

Persistence with mirabegron in patients with overactive bladder : A comparative study of mirabegron and antimuscarinics.

Saitama Medical University, Faculty of Medicine, Department of Urology
Koichiro Ogihara, Hirofumi Kaguyama, Hirofumi Sakamoto, Kayo Aonuma,
Kaori Matsuda, Yoko Nakahira, Hitoshi Yanaiharu, Hirotaka Asakura

Introduction and Aim

- Overactive bladder (OAB) is a highly prevalent symptom syndrome that substantially affects health-related quality of life. Most studies on OAB have reported prevalence estimates between on 10 % and 20%.
- Antimuscarinic drugs are most commonly used to treat OAB and have been recommended to treat OAB by various guidelines. However, many patients do not persist and comply with the antimuscarinic treatment because of mainly the high frequency of adverse events and suboptimum efficacy.
- In Japan mirabegron, which is a selective β -3 adrenergic receptor agonist, has been approved for the treatment of OAB since September 2011.
- The mechanism of mirabegron to resolve OAB symptoms is completely different from that of antimuscarinics. Therefore mirabegron may be more efficacy and have less adverse events than antimuscarinic.
- The aim of the present study was to evaluate whether or not persistence and frequency of adverse events with mirabegron is better than antimuscarinics.

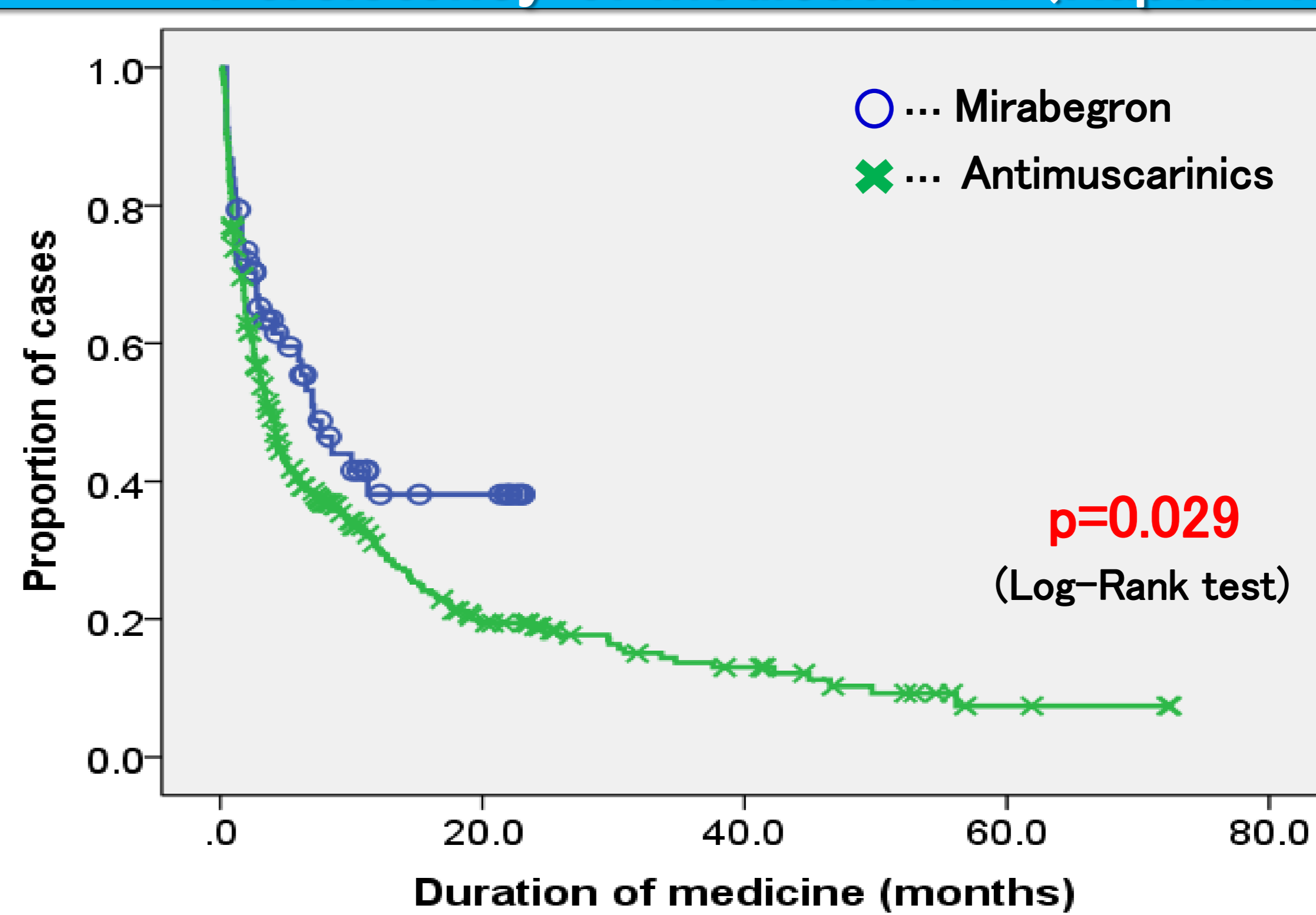
Materials and Methods

- From medical records, we identified 412 cases treated with antimuscarinics (imidafenacin, solifenacin or tolterodine) or mirabegron for OAB symptoms during a 5-year period (from September 2008 to September 2013) at our institution. Of those, 270 cases treated with medications as initial treatment and 237 cases were female patients. The diagnosis of OAB was based upon the ICS definition.
- The persistency and adverse events of medications were retrospectively evaluated between mirabegron and antimuscarinics.

Patient Background

	Total	Mirabegron	Imidafenacin	Solifenacin	Tolterodine
Case Number	412	68	79	149	116
Female Number	237	41	43	85	68
Average age	71.0±9.11	73.1±8.75	72.0±8.29	70.5±8.99	69.7±9.82
Average follow-up period (months)	22.9±21.1	23.1±17.5	21.7±20.6	27.2±25.8	18.1±14.6
Average duration of medication (months)	8.39±12.1	6.79±7.05	8.22±13.2	11.0±15.0	6.09±8.27

