

Urodynamic Changes of Bladder Function According to the Degrees of Cystocele.

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BACKGROUND

- The anatomical change of pelvic structure in **varying degrees of cystocele** may influence the **bladder function**.

OBJECTIVES

- The present study aims to **evaluate** and **compare** the **alteration of bladder function according to varying degrees of cystocele** by using the **urodynamic study** results

MATERIALS & METHODS

- **86 women** with cystocele who underwent urodynamic study were included in the study
- From November 2008 to July 2015.
- To assess whether the urodynamic results were influenced by the grade of cystocele, the patients were **classified into four grades** according to pelvic organ prolapse quantification (POPQ) of the International Continence Society (ICS).
- The patients were evaluated with **history** taking, a **physical examination**, **uroflowmetry**, and **urodynamic study**.
- Using the urodynamic study, the **bladder capacity**, maximum detrusor pressure (**Max-Pdet**), maximum flow rate (**Qmax**), postvoiding residual volume (**PVR**) were measured.
- The variables of each cystocele grade were compared by using the one-way analysis of variance (**ANOVA**). Also, **Pearson's correlation** test was performed to evaluate the linear correlation of each variable according to cystocele severity.

RESULTS

- The number of patients with cystocele grade I, II, III, and IV was 15, 37, 21, and 13, respectively.

Table 1. Comparison of patient characteristics and urodynamic results between the grades of cystocele.

	Grade I (n = 15)	Grade II (n = 37)	Grade III (n = 21)	Grade IV (n = 13)	p value
Mean age (years)	55.33 ± 2.55	58.27 ± 8.90	56.19 ± 9.60	58.77 ± 7.01	0.142
Mean BMI (kg/m ²)	23.54 ± 5.28	22.87 ± 8.12	23.29 ± 4.58	23.33 ± 6.25	0.851
Past history					
<i>Diabetes (n)</i>	1	5	4	2	-
<i>Hypertension (n)</i>	3	8	6	3	-
<i>Mean delivery number</i>	2.78 ± 1.12	3.42 ± 0.29	2.85 ± 1.21	3.69 ± 1.02	0.216
Mean bladder capacity (mL)	449.20 ± 133.82	416.00 ± 146.88	420.00 ± 171.41	410.46 ± 59.16	0.872
Mean Max-Pdet (cmH ₂ O)	29.80 ± 17.09	37.95 ± 21.01	33.49 ± 15.85	44.08 ± 2.93	0.147
Mean Qmax (mL/s)	24.00 ± 24.29	22.44 ± 10.66	23.05 ± 11.28	20.96 ± 4.88	0.892
Mean PVR (mL)	19.00 ± 21.23	39.95 ± 25.22	59.33 ± 57.41	87.69 ± 51.06	<0.001

BMI: body mass index, Max-Pdet: maximum detrusor pressure, Qmax: maximum flow rate, PVR: postvoid residual

- Basic characteristics and urodynamic study results of the patients in each cystocele grade are listed in Table 1.

- In one-way ANOVA, **PVR** was the only variable showing a **significant difference between the cystocele grades** (p <0.001, Table 1).

