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THERAPEUTIC SAFETY AND EFFICACY OF FIRST-LINE ANTIMUSCARINICS FOR ELDERLY PATIENTS WITH OVERACTIVE BLADDER AND LARGE POSTVOID RESIDUAL URINE VOLUME (>100 ML)

Hypothesis / aims of study

Antimuscarinic drugs are the mainstay of the medical treatment for overactive bladder (OAB) patients. Measurement of postvoid residual urine volume (PVR) was suggested prior and during the course of antimuscarinic treatment. Most randomized trials that evaluated antimuscarinics for OAB treatment used a PVR of 150-200 mL as an exclusion criterion. Antimuscarinics is suggested to be used with caution in patients with PVR > 250-300 mL in clinical guideline. In addition, the risk of adverse events after antimuscarinics also increased in elderly patients. We evaluated the treatment results of first-line antimuscarinics for elderly patients (≧ 65 years) with OAB and elevated PVR (> 100 mL).

Study design, materials and methods

Between January 2008 and December 2014, all patients with OAB who consecutively visited the urologic outpatient clinics of a medical center were prospectively enrolled. The inclusion criteria for the analyses were patients aged 65 years or older with urgency and with/without urgent incontinence documented in the frequency-volume chart, with baseline PVR > 100 mL, receiving first-line antimuscarinics (tolterodine or solifenacin). Patients with documented genitourinary cancer, acute or chronic urinary retention, active urinary tract infection or previous urethral surgeries were excluded. Men with abnormal findings on digital rectal examination or elevated serum PSA levels were referred for prostate biopsy to exclude the possibility of prostate cancer. Overactive Bladder Symptom Score (OABSS), the modified Indevus Urgency Severity Scale (USS) questionnaires, maximal flow rate (Qmax), voided volume and PVR measurement were obtained at baseline, 1 month and 3 months after treatment. Continuous variables are represented as mean ± standard deviation (SD), and categorical data are represented by number and percentage (%). Statistical comparisons between the groups were tested using a chi-square test for categorical variables, and a Wilcoxon rank-sum test for continuous variables. Statistical assessments were considered significant when p was <0.05.

Results

A total of 126 patients (82 men and 44 women) aged 65 to 90 years (average 75.5±8.2) were enrolled. Twenty-eight patients (22.2%) had diabetes mellitus (DM), and 16 patients (12.7%) had cerebral vascular accidents (CVA) or Parkinson's disease (PD). The average prostate size was 53.5 ml in male patients. All 44 women received antimuscarinics monotherapy while 13 of 82 male patients (15.8%) received combined antimuscarinics and α-blockers therapy. The average baseline PVR was 156.4±55.1 mL (range 101-350 mL). Table 1 showed parameters at baseline, 1 month, and 3 months after treatment. Adverse events were noted in 30 patients (23.8%) including 17 dry mouth (13.5%), 13 constipation (10.3%), 9 dysuria (7.1%), and 3 dizziness (2.4%). The storage symptoms and quality of life improved significantly after treatment. However, 5 patients (4.0%. 2 men and 3 women) developed PVR > 300 ml after treatment and urethral catheterization was needed in one patient (0.8%). No significant cognitive impairment was found during the course of antimuscarinic treatment. Men with combined antimuscarinics and α-blockers therapy had similar therapeutic effects with those receiving antimuscarinic monotherapy. Although the prostate volume was larger in the combination therapy group (Table 2), no patient complained of dysuria or developed large PVR (PVR > 300 mL) after treatment).

Interpretation of results

Acute urinary retention or cognitive impairment was infrequently encountered after first-line antimuscarinics therapy (tolterodine or solifenacin) for 3 months in our series even antimuscarinics used in elderly patients with elevated baseline PVR (101-350) mL. Although 5 patients developed large PVR (PVR > 300 mL) after treatment, the average PVR decreased with or without combined with α-blockers therapy. In addition, combined antimuscarinics and α-blockers in elderly men with large prostate and elevated PVR may decrease the risk of dysuria or increased PVR after antimuscarinics treatment.

Concluding message

The risk of acute urinary retention and cognitive impairment after antiomuscarinics was low in elderly patients with elevated PVR. Combined antimuscarinics and α-blockers in elderly men with large prostate and elevated PVR may decrease the risk of dysuria or increased PVR after antimuscarinics treatment.

Table 1. Comparisons of parameters at baseline, 1 month, and 3 months after treatment

	Baseline	1 M after treatment	3 M after treatment
OAB-SS	8.6 ± 3.8	5.4 ± 3.4*	5.1 ± 4.3*
USS	3.4 ± 1.1	2.5 ± 1.4*	2.5 ± 4.5*
IPSS-V	6.4 ± 5.7	5.7 ± 5.3	4.4 ± 4.6
IPSS-S	8.0 ± 3.1	6.0 ± 3.2*	4.9 ± 3.6*
IPSS-T	14.6 ± 7.5	11.7 ± 6.9*	8.6 ± 6.3*
QoL	4.0 ± 1.0	2.2 ± 1.1*	2.2 ± 0.9*
Qmax	10.0 ± 5.9	10.8 ± 5.5	11.5 ± 6.1
Volume	166.9 ± 110.5	190.1 ± 118.2	192.3 ± 101.2
PVR	156.4 ± 55.1	134.3 ± 78.4	126.0 ± 91.7*

IPSS-S: IPSS storage subscore, IPSS-T: IPSS total score, IPSS-V: IPSS voiding subscore, OAB-SS: Overactive Bladder Symptom Score, PVR: post-void residual urine, Qmax: maximum flow rate, QoL: quality of life index, USS: the modified Indevus Urgency Severity Scale questionnaires,
*P<0.05 compared with baseline

Table 2. Comparisons of parameters between women receiving antimuscarinics monotherapy, men receiving antimuscarinics monotherapy, and men receiving combination therapy

	Women with antimuscarinics monotherapy (n=44)	Men with antimuscarinics monotherapy (n=69)	Men with combination therapy (n=13)
Age	76.4 ± 7.3	74.5 ± 7.8	77.8 ± 11.8
DM	12 (27.3%)	14 (20.3%)	2 (15.4%)
CVA/PD	5 (11.4%)	10 (14.5%)	1 (7.8%)
TPV		52 ml	82 ml
AE	13 (29.5%)	13 (18.8%)	4 (30.8%)
Dysuria	5 (11.4%)	4 (5.8%)	0
Large PVR (>300 mL) after treatment	3 (6.8%)	2 (2.9%)	0

AE: adverse events, CVA: cerebral vascular accidents, DM: diabetes mellitus, PD: Parkinson's disease, TPV: total prostate volume

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