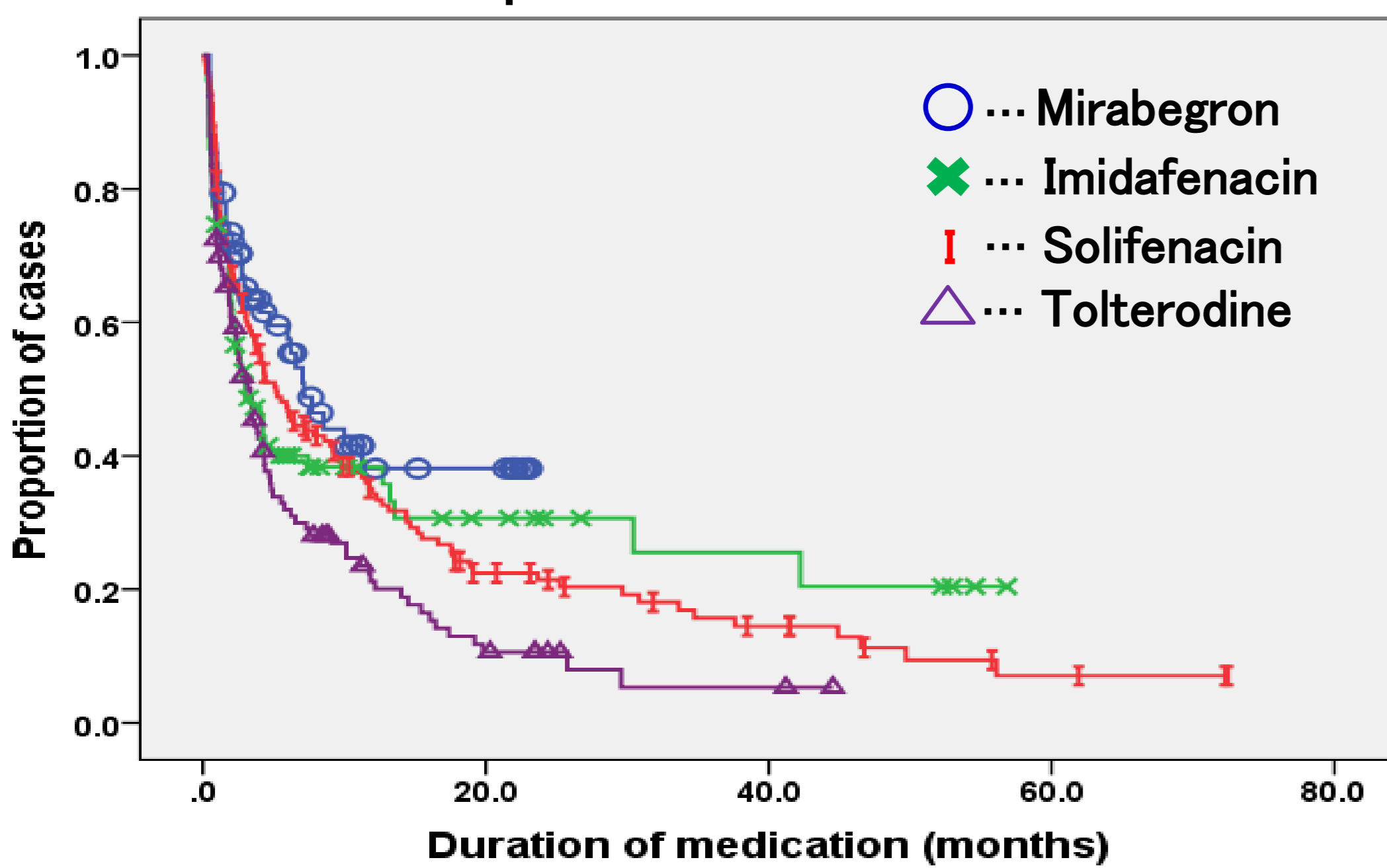
Persistency of medication 1 (Kaplan–Meier Method)



