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ANTIMUSCARINIC DRUG IMPROVES HYPERSENSITIVE STATE OF BLADDER IN PATIENTS WITH OVERACTIVE BLADDER

Hypothesis / aims of study

Overactive bladder (OAB) is a symptom complex, with urgency as the cornerstone symptom. However, the word 'urgency' and its definition continue to be the subject of much debate and confusion. It is generally difficult for patients to differentiate urgency from normal urge, particularly when the desire to void is strong. In the previous study, we investigate the micturition behaviour associated with OAB in intelligent (i.e., to be 'trusted') female OAB patients who could clearly and accurately discriminate between urgency and urge. The study showed that OAB may be more accurately defined as a hypersensitivity disorder rather than a syndrome characterized by urgency (1). In the present study, we have evaluated the effects of antimuscarinic drug on the micturition behaviour in female OAB patients.

Study design, materials and methods

25 female patients with OAB (average age: 65.1±8.9 years old) were enrolled in this study on the basis of intelligence (judged from conversation that they could discriminate between urgency and urge). Given the potential confusion regarding the term 'urgency,' we carefully defined it and confirmed that patients had experienced urgency episodes as defined by the ICS. We also explained normal urge sensation so that patients could differentiate between urge and urgency. In addition to OABSS and IPSS, QOL score recordings, patients were instructed to record time of voiding, intensity of normal urge sensation at time of voiding, all urgency episodes, and all urgency incontinence episodes for 2-3 consecutive days using a bladder diary. Urge intensity was divided into four grades as reported previously (2) (G0: voided without feeling bladder filling; G1: first desire to void but able to hold urine for 1 hr; G2: desire to void but able to hold urine for 30 min; G3: strong desire to void and unable to hold urine for more than 15 min). After solifenacin succinate (5 mg/day) treatment for 1 month, symptom scores and bladder diary were recorded. Effect of solifenacin of each parameter was evaluated.

Results

Before solifenacin treatment, total of OABSS was 8.4±2.2, and IPSS was 11.2±1.6. Frequency of urgency episode and urinary urgency incontinence were 1.5±0.8 and 0.7±1.1 times/day. Average voided volume at urgency and at urgency incontinence were 122.5±37.9 and 117.5±35.9 ml. Voided volume at each urge grade (Grade 0 to 3) was 50.3±15.7 (G0), 86.3±30.3 (G1), 132.0±25.9 (G2) and 166.9±43.7 ml (3). After solifenacin treatment, total OABSS, IPSS and QOL score improved significantly. Bladder diary showed that solifenacin significantly decreased micturition frequency, urgency episode and urgency incontinence, and significantly increased voided volume. In addition, voided volume at each urge grade, except for G0, was significantly increased after treatment ($p<0.05$) (Figure 1). Correlation between urge grade and voided volume at each urgency grade significantly ($p<0.0001$) improved after treatment.

Interpretation of results

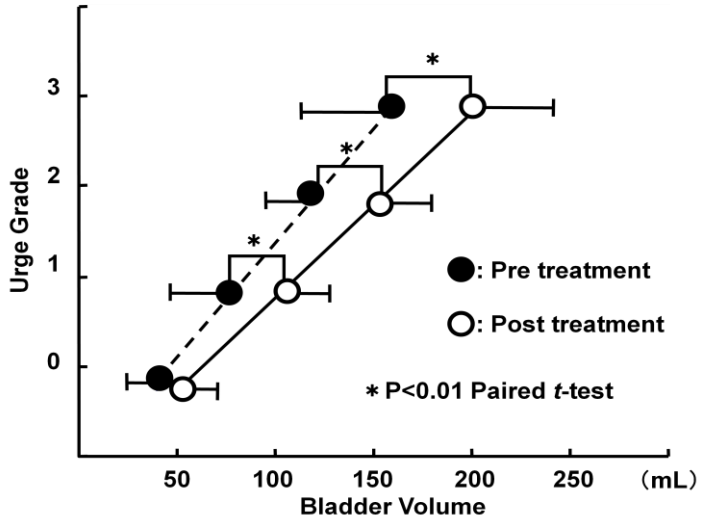
The lower voided volume in each urge grade in OAB patients suggested that OAB patients showed hypersensitive state of bladder. Although urgency is a characteristic and key symptom of OAB, hypersensitive state of bladder might underlie as the pathophysiology of OAB. Increase of voided volume in each urge grade after solifenacin treatment indicated that solifenacin improved the hypersensitive state of bladder.

Concluding message

In OAB patients, treatment with antimuscarinic drug contributes to increase in voided volume through amendment of bladder hypersensitive state. The effect of antimuscarinic drug on the bladder hypersensitive state may result in improvement of all OAB symptoms.

Figure 1

Effects of solifenacin on relationship between urge intensity and bladder volume in patients with OAB



References
1. Neurourol Urodyn 26:904–907 (2007)
2. Neurourol Urodyn 22:638–42 (2003)

Specify source of funding or grant	**None**
Is this a clinical trial?	**Yes**
Is this study registered in a public clinical trials registry?	**No**
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 committees of Kumamoto University and Kumamoto Rosai Hospital**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**