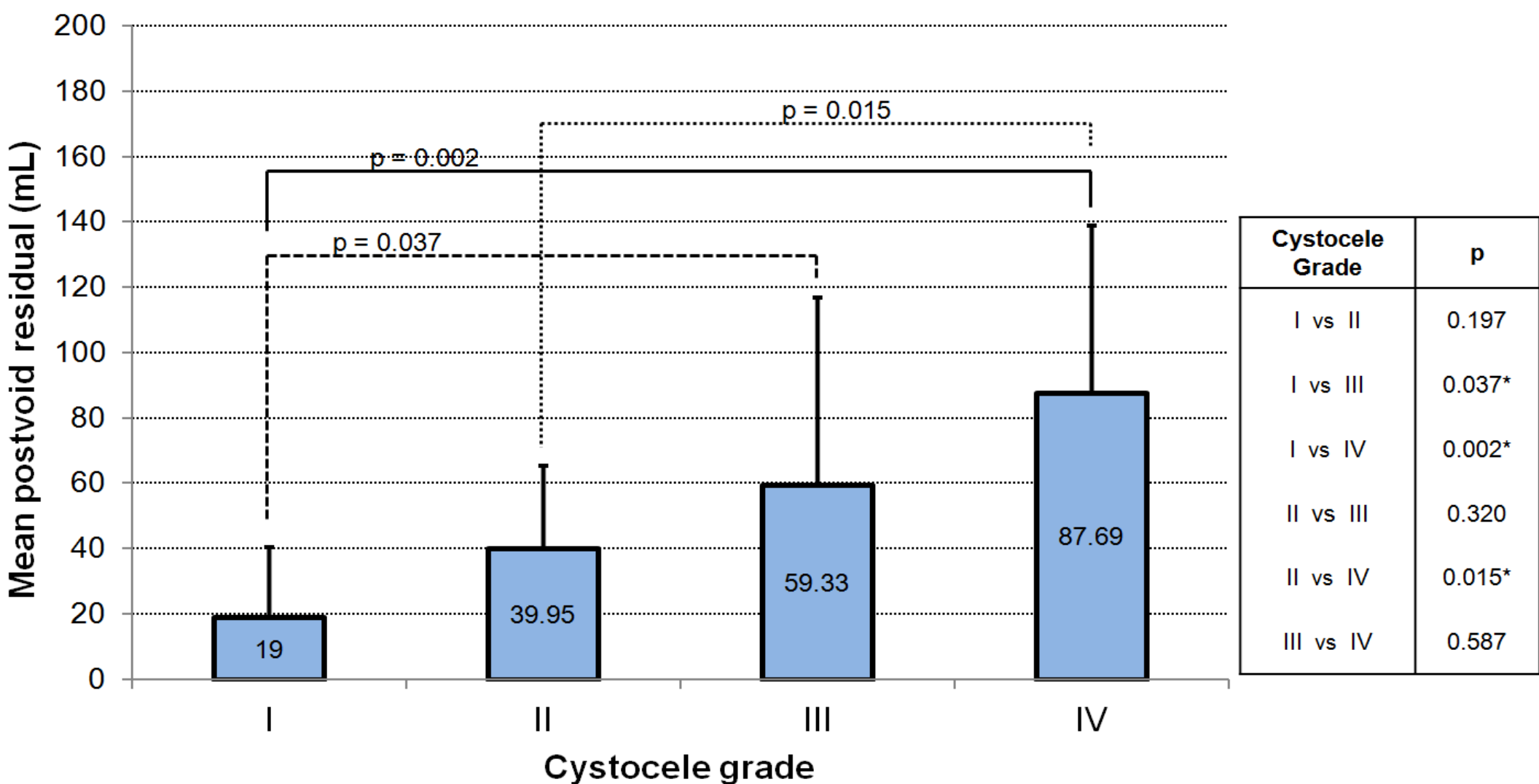


Figure. Post-hoc of one-way ANOVA which compared the postvoid residual between each grade of cystocele.

- The post-hoc of one-way ANOVA revealed that **significant PVR difference was shown in only 3 pairs** of cystocele grades as follows: grade **I and III**, **I and IV**, and **II and IV** (Figure).

Table 2. Correlation between cystocele severity and the variables of the urodynamic study

	Bladder capacity	Max-Pdet	Qmax	PVR
Cystocele grade				
r	-0.07	0.17	-0.07	0.50
p value	0.544	0.124	0.542	<0.001*

r: Pearson's correlation coefficient, Max-Pdet: maximum detrusor pressure, Qmax: maximum flow rate, PVR: postvoid residual

*p <0.05

- According to the correlation analysis, **PVR** was **significantly correlated to cystocele severity** and was **tended to increase in patients with a higher grade of cystocele** (r = 0.50, p <0.001; Table 2).

CONCLUSION

- Postvoid residual tends to increase significantly with the increase of cystocele severity.