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PREDICTIVE FACTORS FOR SUCCESSFUL FIRST-LINE ANTIMUSCARINICS MONOTHERAPY FOR MALE LUTS WITH PREDOMINANT STORAGE SYMPTOMS BASED ON IPSS VOIDING TO STORAGE SUBSCORE RATIO

Hypothesis / aims of study

Antimuscarinics appear to be an effective and safe alternative for male storage LUTS in men without elevated postvoid residual urine volume (PVR). Current guidelines suggest that antimuscarinic monotherapy can be used for men without bladder outlet obstruction (BOO) while combination therapy is usually suggested for men with concomitant BOO. However, determining the presence and the degree of BOO is occasionally difficult for primary care physicians (PCPs) without urological diagnostic equipment for uroflowmetry, bladder scanning or transrectal ultrasound. We had reported that measuring the International Prostate Symptom Score (IPSS) subscores and calculating the IPSS voiding-to-storage subscore ratio (IPSS-V/S) is a simple and useful method to differentiate failure to voiding and failure to storage lower urinary tract dysfunction. Initial treatment with doxazosin for patients with IPSS-V/S>1 and tolterodine for patients with IPSS-V/S≤1 is safe and feasible. We aim to identify predictive factors of successful first-line antimuscarinics monotherapy for men with IPSS-V/S ≤1.

Study design, materials and methods

We conducted a prospective open-label study in men with total IPSS (IPSS-T) 8 or more. Total prostate volume (TPV), transition zone index (TZI), maximum flow rate (Qmax), PVR, and voiding efficiency (VE) were also obtained. The voiding (IPSS-V) and storage IPSS subscores (IPSS-S) were recorded separately. Men with a higher IPSS-S than IPSS-V (IPSS-V/S ≦1) received first-line tolterodine (4mg QD) monotherapy regardless of their TPV, TZI, Qmax, PVR, or PSA values. Men with active infection, abnormal digital rectal exam, PSA>4 ng/ml without prostate biopsy, or previous transurethral surgery were excluded. Patients rated their symptoms after treatment compared to baseline using a validated global response assessment (GRA), a 7-point scale ranging from markedly worse (−3) to markedly improved (+3). Patients with a GRA≥1 after treatment were considered as having improved outcome and keeping antimuscarinics monotherapy. Statistical comparisons between the groups were tested using a chi-square test, and a Wilcoxon rank-sum test for continuous variables.

Results

One-hundred and sixty-seven men (aged 40 to 90 years) received first-line tolterodine monotherapy. The mean IPSS-T, IPSS-S decreased, and quality of life (QoL) improved significantly ($p<0.001$). At 1 month, 126 patients (75.4%) reported an improved outcome (GRA≥1). No patient developed acute urinary retention, but 15 patients (9.0%) complained dysuria. Significantly increased PVR (from 49.9 ml to 60.5 ml) was also noted. Patients with baseline PVR less than 100 or 150 ml had significantly higher rate of successful antimuscarinics monotherapy than those with baseline PVR higher than 100 or 150 ml. Patients with baseline Qmax higher than 10 or 15 ml/s had borderline higher rate of successful antimuscarinics monotherapy than those with baseline Qmax lower than 10 or 15 ml/s (Table 1).

Interpretation of results

Age, baseline IPSS, TPV, and TZI were similar between men with GRA≥1 and GRA <1. Only low PVR and high Qmax were predictors for successful antimuscarinic monotherapy. We cannot determine who can get benefit from first-line antimuscarinics monotherapy based on prostate volume or symptom score.

Concluding message

Antimuscarinics monotherapy for men with IPSS-V/S≦1 results in 75.4% satisfactory results (GRA≥1). The mean IPSS-T, IPSS-S decreased, and quality of life (QoL) improved significantly. No patient developed acute urinary retention, but dysuria was complained in 15 (9%) patients. Low PVR and high Qmax were predictors for successful antimuscarinic monotherapy.

Table 1. Comparisons of baseline data between patients with and without GRA≥1

	Change medication (GRA<1, n=41)	Keep medication (GRA≥1, n=126)	P value
Age	68.3 ± 10.9	67.8 ± 12.5	0.824
IPSS-V	3.8 ± 3.8	3.9 ± 3.5	0.895
IPSS-S	7.8 ± 3.6	8.0 ± 3.6	0.740
IPSS-T	11.6 ± 6.9	11.9 ± 6.3	0.797
TPV ≥ 30 ml	32 (26.7%)	88 (73.3%)	0.310
TPV < 30 ml	9 (19.2%)	38 (80.9%)	
TPV ≦ 40 ml	22 (26.8%)	60 (73.2%)	0.502
TPV < 40 ml	19 (22.4%)	66 (77.7%)	
TZI ≥ 0.3	24 (23.5%)	78 (76.5%)	0.701
TZI < 0.3	17 (26.2%)	48 (73.9%)	
TZI ≥ 0.4	13 (22.4%)	45 (77.6%)	0.630
TZI<0.4	17 (26.2%)	48 (73.9%)	

TZI ≥ 0.5	7 (20.6%)	27 (79.4%)	0.547
TZI < 0.5	34 (25.6%)	99 (74.4%)	
Qmax ≥ 10 ml/s	27 (21.3%)	100 (78.7%)	0.078
Qmax < 10 ml/s	14 (35.0%)	26 (65.0%)	
Qmax ≥ 15	18 (19.6%)	71 (80.4%)	0.097
Qmax<15 ml/s	23 (30.7%)	52 (69.3%)	
PVR ≥ 100 ml	11 (40.7%)	16 (59.3%)	0.033
PVR < 100 ml	30 (21.4%)	110 (78.6%)	
PVR ≥ 150 ml	7 (46.7%)	8 (53.3%)	0.037
PVR < 150 ml	34 (22.4%)	118 (77.6%)	

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