

ECONOMIC AND CLINICAL IMPACT OF MIRABEGRON COMPARED WITH ANTIMUSCARINICS FOR THE TREATMENT OF OVERACTIVE BLADDER IN CANADA

Hypothesis / aims of study

The β_3 -adrenoceptor agonist, mirabegron, and antimuscarinic agents represent the main pharmacological treatment options for the management of overactive bladder (OAB). Published data show these two classes of drugs provide similar efficacy, but mirabegron appears to be associated with better persistence perhaps due to an absence of anticholinergic side effects such as dry mouth [1]. This study estimated the expected costs associated with the management of OAB in Canada from a societal perspective by utilising real-world evidence.

Study design, materials and methods

For the economic analysis, a Markov model with monthly cycles was developed, based on a decision-tree structure, to depict a simplified treatment pathway for a hypothetical cohort of 100 patients suitable for treatment with pharmacotherapy (Figures 1 and 2). At model entry, patients could receive treatment with mirabegron, solifenacin (branded/generic), fesoterodine, oxybutynin extended release (ER), oxybutynin intermediate release (IR), tolterodine ER (branded/generic) or tolterodine IR (branded/generic). Patients who did not persist either switched treatment, underwent minimally invasive procedures or remained symptomatic (uncontrolled). The model was populated with published data including probabilities for incontinence, treatment switching [2, 3] and persistence [1], plus direct costs (e.g. drug acquisition and resource use) and indirect costs (e.g. loss of productivity). A one-way sensitivity analysis was performed to determine the influence of changes in 12-month persistence and treatment switching in the base-case model.

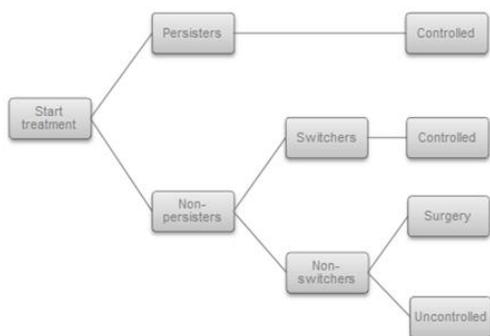
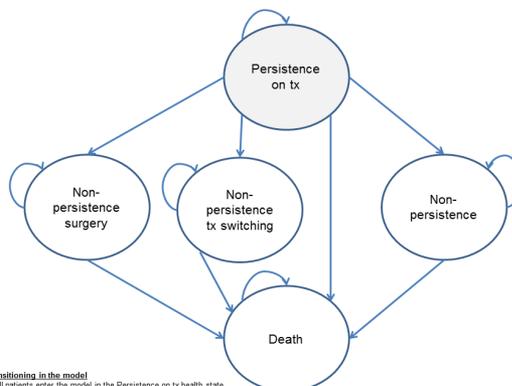


Figure 1. Decision-tree structure



Transitioning in the model
 1. All patients enter the model in the Persistence on tx health state
 2. Patients can become non-persistent on tx and can transition to:
 a. The surgery health state; all patients receive surgery which is assumed to control symptoms
 b. The tx switching health state; all patients are assumed to have controlled symptoms on second-line tx
 c. The non-persistence health state; all patients remain non-persistent on tx with uncontrolled symptoms

Tx: treatment

Figure 2. Markov structure (based on decision-tree structure in Figure 1)

Results

At 1 year, a greater proportion of patients persisted on treatment (33% vs 15–23%) and a smaller proportion switched treatment (17% vs 20–22%) with mirabegron compared with antimuscarinics (Figure 3). The number of healthcare visits were lower for mirabegron compared with antimuscarinics (292 vs 299–304), and pad use was lower for mirabegron compared with antimuscarinics (74,098 vs 77,878–81,669) (Figure 4). Overall, the estimated total annual cost of treatment per patient with mirabegron was CAD\$2,124.44 (CAD\$5.82/day) compared with CAD\$2,146.59–2,492.92 (CAD\$5.88–6.83/day) for antimuscarinics. The one-way sensitivity analysis indicated that the results are robust based on the assumptions examined.

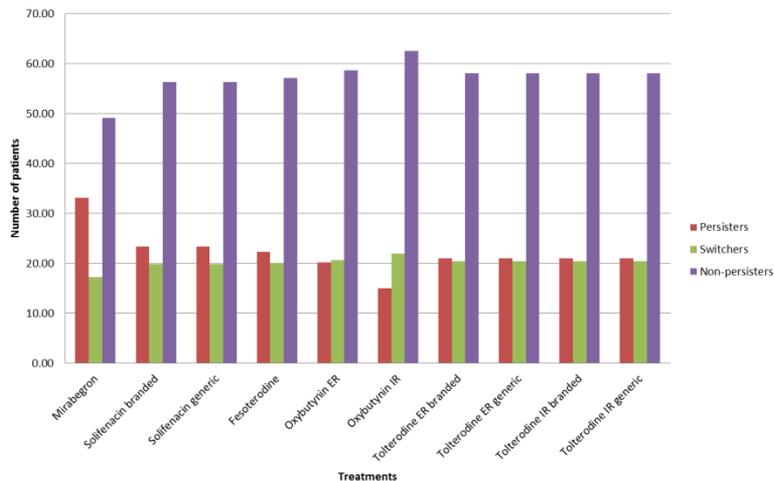


Figure 3. Patient disposition at 1 year

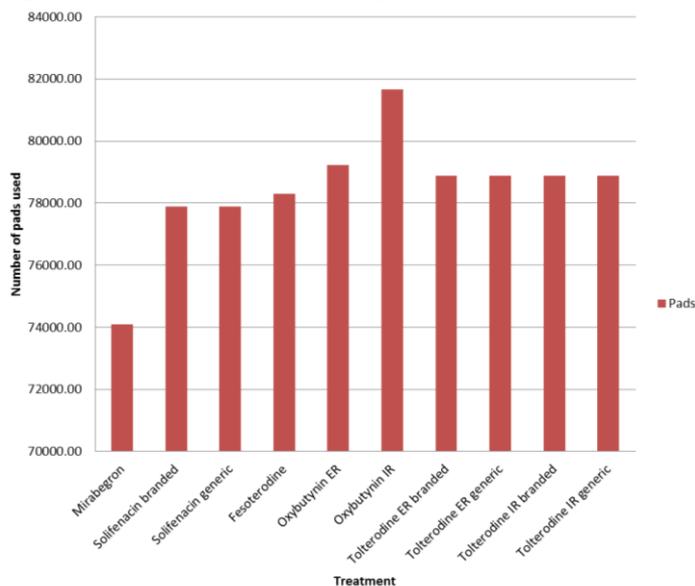


Figure 4. Total pad use at 1 year

Interpretation of results

Persistence remains an issue in OAB and recent data have indicated that mirabegron provides superior rates of persistence than other available options, perhaps due to a better efficacy/tolerability profile. The current model captures that the persistence difference likely translates into societal benefits, including fewer patients switching treatment, reduced resource use (e.g. pads, GP visits, specialist visits), and lower direct and indirect costs (e.g. lost productivity).

Concluding message

Mirabegron's improved persistence is associated with reduced healthcare resource use and lower total costs compared with antimuscarinics for the treatment of patients with OAB in Canada. Overall, these data suggest that mirabegron offers clinical and financial benefits for the management of OAB.

Disclosures

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