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Introduction

In children, Overactive bladder (OAB) is a characteristic lower urinary tract symptom, causing urge incontinence and reducing the quality of life. However, the experience with vibegron in pediatric patients with daytime urinary incontinence (DUI) has not previously been reported, so the effectiveness of this agent remains unclear. The purpose of this retrospective study was to investigate the effectiveness of vibegron for pediatric DUI cases, including refractory cases.

Methods

Inclusion criteria:

The patients treated with vibegron for DUI at a single institution from March 2019 to April 2022
Number of cases; 57 patients

Exclusion criteria:

Neurogenic bladder cases such as spina bifida
The cases in whom the efficacy of treatment could not be determined

Treatment response definition (according to ICCS criteria):

Complete response (CR);
DUI disappeared
Partial response (PR);
The frequency of DUI improved by improvement in frequency by 50% or more

Investigate risk factors as follow;

Age at prescription initiation
Frequency of DUI
Duration of vibegron treatment
Presence of Neurodevelopmental disorder (NDD)
Presence of nocturnal enuresis
Presence of constipation
Use of anti-cholinergics before/ after vibegron administration

Statistical analysis was utilized below;

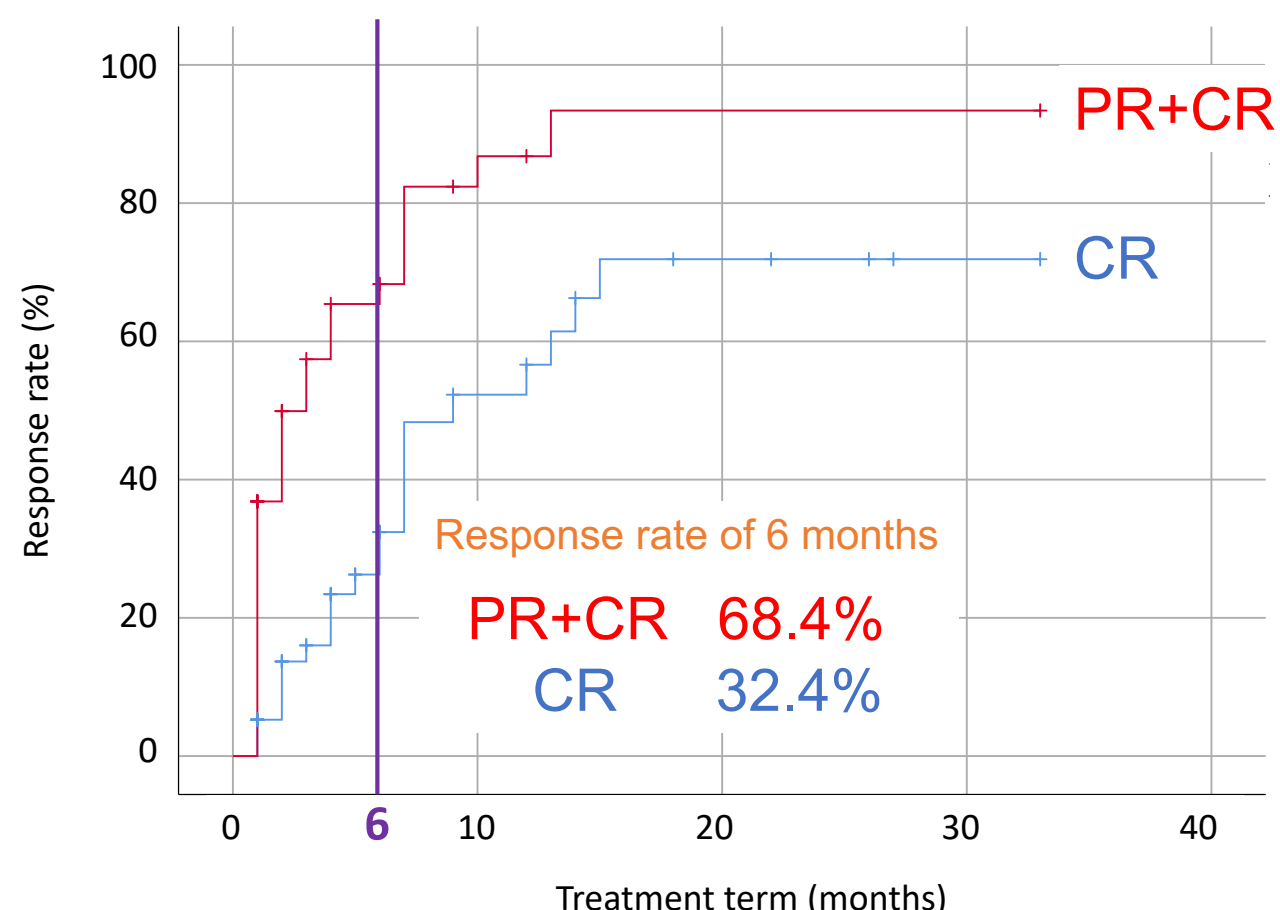
the Kaplan-Meier curve, the log-rank test, Cox proportional-hazards modeling. $p < 0.05$ was considered significant.

