

THERAPEUTIC EFFICACY OF MIRABEGRON 25 MG IN PATIENTS WITH OAB DUE TO CENTRAL NERVOUS SYSTEM DISEASES SUCH AS PARKINSON'S DISEASE, MINOR STROKE OR EARLY DEMENTIA

Hypothesis / aims of study

The incidence of OAB increases with age, especially in patients with central nervous system(CNS) disorders such as cerebrovascular accident (CVA) and Parkinson's disease (PD). White matter disease causing dementia increases significantly with age and can also cause OAB and urinary incontinence. Mirabegron, a β -3 adrenergic receptor agonist causes relaxation during bladder filling and inhibits involuntary detrusor contractions is a novel medication for treat OAB. This study is to investigate the therapeutic effect on the patients with CNS diseases.

Study design, materials and methods

Patients with CVA, PD, dementia, and OAB over 18 years of age who had experienced symptoms of OAB for a minimum of 3 months were consecutively enrolled in the study group. 25 mg mirabegron once daily was prescribed. The clinical effects, including subjective symptoms scores Overactive Bladder Symptom Score (OABSS), Urinary Sensation Scale (USS), International Prostate Symptom Score (IPSS), Perception of Bladder Condition (PPBC), urodynamic parameters, and adverse events were assessed at baseline and 4 weeks, and 12 weeks post-treatment.

Results

A total of 44 patients (mean age of 77.71 ± 9.49) with OAB due to CVA (N=27), PD (N=6), dementia (N=11) were included in this prospective study. The results showed significant improvement in all parameters of symptoms score (Table 1), including in OABSS (P=0.02), USS (P=0.009), IPSS-T (P=0.002), IPSS-S (P=0.001), IPSS-V (P=0.017), PPBC (P=0.000). And the clinical urodynamic study showed no significant increased post void residual urine (PVR), P=0.07 and maximum flow rate (Qmax), and voided volume (Vol) is no significant difference between baseline and 12 weeks after treatment. When the patients divided into OAB wet (N=27) and OAB dry (N=17) group, OAB wet patients had significant improved in OABSS and USS compared with OAB dry (P=0.003 and P=0.000) (Table 2). Only 5 patients dropped out from this study due to poor response and shift to antimuscarinics. Three patients had complained of adverse effects, including dizziness in two patients and dysuria in one patient.

Interpretation of results

This study showed the OAB symptoms significant improvement in patients with CNS lesions after treatment. The adverse effects are less compared with traditional antimuscarinics. No patients complained of dry mouth or constipation which most common occurred in elderly OAB patients. We also found better treatment efficacy in the baseline OAB wet patients. This provided that mirabegron is well tolerated and good therapeutic response in OAB patients with CNS lesions.

Concluding message

25 mg mirabegron once daily effectively decreased urgency symptoms in elderly OAB patients with CNS lesions in the 3 months treatment period. The adverse events were only noted in few cases. Long term Follow-up and comparison to traditional antimuscarinics will be investigated in the further study.

Table 1. Changes of OAB symptoms scores including OABSS, USS, IPSS, PPBC and urodynamic variables after Mirabegron 25 mg treatment in overactive bladder patients with central nervous system lesions

	Baseline	1 month	3 months	P
OABSS	6.05±3.45	5.75±3.44	4.39±2.45	0.02
USS	2.64±1.88	1.95±1.90	1.48±1.86	0.009
IPSS-Total	11.89±7.29	10.27±6.88	7.66±5.71	0.002
IPSS-Storage	5.93±2.94	4.77±2.51	4.02±1.52	0.001
IPSS-Voiding	5.98±5.73	5.50±5.31	3.64±5.02	0.017
PPBC	2.98±1.95	2.30±1.89	1.70±1.38	0.000
Qmax	10.52±6.29	11.52±5.36	11.24±5.43	0.60
Vol	130.79±107.35	148.86±80.03	151.72±80.06	0.37
PVR	83.36±92.17	56.76±61.35	78.79±113.34	0.07

OABSS: Overactive Bladder Symptom Score, USS: Urinary Sensation Scale, IPSS: International Prostate Symptom Score, PPBC: Perception of Bladder Condition, Vol: voided volume; Qmax: maximum flow rate, PVR: post-void residual volume

Table 2. Changes of OAB symptoms scores including OABSS, USS, IPSS, PPBC and urodynamic variables after 12 weeks Miramebron 25 mg treatment compared with baseline in the subgroup of OAB wet and OAB dry in overactive bladder patients with central nervous system lesions

		Baseline	12 weeks	P	P values#
OABSS	OAB dry	3.44±1.50	4.06±2.15	0.301	0.003
	OAB wet	7.33±3.26	4.59±2.66	0.001	
USS	OAB dry	0.25±0.78	1.06±1.77	0.138	0.000
	OAB wet	4.00±0	1.78±1.91	0.000	
IPSS-T	OAB dry	10.75±6.57	8.56±6.13	0.070	0.244
	OAB wet	12.33±7.79	7.30±5.55	0.007	
IPSS-S	OAB dry	5.38±2.09	4.50±1.59	0.125	0.074
	OAB wet	6.19±3.36	3.78±1.45	0.001	
IPSS-V	OAB dry	5.38±5.54	4.06±5.22	0.188	0.558
	OAB wet	6.19±5.98	3.52±5.03	0.07	
PPBC	OAB dry	2.63±1.89	1.38±1.26	0.007	0.764
	OAB wet	3.08±1.94	1.77±1.24	0.004	
Qmax	OAB dry	7.77±4.60	8.77±4.32	0.097	0.469
	OAB wet	11.19±5.55	11.29±6.07	0.942	
Vol	OAB dry	118.01±70.36	125.38±46.13	0.694	0.263
	OAB wet	128.29±117.89	149.19±103.06	0.275	
PVR	OAB dry	112.63±123.37	83.25±101.31	0.413	0.472
	OAB wet	66.74±60.97	74.26±120.29	0.756	

#Comparison of the changes of variables from baseline to 3 months within each group.

OABSS: Overactive Bladder Symptom Score, USS:Urinary Sensation Scale, IPSS: International Prostate Symptom Score, PPBC: Perception of Bladder Condition, Vol: voided volume, Qmax: maximum flow rate, PVR: post-void residual volume

Disclosures

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