



# DETRUSOR UNDERACTIVITY OF ELDERLY FEMALE PATIENTS EVALUATED BY PROJECTED ISOVOLUMETRIC PRESSURE 1 AND CUTOFF CRITERIA OF UDS PARAMETERS

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## AIM OF STUDY

The aim of this study was to investigate elderly female patients with DU at our hospital using two methods of PIP1 (Pdet@Qmax+Qmax) and cutoff criteria of UDS parameters.

## METHODS

Our accumulated urodynamic data between 1997 and 2017 was retrospectively examined. Hundred and eighty-six out of 359 female LUTS patients (more than 50-year-old) was selected from UDS data base for investigation. Many patients were excluded because of no urination in PFS and lack of UDS data. We used two methods to evaluate detrusor underactivity. One method was a PIP1 evaluation. PIP1 less than 30 was considered indicative of a detrusor underactivity(1). Another method of cutoff criteria is the combination of UDS parameters as follows; Pdet@Qmax<20cmH2O, Qmax<15mL/s, and BVE% < 90. This strict cutoff criteria method may discriminate between DU and BOO (bladder outlet obstruction) from patients with low urinary flow(2).

## RESULTS

The background disease and conditions were as follows; pelvic organ prolapse 66, stress urinary incontinence 56, urgency incontinence 12, neurogenic bladder 15, and others 22. The results of evaluation with two methods were shown table 1 and table 2. Age, Qmax, Pdet@Qmax, Qmax in PFS, and PIP1 were significantly different between DU and non-DU groups. These statistical significant different items in PIP1 evaluation were like that in cutoff criteria evaluation. Percentage of DU was 25.3%(47/186) in PIP1 and 15.6%(29/186), respectively. These DU group partially overlapped each other.

The DU percentage evaluated by cutoff criteria was lower than that by PIP1 (15.6% vs 25.3%). The reason for higher percentage of DU group in PIP1 may be inclusion of BOO patients, on the other hand, that in cutoff criteria evaluation may exclude BOO patients. Twenty of 29 DU patients in the cutoff criteria were the same DU patients in the PIP1 evaluation. This means both DU groups overlapped each other. Therefore, other uncovered reason for different percentage of DU groups might exist.

**Table 1 DU patients characteristics evaluated by PIP1**

Parameters	Total	DU	Non-DU	P value
N	186	47	139	
Age(year-old)	66.8±8.2	69.8±6.7	65.8±8.5	0.001
Qmax(mL/s)**	18.3±11.5	14.3±9.5	19.6±11.9	0.003
PVR(mL)	48.1±75.8	42.7±69.7	50.0±77.9	0.57
BEV(%)	82.1±25.3	82.7±26.5	81.8±25.0	0.84
Pdet@Qmax(cmH2O)	20.7±13.6	9.8±5.6	20.4±10.7	<0.001
Qmax(mL/s) in PFS***	18.5±10.2	13.0±5.6	20.4±10.7	<0.001
PIP1	39.2±13.5	22.8±5.3	44.7±10.6	<0.001

**Table 2 DU patients characteristics evaluated by cutoff criteria of UDS parameters**

Parameters	Total	DU	Non-DU	P value
N	186	29	157	
Age(year-old)	66.8±8.2	70.5±5.4	66.1±8.5	0.01
Qmax(mL/s)**	18.3±11.5	12.2±7.2	19.4±11.9	<0.001
PVR(mL)	48.1±75.8	61.4±80.6	45.7±74.8	0.305
BEV(%)	82.1±25.3	76.2±25.3	83.1±24.3	0.177
Pdet@Qmax(cmH2O)	20.7±13.6	11.2±5.0	22.4±13.9	<0.001
Qmax(mL/s) in PFS***	18.5±10.2	9.9±3.0	20.2±10.3	<0.001
PIP1	39.2±13.5	21.1±5.9	42.5±11.7	<0.001

\*DU was defined as cutoff criteria of UDS parameters

\*\* Qmax obtained by free uroflometry(non-catheterization)

\*\*\* Qmax in PFS obtained by Pressue flow study

## CONCLUSIONS

The percentages of elder LUTS women with DU were 23.5 % in PIP1 selection and 15.6% in cutoff criteria respectively. The DU patients examined by PIP1 and cutoff criteria evaluation was not identical.

## REFERENCES

- (1) Neuroulogy and Urodynamics 23:184-189, 2004
- (2) Eur Urol 69:361-369, 2016