Results

Patients characteristics

sex (boy/girl ; cases)	38/19
administration dosage (25mg/50mg per day ; cases)	24/33
age of initial administration (months)	111 (64-202)
administration term (months)	6 (1-33)
pre-vibegron treatment term (months)	9 (0-86)
daily frequency of DUI (cases)	30
presence of nocturnal enuresis (cases)	49
presence of constipation (cases)	29
presence of NDD (cases)	24

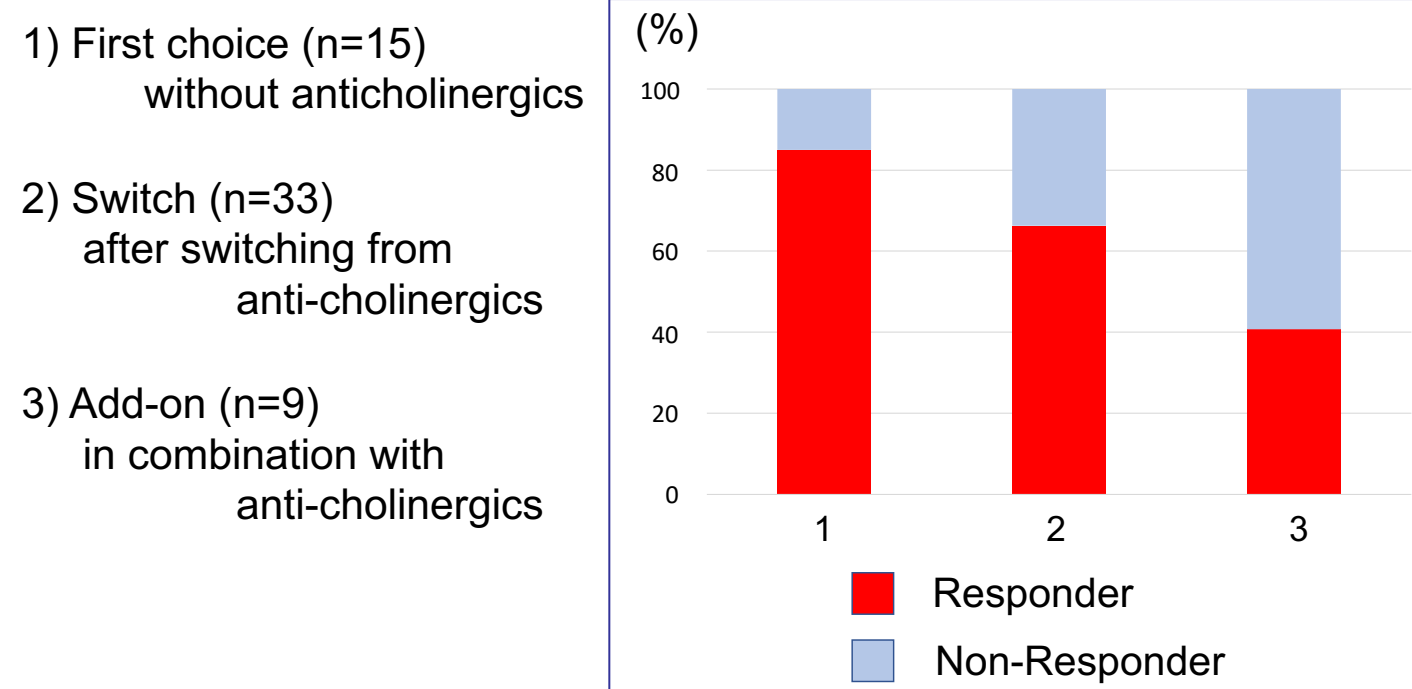
1. The response rate of the vibegron treatment for DUI patients



Treatment response was achieved early period after vibegron administration.

Results

2. The relationship between anti-cholinergic agents and vibegron (response rate at 6 months)



DUI patients in all groups benefited from the vibegron treatment.

3. The response rate (6 months) of the vibegron treatment in each factors

Factor	Sub-factor	response rate (%)	p value
frequency of DUI	7days/week	57.7	0.058
	less than 7day/week	84.3	
NDD	presence	72.0	0.999
	absence	65.1	
nocturnal enuresis	presence	68.8	0.576
	absence	66.1	
constipation	presence	69.7	0.830
	absence	66.5	

No significant difference in treatment response was evident compared between those with and without NDD.

4. The evaluation of risk factors of response rate of the vibegron treatment

Risk Factor	HR (95% CI)	p Value
male gender	1.26 (0.64-2.56)	0.495
refractory anti-cholinergic agent	1.38 (0.69-2.75)	0.361
daily frequency of DUI	0.58 (0.30-1.14)	0.114
presence of NDD	1.00 (0.53-1.89)	0.999
presence of nocturnal enuresis	0.81 (0.33-1.94)	0.631
presence of constipation	1.14 (0.61-2.12)	0.681

No significant differences in background were found in univariate analysis.

Discussions

The high efficacy of mirabegron after anticholinergic agent treatment in pediatric cases with DUI has already been reported. 1)

Sparse published reports exist nowadays on vibegron and pediatric OAB.2)

Vibegron administration for DUI was also found to be effective in cases with NDD, which has been reported as a risk factor for refractory DUI with generally poor treatment outcomes. 3)

Conclusions

Vibegron was effective in many pediatric DUI cases, and its efficacy was demonstrated within a short time in many cases. Vibegron is expected to play a significant role in the treatment of DUI in pediatric cases.

References

- 1) Blais AS, Nadeau G, Moore K, Genois L, Bolduc S. Prospective pilot study of Mirabegron in pediatric patients with overactive bladder. Eur Urol. 2016;70(1):9-13.
- 2) Kitta T, Chiba H, Kon M, et al. Urodynamic evaluation of the efficacy of vibegron, a new β_3 -adrenergic receptor agonist, on lower urinary tract function in children and adolescents with overactive bladder. J Pediatr Urol. 2022;18:563-569.
- 3) von Gontard A, Moritz AM, Thome-Granz S, Freitag C. Association of attention deficit and elimination disorders at school entry: a population based study. J Urol. 2011;186(5): 2027-2032.

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COI disclosure

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