 ± 32 for grade 3 ($p = 0.0029$), and 53 ± 27 vs. 69 ± 31 for grade 4 ($p = 0.021$). Comparing the OAB group (n=32) and the non-OAB group (n=21), the average of age in OAB and non OAB group were 74.1 and 68.5 years, respectively. There was significant difference in urinary frequency (10.9 vs. 8.29, $p = 0.0037$), on the other hand, there were no significant differences in maximum voided volume (338 vs. 337 ml) and average voided volume (184 vs. 203 ml). Analysis of the OABSS and IPSS questionnaires, there were significant differences in symptom scores related to urgency (IPSS-Q4: $p < 0.0001$, OABSS-Q3: $p < 0.0001$, OABSS-Q4 (incontinence): $p < 0.0001$) however there were no significantly statistical differences in other symptom scores, such as daytime frequency. The average value of IPSS-QOL was significantly higher in the OAB group (4.64 vs. 3.08).

Interpretation of results

We found significant negative linear correlations of the A-UPI-values with urgency in IPSS and OABSS questionnaires (IPSS-Q4 and OABSS-Q3) in the male LUTS patients. We also found the S-UPI was significantly lower in patients with OAB than without OAB in the male LUTS patients. These findings (UPI correlate with OAB-severity) were similar to what we observed in

female LUTS patients in our previous study. Our studies suggested that UPI is promising to quantify the severity of overactive bladder or bladder hypersensitivity in both genders.

Concluding message

The urge perception index (UPI), an integrated parameter of patient reported bladder perception and voided volume by bladder diary analysis, could be promising to quantify the severity of overactive bladder or bladder hypersensitivity in male LUTS patients as well as female LUTS patients.

References

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2. J Urol 186;1352. 2011 Degree of urge, perception of bladder fullness and bladder volume-how are they related?
3. J Urol, Available on line 28 November 2012; Urge perception index: a quantitative measure of bladder hyper-sensitivity in analysis of a bladder diary with a self-reported grading of urinary perception

Disclosures

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