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THERAPEUTIC EFFICACY AND PATIENT SATISFACTION OF MIRABEGRON SHIFTING FROM STABLE ANTIMUSCARINICS THERAPY IN PATIENTS WITH OVERACTIVE BLADDER SYNDROME – ANALYSIS OF PREDICTIVE FACTORS

Hypothesis / aims of study

Mirabegron, which was the first β3-adrenoceptor agonist introduced for use in clinical practice, has been extensively evaluated in overactive bladder (OAB) patients in several Phase II and III studies. However, most of the enrolled patients were treatment naïve or had experienced a wash-out period before the introduction of mirabegron. No study has reported the treatment results of a direct switch from antimuscarinics to mirabegron, which may commonly occur in clinical practice. We aimed to assess the therapeutic efficacy and safety of directly switching from antimuscarinics to mirabegron in OAB patients receiving stable antimuscarinic treatment. Moreover, we sought to identify which patients benefited more from the change.

Study design, materials and methods

Patients aged ≥20 years with OAB receiving stable antimuscarinics for > 3 months were enrolled. Antimuscarinics were discontinued in all patients and mirabegron 25 mg, once daily was initiated. The treatment results were assessed by using global response assessment (GRA), international prostate symptom score (IPSS) and subscores, overactive bladder symptom score (OAB-SS), patient perception on intensity of urgency scale (PPIUS), patient perception of bladder condition (PPBC), and quality of life index (QoL-I) at 1 and 3 months after medication switching. Primary end-point was GRA at 1 month after medication switching. Baseline parameters and parameters changed 1 month after medication switching were compared between patients with GRA≥1 and GRA<1. Logistic regression analysis was used to identify the predictors of improved outcome (GRA≥1).

Results

Of the 282 enrolled patients (209 men, 73 women; mean age, 74.4 years), 55.3% had better (GRA≥1), 31.2% had similar (GRA=0), and 10.3% had worse (GRA<0) outcomes. The overall adverse event (AE) rate decreased from 24.1% to 12.8%. When comparing the baseline parameters with those at 1 month and 3 months after medication switching (Table 1), we observed that the total IPSS, IPSS voiding subscore (IPSS-V), and average postvoid residual (PVR) decreased significantly. However, there was no significant change in the measurements of storage symptoms. When comparing the baseline parameters between patients with GRA≥1 and GRA<1, we observed that patients with GRA≥1 had higher baseline IPSS storage subscore (IPSS-S), OAB-SS, and PPBC values (Table 2). Logistic regression analysis also indicated that baseline IPSS-S [odds ratio (OR)=1.114, p=0.018] and OAB-SS (OR=1.103, p=0.010) could serve as predictors of satisfactory outcome (GRA≥1).

Interpretation of results

To our knowledge, this is the first study to investigate the treatment results of direct switching from antimuscarinic to mirabegron treatment in patients receiving stable antimuscarinics. We observed that even in patients receiving stable antimuscarinic treatment, direct switching of medication from antimuscarinics to mirabegron was safe and effective. More than 50% patients exhibited better outcomes. Although the QoL-I and PPBC values improved significantly, there was no significant change in OAB symptom parameters. This finding suggests that a change in the medication from antimuscarinics to mirabegron (25 mg) in patients receiving stable antimuscarinics may not yield additional improvement of OAB symptoms. Although there was no significantly change of OAB symptoms in overall population, some patients could have improved OAB symptoms. However, OAB symptoms may get worse in others. The different responses may be attributable to heterogeneous OAB subgroups and different mechanism of action of antimuscarinics and mirabegron. Patients with GRA<1 may response to antimuscarinics better than mirabegron. In addition, the PVR significantly decreased, no matter in patients with GRA≥1 or GRA <1. The improvement in voiding symptoms and decrease in PVR may explain the high rate of satisfaction. It is possible that the detrusor contractility and sustainability could be affected by antimuscarinics but not mirabegron even the average PVR<100 mL before medication switching. Hence, patients whose voiding efficiency affected by antimuscarinics might have improved voiding condition after switching to mirabegron. Furthermore, the rate of common AEs due to antimuscarinic treatment, including dry mouth, constipation, and dysuria, also decreased significantly. This decrease in the AE rate may also contribute to the high satisfaction rate.

Concluding message

More than 50% patients exhibited better outcomes after switching from antimuscarinics to mirabegron. Significantly lower AE rates and decreased PVR were noted. Higher baseline OAB symptom scores may predict a better outcome.

Table 1. Change in parameters before and after medication switching

	Baseline (n= 282)	**1 mo after switching (n=273)**	**3 mo after switching (n=211)**
IPSS-T	10.3±9.0	9.0±5.6*	7.8±6.1*
IPSS-V	5.4±5.3	4.5±4.7*	3.5±4.6*
IPSS-S	4.9±2.9	4.5±2.5	4.4±2.6
Nocturia	3.3±1.2	3.1±1.2	3.2±1.2
QoL-I	2.7±1.1	2.3±0.9*	2.0±1.0*
Qmax	12.1±8.5	12.7±8.8	12.2±8.9
Voided volume	171.3±121.0	181.1±125.3	175.8±136.1
PVR	67.7±77.1	50.2±59.4*	49.3±62.8*
OAB-SS	5.0±3.4	4.8±3.1	4.6±2.9
PPIUS	1.7±1.9	1.5±1.8	1.4±1.8
PPBC	2.6±1.7	2.1±1.4*	1.9±1.4*

Table 2. Comparisons of baseline parameters between patients with GRA≥1 and GRA<1 after the change of medication

	GRA≥1 (n=156)	GRA<1 (n=117)	p value
Age (years)	73.8±11.7	74.5±12.0	0.679
Sex M	113 (55.7%)	90 (44.3%)	0.484
F	43 (61.4%)	27 (38.6%)	
OAB dry	87 (52.7%)	78 (47.3%)	0.080
OAB wet	69 (63.9%)	39 (36.1%)	
DO	41 (53.2%)	36 (46.8%)	0.419
No DO	115 (58.7%)	81 (41.3%)	
Comorbidity	113 (60.1%)	75 (39.9%)	0.149
No comorbidity	43 (50.6%)	42 (49.4%)	
Diabetes	44 (62.0%)	27 (38.0%)	0.403
No diabetes	112 (55.4%)	90 (44.6%)	
CVA	9 (75.0%)	3 (25.0%)	0.244
No CVA	147 (56.3%)	114 (43.7%)	
AEs of antimuscarinics	31 (47.7%)	34 (52.3%)	0.086
No AEs of antimuscarinics	125 (60.1%)	83 (39.9%)	
Duration of antimuscarinics (months)	8.4 ± 5.8	9.0 ± 7.6	0.833
IPSS-T	11.1±7.1	9.3±5.4	0.122
IPSS-V	5.7±5.7	4.9±4.6	0.460
IPSS-S	5.3±2.9	4.4±4.6	0.005*
QoL-I	2.8±1.2	2.6±1.0	0.373
Qmax	11.7±8.0	12.7±9.1	0.515
Voided volume	167.6±127.6	176.2±117.0	0.307
PVR	69.9±73.7	65.0±81.5	0.515
OABSS	5.5±3.6	4.3±2.9	0.013*
PPIUS	1.9±1.9	1.5±1.8	0.174
PPBC	2.8±1.8	2.3±1.5	0.048*

*p<0.05 using non-parametric test

Disclosures

Funding: none **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Research Ethics Committee, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation **Helsinki:** Yes **Informed Consent:** Yes