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THERAPEUTIC EFFICACY AND SAFETY OF MIRABEGRON MONOTHERAPY IN MALE OVERACTIVE BLADDER PATIENTS WITH AND WITHOUT BLADDER OUTLET OBSTRUCTION

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, the treatment results of mirabegron in male OAB patients with bladder outlet obstruction (BOO) are scarce. We investigated the therapeutic efficacy and safety of mirabegron in male OAB patients with and without bladder outlet obstruction (BOO).

Study design, materials and methods

Male patients aged ≥20 years with OAB receiving mirabegron 25 mg, once daily were prospectively enrolled. Patients were divided into those with and without BOO. Exclusion criteria were those with concomitant α-blockers or 5α-reductase inhibitors. 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 treament. Primary end-point was comparison the treatment results between those with and without BOO. Wilcoxon signed-rank tests were used to compare parameters before and after treatment.

Results

Of the 289 enrolled patients (mean age, 71.2 years), 207 patients (71.6%) did not have BOO and 82 patients (28.4%) had BOO. Patients with BOO were elder, with larger total prostate volume (TPV), lower maximal flow rate (Qmax), higher voided volume, and higher postvoid residual (PVR) (Table 1). One hundred and fifty-five men had received previous antimuscarinics while 134 men were treatment naïve. The rate of GRA≧1 were similar between those without BOO (61.3%) and with BOO (57.1%). The improvement of QoL-I and PPBC were found in both groups with and without BOO. However, only patients without BOO had significantly improvement of IPSS and subscores, OABSS, and PPIUS (Table 2). Patients with BOO had significantly high rate of adverse events (18.6%) than those without BOO (8.2%, p=0.026).

Interpretation of results

Previous study had reported that mirabegron did not adversely affect voiding urodynamics (Qmax and detrusor pressure at maximum urinary flow) compared with placebo after 12 weeks of treatment. Our study also found that Qmax, voided volume, and PVR did not change in both groups with and without BOO. However, patients with BOO had less improvement of IPSS and subscores, OABSS, and PPIUS than those without BOO. One of the possible explanations is that the storage symptoms in male patients with BOO were related to the obstruction, and these symptoms may be more difficult to be relieved by mirabegron monotherapy. In addition, those patients with BOO were elder in our study. Medication in elderly patients may be less effective and result in more adverse events

Concluding message

Mirabegron monotherapy in male OAB patients had similar overall satisfactory rate and improvement of quality of life in patients with and without BOO. However, patients with BOO had less improvement of symptoms and higher rate of adverse events with mirabegron monotherapy.

Table 1. Comparisons of demographics and baseline parameters between patients with and without BOO

	BOO (+)	BOO (-)	P value
Age (yrs)	75.9 ± 9.9	69.2 ± 12.6	<0.001
OAB wet	44.0%	41.5%	0.922
DM	23.2%	27.1%	0.533
CVA	11.0%	4.8%	0.068
TPV (ml)	59.9 ± 31.0	30.7 ± 11.4	<0.001
IPSS-V	5.5 ± 5.3	5.4 ± 5.2	0.895
IPSS-S	5.4 ± 3.2	5.7 ± 3.4	0.411
IPSS-T	10.9 ± 6.8	11.2 ± 6.8	0.800
QoL-I	2.9 ± 1.3	3.2 ± 1.4	0.250
Qmax (ml/s)	9.7 ± 5.1	13.2 ± 8.2	<0.001
Voided volume (ml)	152.4 ± 101.6	183.1 ± 123.5	0.035
PVR (ml)	98.1 ± 94.7	34.4 ± 50.5	<0.001
OAB-SS	5.4 ± 3.5	5.7 ± 3.6	0.532
PPIUS	1.9 ± 1.8	2.0 ± 1.8	0.607
PPBC	2.9 ± 1.8	3.1 ± 1.7	0.327

*P<0.05 compared with baseline parameters

BOO: bladder outlet obstruction; DM: diabetes mellitus; CVA: cerebral vascular accidents; TPV: total prostate volume; IPSS-T: total international prostate symptom score; IPSS-V: IPSS voiding subscore, IPSS-S: IPSS storage subscore; QoL-I: quality of life

index; Qmax; maximal flow rate, PVR: postvoid residual; OAB-SS: overactive bladder symptom score; PPIUS: patient perception on intensity of urgency scale; PPBC: patient perception of bladder condition.

Table 2. Comparisons of treatments results between treatment naïve patients with and without BOO

		Baseline	1 month	3 months
IPSS-V	BOO (+)	5.2 ± 5.3	5.8 ± 5.5	5.2 ± 6.0
	BOO (-)	5.7 ± 5.3	4.3 ± 4.5*	4.3 ± 4.6*
IPSS-S	BOO (+)	7.3 ± 3.3	6.9 ± 3.1	6.4 ± 4.0
	BOO (-)	6.9 ± 3.7	5.2 ± 3.1*	4.6 ± 1.9*
IPSS-T	BOO (+)	12.5 ± 7.0	12.7 ± 7.5	11.6 ± 9.6
	BOO (-)	12.6 ± 7.2	9.5 ± 6.3*	8.9 ± 5.4*
QoL	BOO (+)	4.2 ± 1.1	2.9 ± 1.1*	2.1 ± 0.9*
	BOO (-)	3.7 ± 1.3	2.5 ± 1.3*	2.1 ± 0.9*
Qmax	BOO (+)	9.3 ± 4.9	11.0 ± 7.1	9.0 ± 5.3
	BOO (-)	13.1 ± 7.6	13.5 ± 7.0	13.8 ± 6.2
Voided volume	BOO (+)	106.4 ± 68.1	123.9 ± 90.2	107.6 ± 84.4
	BOO (-)	180.7 ± 114.9	195.0 ± 126.0	188.5 ± 97.1
PVR	BOO (+)	41.4 ± 43.5	40.0 ± 41.8	40.6 ± 44.1
	BOO (-)	27.6 ± 62.4	35.4 ± 46.8	31.6 ± 37.5
OABSS	BOO (+)	7.2 ± 4.0	6.3 ± 3.9	6.1 ± 4.2
	BOO (-)	7.0 ± 3.6	5.4 ± 3.2*	4.8 ± 2.6*
PPIUS	BOO (+)	2.4 ± 1.8	1.8 ± 1.8	1.5 ± 1.8
	BOO (-)	2.4 ± 1.7	1.5 ± 1.6*	1.5 ± 1.7*
PPBC	BOO (+)	4.2 ± 1.6	2.9 ± 1.9*	2.1 ± 1.5*
	BOO (-)	3.9 ± 1.5	2.6 ± 1.5*	2.1 ± 1.4*

*P<0.05 compared with baseline parameters

BOO; bladder outlet obstruction; IPSS-T: total international prostate symptom score; IPSS-V: IPSS voiding subscore, IPSS-S: IPSS storage subscore; QoL-I: quality of life index; Qmax; maximal flow rate, PVR: postvoid residual; OAB-SS: overactive bladder symptom score; PPIUS: patient perception on intensity of urgency scale; PPBC: patient perception of bladder condition

Disclosures

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