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URGE PERCEPTION INDEX: A CLINICAL USE FOR THE QUANTITATIVE ASSESSMENT OF THE SEVERITY OF URGE PERCEPTION AND URGENCY IN THE ANALYSIS OF BLADDER DIARIES RECORDING PATIENTS' SELF-REPORTED GRADING OF URINARY PERCEPTION

Hypothesis / aims of study

Urinary urgency is the cornerstone symptom that defines overactive bladder (OAB). A number of instruments have been developed to measure symptoms, perception of degree of bother and quality of life related to OAB. The overactive bladder symptom score (OABSS) has been validated by self-assessment measurement of symptom severity related to four symptoms, namely daytime frequency, nocturia, urgency, and urge urinary incontinence (1). However, since it is generally difficult for patients to differentiate urgency from a normal urge, particularly when the desire to void is strong, the clinical quantitative objective assessment of urgency was limited. Importantly, however, a bladder diary with a self-reported grading of urinary perception or urge scale is another clinically useful tool for patient self-assessment of OAB to provide information on the detailed relation between voided volume and urge perception at each void in individuals (2). In order to enhance further quantitatively identifying the severity of possible sensory dysfunction in OAB through analysis of a bladder diary with self-reported grading of urinary perception, we developed a quotient of voided volume divided by urinary perception grade, which we refer to as the urge perception index (UPI). We recently developed a UPI nomogram to distinguish OAB from non-OAB in 271 community-dwelling women examined during a mass-screening program in Japan (3). Our identified threshold value (108) of UPI may allow a more individualized approach to evaluate the severity of OAB. The aim of this study was to evaluate the impact of the identified threshold value of UPI on clinical application in our outpatient clinic.

Study design, materials and methods

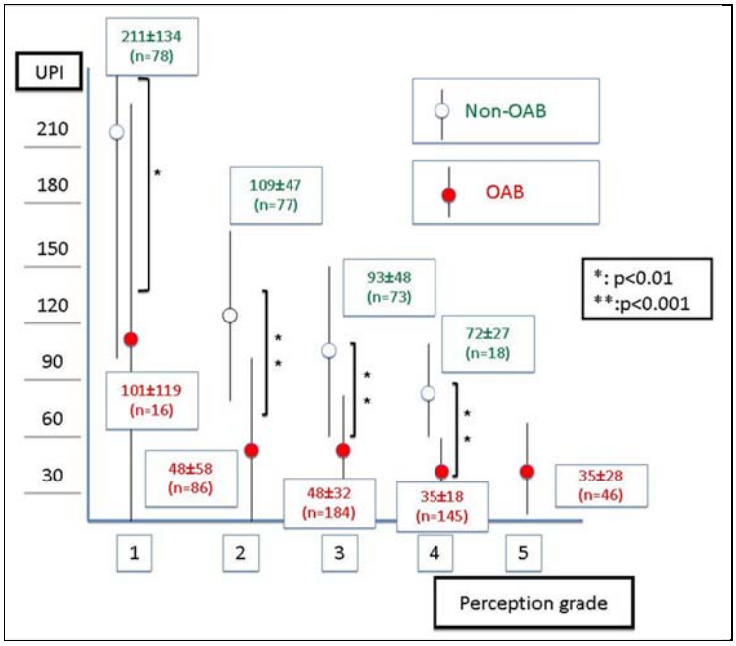
All patients (female) (n= 31) in our outpatient clinic suffering from lower urinary tract symptoms (LUTS) were asked to complete a bladder diary with self-reported grading of urinary perception and OABSS. A visual analogue scale (VAS) of each patient's perception of the degree of bother specific to each of the 4 questions in OABSS was integrated in OABSS, called the OABSS-VAS. The VAS scale was a 10 cm line ranging from delighted at the left end to terrible at the right to determine the patient's perception of degree of bother or satisfaction specific to each of the questions. The OABSS and OABSS-VAS were printed on a single page, with the former on the front and the latter on the back to facilitate quick self-assessment in the out-patient clinic.
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 (convenience void), 2=Desire to void (voiding can easily be delayed for more than 30 min), 3=Strong desire to void (voiding cannot be delayed for more than 15 min), 4=Urgent desire to void (voiding cannot be delayed for more than 5 min) and 5=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. The identified threshold value of UPI (108) to distinguish OAB from non-OAB was identified in our recent analysis of 271 community-dwelling women examined during a mass-screening program in Japan.

Results

A total of 770 voids reporting both voided volume and urge scales at each void were analyzed in self-assessed bladder diaries for all the 31 patients. Comparing the OAB group (n=16) and the non-OAB group (n=15), there were no significantly statistical differences in age (67.8vs. 62.9yrs, p=0.40), but significant differences in urinary frequency (10.8vs.7.53, p<0.005), maximum voided volume (303vs. 438 ml, p=0.024) and average voided volume (152.6 vs. 253 ml, p<0.005), respectively; and also, the median value of OABSS was daytime frequency (1.00vs. 0.67, p=0.180), nocturia (2.38vs. 1.20, p<0.001), urgency (3.75vs. 0.47, p<0.001), and urge urinary incontinence (2.75vs. 0.27, p<0.001). In OAB group, VAS-measure (mm) of bother was 70.2±25.1 in daytime frequency, 72.2±18.3 in nocturia, 79.5±18.6 in urgency, 77.7±29.2 in urge urinary incontinence, and 80.5±19.4 in OAB-related-QOL measured by VAS, respectively. The lowest value of UPI in the individual bladder-diaries of the OAB group was lower than that in the non-OAB group (18.04 v.s.70.88, p<0.001). The diagnostic accuracy of the threshold value of 108 distinguishing OAB from non-OAB demonstrated 93.75% (15/16) sensitivity and 53.33% (8/15) specificity. According to the grade of urinary perception, values of UPI in OAB group demonstrated significantly lower values than those in non-OAB group (p<0.01 in perception grade 1, and p<0.001 in perception grades of 2-4) (Figure)

Interpretation of results

As a tool of the patient-reported assessment, OAB symptom score (OABSS), a perception of the degree of bother (OABSS-VAS) and a bladder-diary with urge scales are simple and clinically useful tools to characterize baseline severity of the clinical variables in OAB. Our study demonstrated these tools all provide clinically important information quantitatively. In order to assess possible sensory dysfunction in OAB more objectively, our newly developed UPI allowed the integrated assessment of both voided volume and urge perception at each void, although the comprehensive interpretation of these 2 variables might previously have been difficult. According to the strength of desire to void (perception grade) with combined assessment of the voided volume, UPI in OAB were significantly lower than non-OAB. This suggested that UPI in OAB patients might quantitatively indicate the hypersensitivity of A-delta afferent function, which is generally believed to control the bladder sensation of bladder filling (distension). . Such quantitative measurement of possible sensory dysfunction in OAB would also help to assess possible changes quantitatively in the patient's response to various



Concluding message

We developed a quotient of voided volume divided by urinary perception grade, which we refer to as the urge perception index (UPI) in a quantitative analysis of a bladder diary with the patient's self-reported urinary perception grades. The UPI threshold value, identified by our UPI nomogram in the analysis of 271 community-dwelling women, demonstrated clinical usefulness in distinguishing OAB and non-OAB quantitatively, and in quantifying the severity of urge perception or sensory dysfunction.

References

1. Urology 68 :318-23. 2006
2. Neurourol Urodyn, 28: 982-985, 2009
3. Eur Urol Suppl 10(2):288, 2011

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Is this a clinical trial?	**Yes**
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Is this a Randomised Controlled Trial (RCT)?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Ethics Committee of Kyoto Prefectural University of Medicine**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**