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Long-term efficacy of mirabegron add-on therapy to antimuscarinic agents in patients with SCI

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Study design

Retrospective chart analysis.

Objectives

To evaluate the long-term efficacy of mirabegron add-on therapy in patients with spinal cord injury based on urodynamic study (UDS).

Methods

The study included patients with SCI who underwent two consecutive UDS between April 1, 2015 and April 1, 2018. After adding 50 mg of mirabegron once a day to pre-existing antimuscarinic agents for a period of at least 6 months, the following variables were analyzed: change in cystometric capacity (ml), change in bladder compliance (ml/cm H₂O), change in maximal detrusor pressure (cm H₂O), change in reflex volume (ml) and presence of significant leakage during filling cystometry.

Results

A total of 31 patients with a mean age of 40.61 years (SD ± 14.50) were included in the analysis. Significant increase in cystometric capacity (mean, 362.32 to 423.65 ml, P = 0.026), reflex volume (mean, 251.23 to 328.55 ml, P = 0.018) and bladder compliance (median, 11.80 to 17.50 ml/cm H₂O, P = 0.039) were observed. The presence of leakage during filling CMG were also significantly reduced (29.0% to 9.7%, P = 0.031). The change in maximal detrusor pressure decreased from mean of 31.48 to 27.48 cm H₂O, but did not reach statistical significance (P = 0.385).

Conclusion

Adding mirabegron to conventional AMs further improved urodynamic parameters in chronic SCI patients and the efficacy sustained in long term use.

Table 1 Characteristics of the participants, N=31 Abbreviation : SD, standard deviation; NLI, neurological level of injury; AIS, ASIA(American Spinal Injury Association) Impairment Scale; CIC, clean intermittent catheterization; IQR, interquartile range

Variables	Values
Age, mean (SD)	40.61 (14.50)
Gender, n (%)	
Male	20 (64.5%)
Female	11 (35.5%)
NLI, n (%)	
Cervical	16 (51.6%)
Thoracic	
Upper (T1-T6)	10 (32.3%)
Lower (T7-T12)	4 (12.9%)
Lumbar	1 (3.2%)
AIS classification, n (%)	
A	22 (71.0%)
B	5 (16.1%)
C	4 (12.9%)
D	0 (0%)
Etiology, n (%)	
Trauma	25 (80.6%)
Others	6 (19.4%)
Voiding method, n (%)	
CIC	20 (64.5%)
Indwelling catheter	
Transurethral	8 (25.8%)
Suprapubic	3 (9.7%)
Duration of injury, median, months	47 (IQR 32-69)

Abbreviation : SD, standard deviation; NLI, neurological level of injury; AIS, ASIA(American Spinal Injury Association) Impairment Scale; CIC, clean intermittent catheterization; IQR, interquartile range

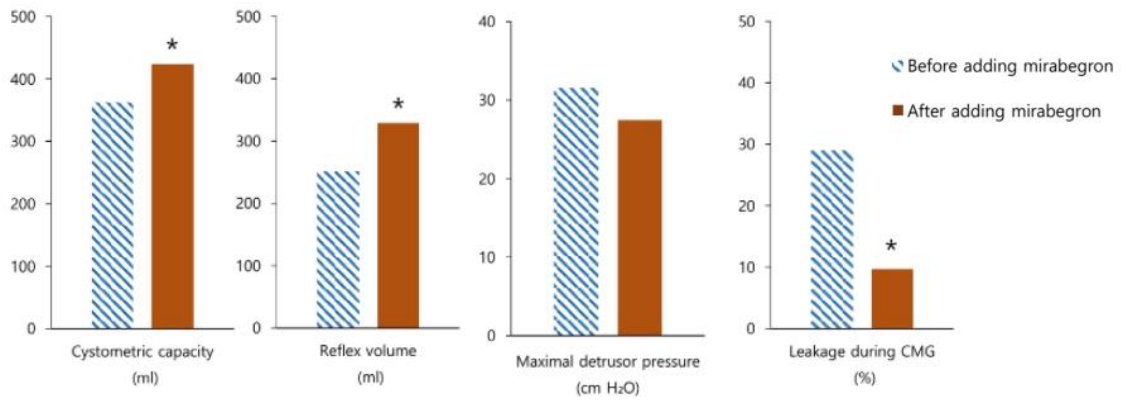


Figure 1 Change in cystometric capacity, reflex volume, maximal detrusor pressure and leakage during CMG after adding mirabegron 50mg a day in SCI patients. * P < 0.05

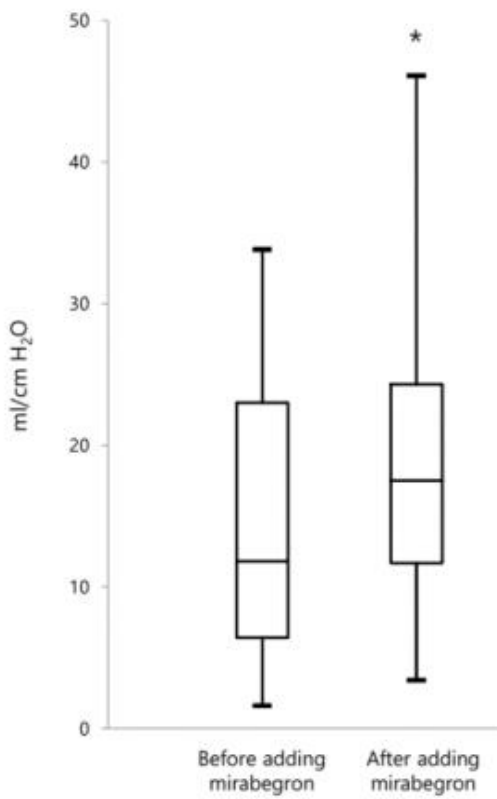


Figure 2 Box plots of compliance (ml/cm H₂O) before and after adding mirabegron 50mg a day in SCI patients. * P < 0.05