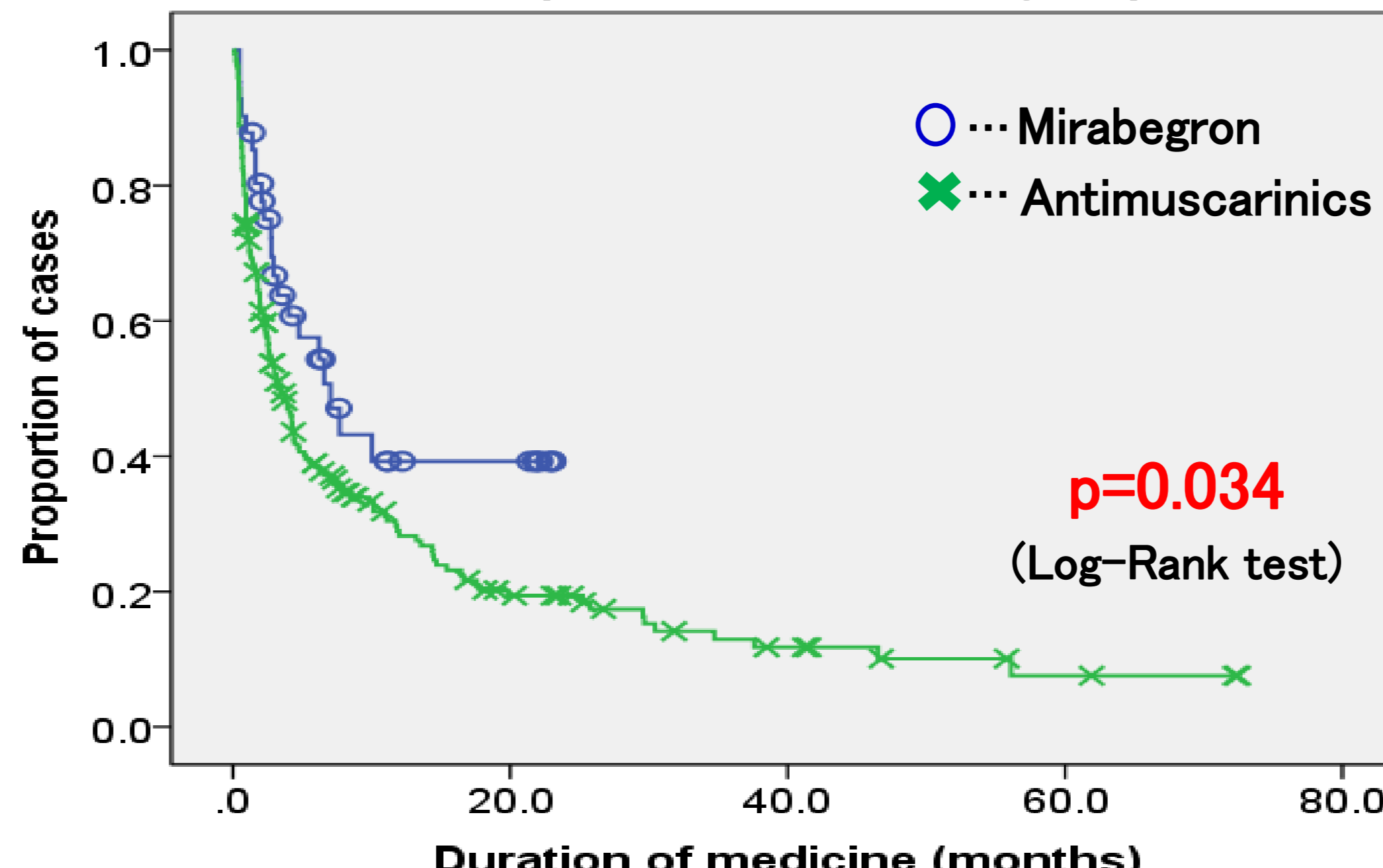
- The 6- and 12-month persistence rate in cases taking mirabegron were 55.4% and 38.1%, which were statistically different from those taking antimuscarinics in all cases (39.9% and 29.8%, respectively).
- The main reason for discontinuation of mirabegron was ineffectiveness (57.5%).

Persistency of medication 2 (Kaplan–Meier Method)

