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EFFICACY AND SAFETY OF THE USE OF MIRABEGRON IN PATIENTS WITH URODYNAMIC DETRUSOR OVERACTIVITY AND INADEQUATE DETRUSOR CONTRACTILITY

Hypothesis / aims of study

Detrusor overactivity (DO) and inadequate detrusor contractility (DHIC) are increasing recognised in frail and old patients. Use of antimuscarinics in this population is often limited given high incidence of adverse events (AEs). Mirabegron, a selective β3-adrenoceptor agonist, is recently approved for treating overactive bladder (OAB) which has a different mechanism of action from antimuscarinic agents. In this study, we aimed to examine the efficacy and safety of mirabegron in patients with DO and DHIC.

Study design, materials and methods

We retrospectively reviewed a total of 213 patients with videourodynamic (VUDS)-proven DO and DHIC. DO was described as either phasic detrusor contraction and/or reduced compliance on filling. DHIC was marked by detrusor contraction of reduced strength and/or duration, resulting in prolonged and inadequate bladder emptying. Those with neurogenic bladder, bladder outlet obstruction and acontractile bladder were excluded from this study. Primary patient population was divided into the following subgroups: (1) those formerly exposed to antimuscarinics for at least 3 months (pre-treated) and (2) those without prior treatment (treatment-naïve). All patients were then given a daily dose of 25mg mirabegron orally. Their subjective symptom outcome and reported AEs were recorded and compared at baseline, 1 and 3 months.

Table. 1. Number of patients diagnosed with either DO or DHIC who received previous antimuscarinic agents for at least 3 months

Antimuscarinic	DO (M26 :F39)	DHIC (M8 :F18)	Total
(-) Treatment-naïve	19	9	28
(+) Pre-treated	46	17	63
Total	65	26	91

DHIC: detrusor hyperactivity with inadequate contractility, DO: detrusor overactivity, F: women, M: men.

Table. 2. Subjective symptom outcome and AEs at baseline, 1 and 3 months after taking mirabegron in patients with DO and DHIC

	DO		DHIC	
	Pre-treated	Treatment-naïve	Pre-treated	Treatment-naïve
OABSS- B	4.80±2.91 (p=0.000)	8.63±4.23 (p=0.000)	4.80±2.91 (p=0.000)	6.88±4.52 (p=0.002)
OABSS- 1M	3.92±2.07 (p=0.000)	6.19±3.56 (p=0.000)	3.92±2.67 (p=0.000)	7.00±3.59 (p=0.001)
OABSS- 3M	5.36±3.41 (p=0.000)	4.90±3.38 (p=0.001)	5.36±3.41 (p=0.000)	5.00±4.60 (p=0.045)
USS- B	1.40±1.92 (p=0.000)	3.05±1.65 (p=0.000)	1.40±1.92 (p=0.014)	2.25±1.98 (p=0.015)
USS- 1M	1.917±1.93 (p=0.000)	1.81±2.01 (p=0.003)	1.917±1.93 (p=0.005)	2.50±2.07 (p=0.011)
USS- 3M	1.36±1.91 (p=0.000)	0.80±1.69 (p=0.168)	1.36±1.91 (p=0.040)	1.33±2.07 (p=0.175)
PPBC- B	2.47±1.88 (p=0.000)	4.37±1.92 (p=0.000)	2.47±1.88 (p=0.000)	4.38±1.51 (p=0.000)
PPBC- 1M	1.50±1.24 (p=0.000)	3.13±1.86 (p=0.000)	1.50±1.24 (p=0.002)	3.75±2.05 (p=0.001)
PPBC- 3M	1.91±1.38 (p=0.000)	3.20±2.15 (p=0.001)	1.91±1.38 (p=0.001)	3.00±2.28 (p=0.023)
QoL- 1M	2.18±1.38 (p=0.000)	3.00±1.41 (p=0.000)	2.33±0.49 (p=0.000)	3.25±1.39 (p=0.000)
QoL- 3M	1.96±1.51 (p=0.000)	2.90±1.73 (p=0.000)	2.00±0.49 (p=0.000)	3.00±2.00 (p=0.014)
PVR- B	164.53±106.46 (p=0.000)	56.37±97.80 (p=0.022)	164.53±106.46 (p=0.000)	203.44±147.97 (p=0.003)
PVR- 1M	76.58±65.15 (p=0.000)	55.44±78.77 (p=0.013)	76.58±65.15 (p=0.002)	140.87±113.77 (p=0.010)
PVR- 3M	83.18±69.09 (p=0.000)	48.8±61.95 (p=0.058)	83.18±69.09 (p=0.003)	146.50±166.83 (p=0.084)
AEs- 1M	0.147±0.36 (p=0.837)	0.158±0.37	0.25±0.45 (p=0.174)	0.13±0.35
AEs- 3M	0.115±0.33 (p=0.013)	0.263±0.45	0.18±0.40 (p=0.884)	0.17±0.41

AEs: adverse events, B: baseline, OABSS: Overactive Bladder Symptom Score, QoL: quality of life, PPBC: Patient Perception of Bladder Condition, PVR: post-voiding residual, USS: urgency severity scale.
1M: 1month of duration, 3M: 3 month of duration, Pre-treated: previously treated with antimuscarinics, Treatment-naïve: not expose to antimuscarinics.

Results

91 patients were eligible for inclusion in this study. 65 patients had findings consistent with DO and 26 patients had DHIC. The mean age for each group was 70.4±15.9 and 78.4±8.4 years old, respectively. 69.2% of study population had tried antimuscarinics

agents for 3 months or longer before switching to mirabegron (Table. 1). At 3-month follow-up, regardless of prior exposure to antimuscarinics, use of mirabegron in both DO and DHIC groups demonstrated significantly improvement in OABSS, USS, PPBC and QoL. PVR was not increased. The most common AEs were dry mouth, headache and constipation. In patients with DO, incidence of AEs at 3 month was reduced in pre-treated vs treatment naïve (0.115 vs 0.263, p=0.013). On the other hand, in patients with DHIC, there was no significant difference between AEs in pre-treated and treatment naïve groups (Table. 2).

Interpretation of results

In this study, use of mirabegron in patients with DO and DHIC showed significant improvements from baseline and was well tolerated, exhibiting a low incidence of AEs. The incidence of AEs was reduced in DO patients who pre-treated with antimuscarinics and was in no difference in DHIC patients. This may imply safety in switching from antimuscarinic therapy to mirabegron in DO and DHIC patients.

Concluding message

Use of mirabegron is considered as effective and safe option in patients with urodynamic DO and DHIC, without considering previous antimuscarinics treatment.

Disclosures

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