The use of Mirabegron in the treatment of overactive bladder in patients affected by Parkinson's disease

M. Gubbiotti, J.A. Rossi de Vermandois, M. Turco, G.C. Manasse, E. Mearini, A. Giannantoni

University of Perugia, dept. of Surgical and Biomedical Sciences

***Introduction**: Overactive bladder (OAB) is one of the most common autonomic disorders in patients affected by Parkinson's disease (PD). OAB has a higher prevalence (30- 80%) also due to patients' old age and the impact of urinary symptoms may be more pronounced due to the increased burden of concomitant chronic comorbidities. Mirabegron is a specific agonist of β3-adrenoceptors, mediating detrusor smooth muscle relaxation resulting in increase bladder storage capacity and prolonged micturition intervals.*
Aim of the study was to evaluate the efficacy and tolerability of Mirabegron in PD patients with OAB and different comorbidities, who stopped antimuscarinic medications for intolerable adverse effects.

***Materials and Methods**: Nineteen PD patients who experienced untolerable side effects to a previous treatment with antimuscarinics, were included in the study. Baseline evaluation included 3- day voiding diary, uroflowmetry and VAS to score the bother of urinary symptoms on Quality of Life (0= worse; 10= best). Patients started assuming Mirabegron 50 mg once daily. Patients were evaluated again at 1, 3 and 6 months follow- up with the 3- day voiding diary, uroflowmetry and VAS. Side effects during treatment were also noted.*

***Results**: There were 10 males and 9 females; mean age was 76 ± 4.2 yrs. Patients have been previously assuming solifenacin, propiverine and trospium chloride at different dosages for different times. These medications have been stopped in all cases due to intolerable side effects, mainly constipation. All patients presented with urgency and urgency urinary incontinence (UUI); the mean daily frequency of urgency and UUI were 9.7 ± 3.6 and 4.2 ± 2.1, respectively. At 3 months follow up, 6 (30%) patients stopped Mirabegron, due to: poor efficacy (in 4 cases) and the cost of the drug (in 2 cases). In the remaining 13 patients, mean daily frequency of urinary urgency episodes and of UUI were reduced to 6.2 ± 2.9 and 3.1 ± 1.3, respectively. Most importantly, the mean VAS score significantly improved from 3.8 ± 0.9 to 6.6 ± 1.7. We did not observe any intolerable side effects. At the 6 mos follow- up these favourable results persisted in 13 patient.*
Statistical Analysis: all values presented in the text and tables are means ± SD. All statistical analyses were performed with McNemar test. Correlations were measured with Spearman's correlation coefficients.

***Interpretation of Results:** The conventional treatment of OAB in neurogenic patients is represented by anticholinergic medication. It is well known that adherence and persistence of patients to anticholinergics are poor in the medium and long-term follow up, also due to the high incidence of antimuscarinic- induced adverse effects (dry mouth, constipation, blurred vision etc.). At present, no specific PD studies have assessed the clinical use of mirabegron. The results of the present study show that mirabegron induce a slight improvement in urinary frequency, urgency and urge urinary incontinence episodes, without any substantial side effects. Most importantly, the satisfaction rate was high with this kind of treatment in the short term follow up.*

Conclusion**: **The results of the present study represent, to the best of our knowledge, the first observation on the efficacy and tolerability of Mirabegron in PD patients with refractory OAB. In this study, about 70% of PD patients continued to assume Mirabegron at the 6 month follow- up, showing a persistent improvement in their OAB symptoms. The lack of intolerable side effects in these patients previously refractory to antimuscarinics due to tolerability issues, can be considered the most relevant aspect of this kind of treatment in patients with PD and OAB.

REFERENCES:

[1] Sakakibara R, Tateno F., Kishi M., Tsuyuzaki Y., Uchyama T., Yamamoto T., 2012. Pathophysiology of bladder dysfunction in Parkinson's disease. Neurobiol.of Disease: 46, 565- 571

[2] Nitti V. W., Rosenberg S., Mitcheson D. H., Weizhong H., Fakhoury A. Martin N. E. 2013. Urodynamics and Safety of the ß3Adrenoceptor Agonist Mirabegron in Males with Lower Urinary Tract Symptoms and Bladder Outlet Obstruction. The Journal of Urology, 190(4), 1320-1327.