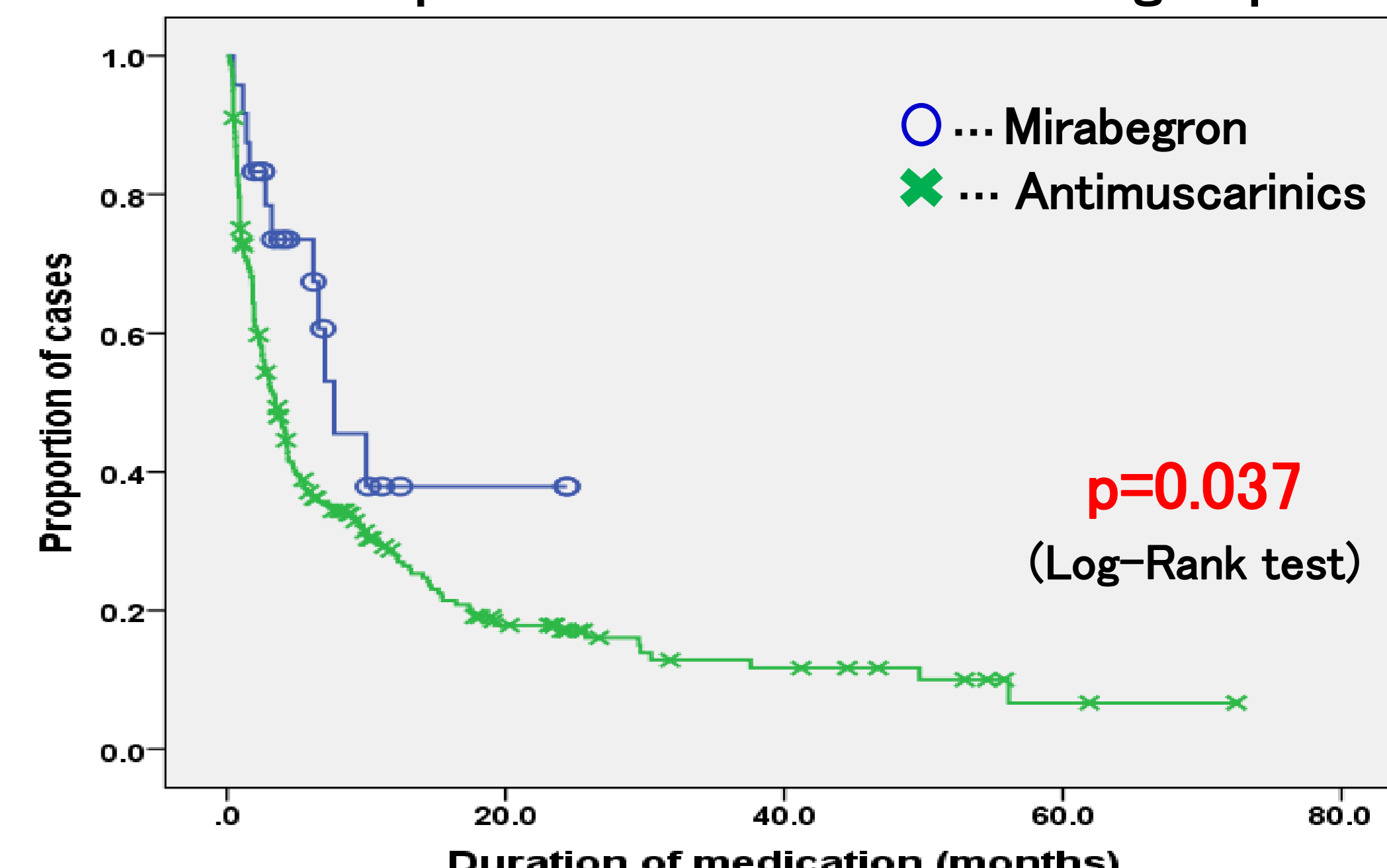
Comparison to each medicine



Comparison in female group



Comparison in initial treatment group



In comparison to each antimuscarinics, only 12-month persistence rate of tolterodine was statistically different from those taking mirabegron (21.2%, $p=0.005$).

In female group and initial treatment group, the 12-month persistence rate in cases taking mirabegron were 39.2% and 37.9%, which were statistically different from those taking antimuscarinics (28.2% and 27.6%, respectively).

Frequency of adverse events

	adverse events (+)	adverse events (-)	p value (vs mirabegron)
Mirabegron	6	62	
Antimuscarinics	109	235	<0.001
Imidafenacin	19	60	0.016
Solifenacin	61	88	<0.001
Tolterodine	29	87	0.007

(chi-square test)

Detail of adverse events

	Mirabegron : n=68	Antimuscarinics : n=344
Constipation	4/68(5.88%)	55/344(16.0%)
Dry mouth	0/68(0%)	31/344(9.01%)
Photophobia	0/68(0%)	6/344(1.74%)
Difficulty of urination	1/68(1.47%)	8/344(2.33%)
Others	1/68(1.47%)	17/344(4.94%)

Discussion

• Antimuscarinic agents are associated with the common anticholinergic adverse effects of dry mouth, constipation, blurred vision and somnolence and they may be associated with poor compliance and persistence with therapy. A recent systematic review of 149 papers has demonstrated discontinuation rates of 43 % to 83% in the first 30 days of treatment and over 50% of patients never return for a repeat prescription (Int J Clin Pract 2011;65:567–585).

• The incidence of adverse events in the mirabegron group was similar to that in the placebo group and the degree of adverse events were mild (BJUI 2014;113:951-960) Our data is similar to the result of these papers.

Conclusion

The findings suggest that mirabegron may have lower frequency of adverse events and better tolerability than antimuscarinics. Mirabegron may be an attractive to antimuscarinic therapy in the management of OAB. It will be necessary to evaluate the long-term persistence and the efficacy of mirabegron in the large size study.