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CLINICAL AND URODYNAMIC EFFECTS OF THE COMBINATION OF ANTIMUSCARINIC AND B3-ADRENOCEPTOR AGONIST IN PATIENTS WITH DETRUSOR OVERACTIVITY DUE SPINAL CORD INJURY.

Hypothesis / aims of study

Neurogenic bladder dysfunction due spinal cord injury (SCI) includes detrusor overactivity (DO) and low-compliance bladder. Antimuscarinics and intermittent catheterization are considered first-line in the treatment of these patients. However, these treatments are sometimes insufficient and different types medication are sometimes needed. Furthermore, antimuscarinics often induce adverse effects such dry mouth and constipation (1). Mirabegron is the first selective β_3-adrenoceptor agonist approved for the treatment of OAB. Its clinical efficacy was proved in phase III clinical trials. Stimulation of β_3-adrenoceptors is known to promote detrusor smooth relaxation, decrease signaling from the bladder and increase bladder capacity. Thus, mirabegron is expect to be effective not only for OAB, but also for lower urinary tract dysfunction and low-compliance bladder (2). However, there is no detailed information regarding the effect of combination therapy of antimuscarinics and β_3-adrenoceptor agonist on neurogenic bladder dysfunction (1,2). This study aimed to evaluate the clinical and urodynamic effects of the combination of antimuscarinic and β_3-adrenoceptor agonist in patients with DO due spinal cord injury.

Study design, materials and methods

Forty-one patients with DO secondary to spinal cord injury were retrospectively evaluated. All patients were using oxybutynin hydrochloride 15mg or 10mg solifenacin succinate in daily doses and had complaints of urinary leakage in the intervals of clean intermittent bladder catheterization or high detrusor pressures. Mirabegron 50 mg once daily was added. After 12 weeks the patients were instructed to re-fill a voiding diary for 3 days and the short-form version of the Qualiveen. A new urodynamic study was performed according to the recommendations of the International Continence Society and the variables analyzed were maximum cystometric capacity (MCC), maximum detrusor pressure (Pdetmax) and bladder compliance. Values were expressed as mean and standard deviation. The Wilcoxon test was used with a significance level of 5%, $p < 0.05$.

Results

Thirty patients were male (73.2%). Urinary incontinence episodes in 24 h showed a significant reduction from 2.81 ± 1.69 to 1.08 ± 1.28, $p < 0.001$. The same was observed in the scores of the short version of the Qualiveen questionnaire, reduced from 3.36 ± 0.40 to 2.39 ± 0.70, $p < 0.001$. The CCM increased from 198.07 ± 41.50 ml to 391.59 ± 96.47 ml, $p < 0.001$. Pdetmax reduced from 27.78 ± 9.42 cm H2O to 15.15 ± 9.80 cm H2O, $p < 0.001$. Compliance increased significantly from 8.54 ± 4.71 ml / cm H2O to 36.25 ± 29.51 ml / cm H2O to, $p < 0.001$. Five patients (12.2%) did not present clinical and urodynamic improvement. The addition of mirabegron did not cause adverse effects reported by patients.

Interpretation of results

This study highlights that the addition of β_3-adrenoceptor agonist to antimuscarinics showed a significant improvement in the urodynamic parameters and in the quality of life of patients with spinal cord injury and that in the future may be an alternative in the treatment of detrusor overactivity and low-compliance bladder in patients with DO due to spinal cord injury.

Concluding message

The association of mirabegron with antimuscarinics led to a significant clinical and urodynamic improvement in patients with DO due to spinal cord injury.

References

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Disclosures

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