SAFETY AND EFFICACY OF MIRABEGRON IN PATIENTS WITH PARKINSON’S DISEASE AND STORAGE LOWER URINARY TRACT SYMPTOMS: A SINGLE-CENTER SERIES

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OBJECTIVE

• No specific data on the safety and efficacy of mirabegron in patients with Parkinson’s disease exist.
• Our aim was to assess the outcomes of mirabegron for the treatment of overactive bladder (OAB) symptoms in patients with Parkinson disease (PD).

METHODS

• A retrospective study was conducted including patients with PD who received mirabegron 50 mg once daily for OAB symptoms between 2012 and 2017.
• The primary endpoint was clinical success defined as any improvement in overactive bladder symptoms self-assessed by the patients 6 weeks after mirabegron initiation.
• Secondary endpoints included number of pads per day, number of nocturia episodes and adverse events.
• Univariate logistic regression and Cox proportional hazards models were used to define predictive factors of success and persistence with mirabegron respectively.

RESULTS

• Fifty patients (74 years old on average, 70% of male) were included.
• Before being treated with mirabegron, 56% were inadequately treated with prior anticholinergic therapy due to inadequate efficacy or intolerable side effects.
• After 6 weeks of mirabegron 50 mg, five patients (11.4%) had a complete resolution of their urgency incontinence. The number of pads sensing in their overactive bladder LUTS. Five patients (11.4%) had a 23 (46%) reported no change, and two (4%) patients reported worsening. The mean number of pads per day significantly decreased from 1.5 to 0.9 (p = 0.01) and so did the number of nocturia episodes.
• Trusor overactivity (93.3%) being phasic in seven (46.7%) and terminal in 7 (43.3%).
• Fifteen patients had tried anticholinergics prior to mirabegron, 8 experienced adverse events when mirabegron was discontinued. Conversely, out of 28 patients who were switched to another anticholinergics, 2 experienced adverse events: one dizziness and one diaphoresis. Both were mild, and disappeared when mirabegron was discontinued.
• Of those patients who discontinued mirabegron, 7 (44%) did not experience worsening of their OAB symptoms.
• The number of pads per day decreased from 1.5 to 0.9 (p=0.01) and so did the number of nocturia episodes (from 3 to 2.6/night; p=0.02).
• Only 2 adverse events were observed during mirabegron treatment (4%): one dizziness and one diaphoresis, that disappeared after mirabegron discontinuation.
• After a median follow-up of 19 months, 23 patients (46%) persisted on mirabegron.
• The median time to discontinuation was 17 months. Persistence rates were 51.5%, 44.6% and 36.4% at 1, 2 and 3 years respectively.
• Univariate analysis did not identify predictive factors for treatment success. Male gender was predictive of longer duration of treatment with mirabegron (HR=4.94; p=0.002).

<table>
<thead>
<tr>
<th>Patients’ characteristics</th>
<th>N=50</th>
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<tbody>
<tr>
<td>Mean age (years)</td>
<td>74.6 (±8.9)</td>
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<tr>
<td>Gender</td>
<td></td>
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<tr>
<td>Male</td>
<td>35 (70%)</td>
</tr>
<tr>
<td>Female</td>
<td>15 (30%)</td>
</tr>
<tr>
<td>UPDRS (/199)</td>
<td>63.7 (±17)</td>
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<tr>
<td>Hoehn and Yahr Staging (/5)</td>
<td>2.7 (±0.9)</td>
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<td>Schwab and England ADL (%)</td>
<td>66.8 (±21.2)</td>
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<tr>
<td>Levodopa Equivalent Daily Dose (mg)</td>
<td>484.3 (±447.4)</td>
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<tr>
<td>History of anticholinergics intake</td>
<td>28 (56%)</td>
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</tbody>
</table>

Before mirabegron       6 weeks after mirabegron   p-value
Mean maximum urinary flow rate 9.7 (± 5.7)   10.1 (± 4.5)   0.82
Mean post-void residual volume (ml) 61 (± 96.3)   67.3 (± 87.7)   0.58
Urinary Incontinence
Yes 44 (88%)   39 (78%)   0.18
No 6 (12%)   11 (22%)   
Mean number of pads per day 1.5 (± 2.1)   0.9 (± 1.3)   0.01
Mean number of nocturia episodes/24h 3 (± 2.2)   2.6 (± 0.4)   0.02

LIMITATIONS and CONCLUSIONS

• Limitations include retrospective design and limited sample size
• Mirabegron has an excellent safety profile and appears to be an effective treatment for overactive bladder symptoms in with PD.

Fig. 1. Long-term persistence of mirabegron in patients with Parkinson’s disease.